Glossary

0-length handle   A handle whose associated relocatable block has a logical size of 0 bytes.

1-byte complex script system   A script system that supports a writing system with a small character set (requires only 1-byte characters), but that is characterized by bidirectional or contextual text. Arabic and Hebrew are examples of complex 1-byte script systems.

1-byte extension   See **WorldScript I.**

1-byte simple script system   A script system that supports a writing system with a small character set (requires only 1-byte characters), has a left-to-right text direction only, and that is non-contextual. The Roman script system is an example of a 1-byte simple script system.

24-bit addressing   The addressing mode in which only the low-order 24 bits of a pointer or handle are used in determining memory addresses.

2-byte extension   See **WorldScript II.**

2-byte script system   A script system that supports a writing system with a large character set (requires 2-byte characters) and requires sophisticated procedures for character input. Japanese, Chinese, and Korean are examples of 2-byte script systems.

32-bit addressing   The ability of the Operating System to use all 32 bits of a pointer or handle in determining memory addresses.

32-bit clean   Said of an application (or other software) that is able to run in an environment where all 32 bits of a memory address are used for addressing.

680x0   See **680x0 microprocessor.**

680x0 application   An application that contains code only for a 680x0 microprocessor. See also **fat application, PowerPC application.**

680x0-based Macintosh computer   Any computer containing a 680x0 central processing unit that runs Macintosh system software. See also **PowerPC processor-based Macintosh computer.**

680x0 compiler   Any compiler that produces code that can execute on a 680x0. See also **PowerPC compiler.**

680x0 context block   A block of data used by the 68LC040 Emulator to maintain information across mode switches. The structure of this block of data is private.

680x0 microprocessor   Any member of the Motorola 68000 family of microprocessors.

680x0 software   Any software (that is, application, extension, driver, or other executable code) that consists of code only for a 680x0 microprocessor. See also **680x0 application.**

68LC040 Emulator   The part of the system software that allows 680x0 applications and other 680x0 software to execute on PowerPC-based Macintosh computers. See also **Mixed Mode Manager.**

A5 world   An area of memory in a 680x0 application's partition that contains the QuickDraw global variables, the application global variables, the application parameters, and the jump table—all of which are accessed through the A5 register. See also **mini-A5 world.**

absolute position   A specific position, given in coordinates, for the origin of each character or glyph in the glyph shape. Compare **relative position.**

absolute search   A search that begins at the root directory of the file system hierarchy and always descends the hierarchy. See also **relative search.**

abstract superclass   A superclass listed in the *Apple Event Registry: Standard Suites,* such as `cObject` or `cOpenableObject`, that is used only in definitions of object classes and not for real Apple event objects. See also **object class.**

accelerated resource   An executable resource consisting of a routine descriptor and PowerPC code that specifically models the behavior of a 680x0 stand-alone code resource. Compare **private resource.**

accelerated system software routine   Any Toolbox or Operating System routine that has been rewritten as PowerPC code.

access controls   A set of bits that specify the types of operations a requestor is authorized to perform on a given catalog node, record, or attribute type.

access modes   A set of file permissions that specify what abilities should be allowed to a user attempting to open a file fork. See also **deny modes.**

access path   A description of the route that the File Manager follows to access a file; created when a file is opened. See also **file reference number.**

access permissions   See **access modes, file permissions.**

access privileges   See **directory access privileges.**

access rights   The permissions governing the access to a file, or the privileges governing the access to a directory.

action   One of many integer constants used by QuickTime movie controller components in the `MCDoAction` function. Applications that include action filters may receive any of these actions.

action procedure   A procedure that performs an action in response to the user holding the mouse button down while the cursor is in a control.

activate event   An event that indicates that a window is becoming active or inactive. Each activate event specifies the window to be changed and the direction of the change (that is, whether it's becoming active or becoming inactive).

activation procedure   An application-defined procedure that controls the highlighting of application-defined dialog items capable of receiving keyboard input.

active ADB device   The last ADB device to have sent data to the ADB Manager.

active application   The application currently interacting with the user. Its icon appears on the right side of the menu bar. See also **current process, foreground process.**

active control   A control in which the Control Manager responds to a user's mouse actions by providing visual feedback.

active field   The target of keyboard input in a dialog box.

active function   A function called by a scripting component periodically during script compilation and execution. You must provide an alternative active function for the use of scripting components if you want your application to get time during script compilation and execution for tasks such as spinning the cursor or checking for system-level errors.

active input area   In inline input, the area of the application window in which the user enters text for conversion by a text service component. The application and the text service component share responsibility for the active input area.

active movie segment   A portion of a QuickTime movie that is to be used for playback. By default, the active segment is set to the entire movie. You can change the active segment of a movie by using the Movie Toolbox.

active source rectangle   The portion of the maximum source rectangle that contains active video that can be digitized by a video digitizer component.

active window   The frontmost window on the desktop, the one in which the user is currently working. The active window is designated by racing stripes in the title bar, active controls, and highlighted selections.

activity timer   A timer maintained by the Power Manager that measures the time that has elapsed since the last relevant system activity.

ADB   See **Apple Desktop Bus.**

ADB command   A 1-byte value sent by the ADB Manager to devices on the ADB. The ADB command encodes the register the command refers to and the desired action the target device should perform.

ADB device   Any input device connected to the ADB that conforms to requirements described in the *Apple Desktop Bus Specification.*

ADB device handler ID   An 8-bit value that further identifies a specific ADB device type (such as the Apple Extended Keyboard) or its mode of operation (such as whether the keyboard differentiates between the right and left shift keys).

ADB device register   One of four locations, identified as registers 0 through 3, that an ADB device uses to store data.

ADB device table   A structure, located in the system heap, that contains information about all ADB devices attached to the computer.

ADB device table entry   The part of the ADB device table that specifies for an ADB device its device handler ID, its default ADB address, its current ADB address, the address of its device handler, and the address of the area in RAM used for storage by the handler.

ADB Manager   The part of the Macintosh Operating System that allows you to communicate with and get information about hardware devices attached to the Apple Desktop Bus (ADB).

ADB transaction   A communication between the computer and an ADB device, consisting of a command sent by the computer, followed by a data packet sent either by the computer or the device.

additional parameter   A keyword-specified descriptor record that a server application uses in addition to the data specified in the direct parameter. For example, an Apple event for arithmetic operations may include additional parameters that specify operands in an equation. Additional parameters may be required, or they may be optional.

add mode   A transfer mode type in which the source color component is added to the destination component, but the result is not allowed to exceed the maximum value (0xFFFF).

address   A number that specifies the location of a byte in memory.

address collision   When more than one ADB device responds to commands sent to a particular address. See also **address resolution.**

address descriptor record   A descriptor record of data type `AEAddressDesc` that contains the address of the target or source of an Apple event.

Address Management Unit (AMU)   The Apple custom integrated circuit in Macintosh II computers that performs 24-bit to 32-bit address mapping.

address mapping   (1) The assignment of portions of the address space of the computer to specific devices. (2) See **address translation.**

address resolution   When the ADB Manager reassigns addresses for ADB devices until they are all unique. See also **default ADB device address.**

address space   A range of accessible memory. See also **address mapping.**

address template   A set of AOCE templates that allow a user to enter address information into a User record.

address translation   The conversion of one set of addresses into another, corresponding set. For example, software designed for the original Macintosh computers uses only 24 bits for addresses, whereas the Macintosh II and later models have a 32-bit address bus. As a result, the Macintosh II and later models convert (or map) the 24-bit addresses used by the software into the 32-bit addresses used by the hardware.

`'adev'` file   See **AppleTalk connection file.**

ADSP   See **AppleTalk Data Stream Protocol.**

advance bits array   An array that determines whether the points in the positions array are absolute or relative. The advance bits array contains 1 bit for every character or glyph in the shape.

advance height   The distance from the top of a glyph to the bottom of the glyph, including the top-side bearing and bottom-side bearing.

advance width   The full horizontal width of a glyph as measured from its origin to the origin of the next glyph on the line, including the side bearings on both sides.

AEIMP   See **Apple Event Interprocess Messaging Protocol.**

AEP   See **AppleTalk Echo Protocol.**

AEP Echoer   The implementation of the AppleTalk Echo Protocol (AEP) on each node that uses the AEP Echoer or echoer socket; the AEP Echoer listens for packets received through this socket and sends a copy of them back to the sender. Applications use the AEP Echoer to measure the round-trip packet delivery time in analyzing network performance.

AE record   A descriptor record of data type `AERecord` that usually contains a list of parameters for an Apple event. See also **Apple event parameter.**

AFP   See **AppleTalk Filing Protocol.**

AFP volume   A volume that is accessed using the AppleTalk Filing Protocol.

AGC   See **automatic gain control.**

AIFF   See **Audio Interchange File Format.**

AIFF-C   See **Audio Interchange File Format Extension for Compression.**

alert   An alert sound, an alert box, or both. Alerts warn the user of an unusual or potentially undesirable situation occurring within an application. See also **alert box, system alert sound.**

alert box   A window that an application displays on the screen to warn the user or to report an error to the user. An alert box typically consists of text describing the situation and buttons that require the user to acknowledge or rectify the problem. An alert box may or may not be accompanied by an alert sound. See also **caution alert, note alert, stop alert.**

alert color table resource   A resource (of type `'actb'`) that lets an application display an alert box using colors other than the system's default window colors.

alert notification   A notification in which an alert box containing a short message appears on the screen.

alert resource   A resource (of type `'ALRT'`) that specifies alert sounds, a display rectangle, and an item list for an alert box.

alert sound   See **system alert sound.**

Alert Sounds control panel   A subpanel of the Sound control panel that allows the user to select a system alert sound. See also **Sound In control panel, Sound Out control panel, Volumes control panel.**

alias   An object in the file system that represents another file, directory, or volume.

alias file   A file that contains a record that points to another file, directory, or volume. An alias file is displayed by the Finder as an alias.

aliasing   The result of sampling a signal at less than twice its natural frequency. Aliasing causes data to be lost in the conversion that occurs when resampling an existing signal at more than twice its natural frequency.

Alias Manager   The part of the Operating System that helps you to locate specified files, directories, or volumes at a later time. The Alias Manager creates and resolves alias records.

alias record   A data structure created by the Alias Manager to identify a file, directory, or volume.

alias target   The file, directory, or volume described by an alias record.

alignment   (1) The horizontal placement of lines of text with respect to the left and right edges of the text area. Alignment can be left, right, centered, or justified (flush on both left and right edges). Compare **line direction.** (2) A style object property. It is the alignment value to use when drawing the text of a shape. Text may be left-aligned, right-aligned, anywhere in the continuum between the two alignments (such as centered), or fully justified. (Layout shapes support continuous justification as well as continuous alignment.)

A-line instruction   An instruction that is not recognized by a 680x0 microprocessor and that the Trap Manager uses to execute Toolbox and Operating System routines. The first word of an A-line instruction is binary 1010 (hexadecimal A).

all object validation   A QuickDraw GX validation level that confirms that all references to all object types are valid, that the properties of the object are valid, and that all internal caches built for all objects are valid. Compare **structure validation, type validation.**

allocate   To assign an area of memory for use.

allocation block   A group of consecutive logical blocks on a volume.

allophone   A distinct variety of a phoneme in a particular language that is never used contrastingly with any other allophone of the phoneme.

alphabet   The set of letters, or characters, used to write a language. The alphabet used by the Roman script consists of 26 letters.

alphabetic writing system   The glyphs that symbolize discrete phonemic elements in a language. Compare **ideographic writing system, syllabic writing system.**

alpha channel   (1) The portion of each display pixel that represents the blending of video and graphical image data for a video digitizer component. (2) A color component in some color spaces whose value represents the opacity of the color defined in the other components.

alpha-channel transfer modes   Transfer mode types in which the result color is achieved by considering the alpha channel values as well as the color-component values of the source and destination.

alternate group   A collection of movie tracks that contain alternate data for one another. The Movie Toolbox chooses one track from the group to be used when the movie is played. The choice may be based on such considerations as quality or language.

alternate interface   The first version of the AppleTalk Pascal interfaces. The alternate interface was replaced with the current version of AppleTalk Pascal interfaces, which was originally referred to as the *preferred interface.*

alternate rectangle   A rectangle used by the Help Manager (under some circumstances) for transposing a help balloon's tip when trying to fit the balloon onscreen. For all help resources except the `'hdlg'` resource, the Help Manager moves the tip to different sides of the hot rectangle. For `'hdlg'` resources, however, the Help Manager allows you to specify alternate rectangles for transposing balloon tips. You can also specify alternate rectangles when you use the `HMShowBalloon` and `HMShowMenuBalloon` functions. Compare **hot rectangle.** See also **tip.**

amplitude   A modification to the wave amplitude of a sound to make it sound louder or softer. See also **speech volume.** Compare **wave amplitude.**

AMU   See **Address Management Unit.**

AND mode   A transfer mode type in which the bits of the source color component and destination color component are combined using an AND operation.

angle   The angle from horizontal made by the pattern of dots in a halftone.

angled caret   A caret whose angle in relation to the baseline of the display text is equivalent to the slant of the glyphs making up the text. Compare **straight caret.**

ANSI C language dialect   The C programming language dialect that adheres to the language defined by the document *American National Standard for Information Systems—Programming Language—C,* ANSI X3.159-1989.

ANSI X3J11.1   A branch of the American National Standards Institute (ANSI) that is working on a numerics standard for the C programming language. This group is also called the *Numerical C Extensions Group* (NCEG) and has produced the Floating-Point C Extensions (FPCE) technical report.

anti-aliasing   (1) The process of sampling a signal at more than twice its natural frequency to ensure that aliasing artifacts do not occur. (2) The smoothing of jagged edges on a displayed shape by modifying the transparencies of individual pixels along the shape's edge.

antisymmetric   Used to describe a function whose graph is not symmetrical across the y-axis; that is $func(x)$ $func(-x)$ for all x.

AOCE   Apple Open Collaboration Environment.

AOCE catalog   A hierarchically arranged store of data in a format intelligible to the AOCE Catalog Manager. See also **external catalog, PowerShare catalog.**

AOCE messaging system   The set of PowerTalk system software and PowerShare mail servers that allows Macintosh users and processes connected over a network or via a modem to exchange information.

AOCE Setup catalog   See **PowerTalk Setup catalog.**

AOCE system software   The collection of Macintosh Operating System managers and utility functions that provide APIs for catalog, messaging, and security services. The AOCE system software includes the Standard Mail Package, the Standard Catalog Package, AOCE templates, the Interprogram Messaging Manager, the Catalog Manager, the Authentication Manager, and the Digital Signature Manager, as well as utility functions. See also **PowerTalk system software.**

AOCE template   A resource file that extends the AOCE extension to the Finder to display new types of data in catalogs or to display data in a new way. See also **aspect template, file type template, forwarder template, information page template, killer template.**

AOCE toolbox   The low-level APIs for the AOCE system software: the Authentication Manager, Catalog Manager, Interprogram Messaging Manager, and Digital Signature Manager. See also **Collaboration package, Collaboration toolbox.**

API   See **application programming interface.**

Apple Desktop Bus (ADB)   A low-speed serial bus that connects input hardware devices to Macintosh computers and other equipment.

Apple event   A high-level event that adheres to the Apple Event Interprocess Messaging Protocol. An Apple event consists of attributes (including the event class and event ID, which identify the event and its task) and, usually, parameters (which contain data used by the target application for the event). See also **Apple event attribute, Apple event parameter.**

Apple event array   An array in a descriptor list. The data for an Apple event array is specified by an array data record, which is defined by the data type `AEArrayData`.

Apple event attribute   A keyword-specified descriptor record that identifies the event class, event ID, target application, or some other characteristic of an Apple event. Taken together, the attributes of an Apple event identify the event and denote the task to be performed on the data specified in the Apple event's parameters. Unlike Apple event parameters (which contain data used only by the target application of the Apple event), Apple event attributes contain information that can be used by both the Apple Event Manager and the target application. See also **Apple event parameter.**

Apple event dispatch table   A table in either the application heap or the system heap that the Apple Event Manager uses to map Apple events to the appropriate Apple event handlers.

Apple event handler   An application-defined function that extracts pertinent data from an Apple event, performs the action requested by the Apple event, and returns a result.

Apple Event Interprocess Messaging Protocol (AEIMP)   A standard defined by Apple Computer, Inc., for communication and data sharing among applications. High-level events that adhere to this protocol are called *Apple events.* See also **Apple event.**

Apple Event Manager   The collection of routines that allows client applications to send Apple events to server applications for the purpose of requesting services or information.

Apple event object   A distinct item in a target application or any of its documents that can be specified by an object specifier record in an Apple event sent by a source application. Apple event objects can be anything that an application can locate on the basis of such a description, including items that a user can differentiate and manipulate while using an application, such as words, paragraphs, shapes, windows, or style formats. See also **object specifier record.**

Apple event object class   See **object class.**

Apple event parameter   A keyword-specified descriptor record containing data that the target application for an Apple event uses. Unlike Apple event attributes (which contain information that can be used by both the Apple Event Manager and the target application), Apple event parameters contain data used only by the target application of the Apple event. See also **Apple event attribute, direct parameter, optional parameter, required parameter.**

Apple event record   A descriptor record of data type `AppleEvent` that contains a list of keyword-specified descriptor records. These descriptor records describe—at least—the attributes necessary for an Apple event; they may also describe parameters for the Apple event. Apple Event Manager functions are used to add parameters to an Apple event record.

Apple event user terminology resources   Two resources with identical formats used by server applications to specify the Apple events and corresponding user terminology that the applications support. The `'aeut'` resource, which is provided by scripting components, contains terminology information for all the standard suites of Apple events defined in the *Apple Event Registry: Standard Suites.* An `'aete'` resource must be provided by every scriptable application; it describes which of the standard suites listed in the `'aeut'` resource the application supports and provides additional terminology information for extensions to the standard suites and custom Apple events supported by the application. See also **scripting component.**

AppleMail format   See **standard interchange format.**

Apple Menu Items folder   A directory located in the System Folder for storing desk accessories, applications, folders, and aliases that the user wants to display in and access from the Apple menu.

Apple Mixer   See **Apple Mixer component.**

Apple Mixer component   A sound component that is responsible for mixing together the audio data streams from all open sound channels.

AppleScript component   The scripting component that implements the AppleScript scripting language. See also **scripting component.**

AppleScript scripting language   The standard user scripting language defined by Apple Computer, Inc. The AppleScript scripting language is implemented by the AppleScript scripting component. See also **dialect.**

Apple Sound Chip (ASC)   A custom chip that, in conjunction with other circuitry, generates a stereo sound signal that drives the internal speaker or an external sound jack. Compare **Enhanced Apple Sound Chip.**

AppleTalk connection file   A file of type `'adev'` that contains a link-access protocol implementation for a data link (ELAP for EtherTalk, for example).

AppleTalk Data Stream Protocol (ADSP) A connection-oriented protocol that provides a reliable, full-duplex, byte-stream service between any two sockets in an AppleTalk internet. This protocol appears to its clients to maintain an open pipeline between two entities on an AppleTalk internet. Either entity can write a stream of bytes to the pipeline or read data bytes from the pipeline. ADSP is a symmetrical protocol.

AppleTalk Echo Protocol (AEP) A simple protocol that allows a node to send a packet to the echoer socket of any other node in an AppleTalk internet and receive an echoed copy of that packet in return. AEP is implemented in each node as a DDP client process that is referred to as the *AEP Echoer.*

AppleTalk Filing Protocol (AFP) A protocol that allows users to share data files and application programs that reside in a shared file server.

AppleTalk internet A type of network in which more than one AppleTalk network are interconnected through routers. An AppleTalk internet can consist of a mix of LocalTalk, TokenTalk, EtherTalk, and FDDITalk networks, or it can consist of more than one network of a single type, such as several LocalTalk networks.

AppleTalk Manager A collection of the application programming interfaces to the AppleTalk protocols.

AppleTalk multivendor architecture See **multivendor architecture.**

AppleTalk protocol stack The AppleTalk networking system, which consists of a number of protocols arranged in layers.

AppleTalk Secure Data Stream Protocol (ASDSP) A networking protocol that provides reliable transmission of an encrypted stream of bytes between two authenticated entities on an AppleTalk internet. ASDSP is a secure version of AppleTalk Data Stream Protocol (ADSP).

AppleTalk Session Protocol (ASP) A protocol that provides asymmetric session support. It uses the services of ATP to establish, maintain, and break down the session.

AppleTalk Transaction Protocol (ATP) A transport protocol that provides a loss-free transaction service between sockets. ATP allows for the exchange of a limited amount of data in which a client requester application sends a request to a client responder application that can satisfy the request and respond to it. Because it is transaction-based, ATP does not incur the overhead entailed in establishing, maintaining, and breaking a connection that is associated with connection-oriented protocols, such as ADSP. ATP provides reliable delivery of data.

AppleTalk transition A change in AppleTalk's current state or function, such as an AppleTalk driver being opened or closed or a network connection or link being dropped, that can affect active AppleTalk applications.

AppleTalk Transition Queue (ATQ) An operating-system queue that the LAP Manager maintains that can notify an application each time an AppleTalk driver is opened or closed or each time certain other network-related transitions occur.

application A file of type `'APPL'` that can be launched by the Process Manager. See also **680x0 application, PowerPC application.**

application extension A fragment containing code and data (such as a data-conversion filter, tool, and so forth) that extends the capabilities of an application.

application font The default font for use by applications. The application font is defined by each script system.

application global variables A set of variables stored in the application partition that are global to the application.

application heap (1) An area of memory in the application heap zone in which memory is dynamically allocated and released on demand. The heap contains the application's `'CODE'` segment 1, data structures, resource map, and other code segments as needed. (2) The part of computer memory directly accessible by an application, and in which its code and data structures reside. Compare **graphics client heap, QuickDraw GX memory.**

application heap zone   The heap zone initially provided by the Memory Manager for use by an application and the Toolbox; initially equivalent to the application heap, but may be subdivided into two or more independent heap zones.

application memory   See **application heap.**

application parameters   Thirty-two bytes of memory in the A5 world of a 680x0 application that are reserved for system use. The first long word is the address of the first QuickDraw global variable.

application partition   A partition of memory reserved for use by an application. The application partition consists of free space, along with the application's heap and stack. The application partition for a 680x0 application also contains an A5 world.

application phase   In QuickDraw GX printing, the phase when the application calls QuickDraw GX and interacts with the user by displaying dialog boxes to establish printing parameters, such as page orientation and paper type.

application programming interface (API)   The total set of constants, data structures, routines, and other programming elements that allow developers to use some part of the system software. Compare **system programming interface.**

application result handler   A result handler that is associated with a particular application. Compare **system result handler.**

application space   Memory that's reserved for dynamic allocation by applications.

application translation extension   A translation extension that can create a list of file types and identify files but that performs no actual file translation.

approval file   A file you receive from a signature-authorization-issuing agency. You use this file to activate your signer file.

approval request   A notarized (or otherwise authorized) request to issue a public-key certificate. The approval request includes what is intended to be the public key of the certificate's owner.

approved signer file   See **signer file.**

approving agency   See **certificate issuer.**

Arabic calendar   A lunar calendar used in much of the Arabic world. There are two Arabic calendars supported by the Arabic script system: the astronomical lunar calendar, based on the moon's phases as actually observed at each location around the world; and the civil lunar calendar, a statutory version of the astronomical calendar. In both versions, the positions in time of each month vary from year to year.

Arabic numerals   In the Macintosh script management system, numerals native to the Arabic writing system and not used in the Roman writing system. Compare **western numerals.**

arbitration phase   The phase in which an initiator attempts to gain control of the SCSI bus.

arc   A portion of the circumference of an oval, not including the bounding radii or any part of the oval's interior.

area of interest   The portion of a test image that is to be displayed in the standard image-compression dialog box.

arithmetic transfer mode   (1) A specification for how QuickDraw should draw or copy color images into a bitmap or pixel map. Arithmetic modes perform add, subtract, and blend operations on the red, green, and blue component values of RGB colors. (2) Transfer mode types in which the result color is achieved by using arithmetic operations on the source and destination color-component values.

ASC   See **Apple Sound Chip.**

ascent line   An imaginary horizontal line that coincides with the tops of the tallest characters in a font. See also **baseline, descent line, x-height.**

ASCII character set   The standard set of Roman characters, with character-code values from $00 to $7F. Also called *low ASCII,* to distinguish them from character codes with values from $80 to $FF, which are sometimes called *high ASCII* or *extended ASCII.* The Roman characters that are part of each non-Roman character set are the low ASCII set only. Compare **Macintosh character set, Standard Roman character set.**

ASDSP   See **AppleTalk Secure Data Stream Protocol.**

ASP   See **AppleTalk Session Protocol.**

aspect   A structure in memory that contains properties provided by an aspect template. An aspect might also contain code provided by the code resource in an aspect template.

aspect template   An AOCE template that specifies how attributes in a record are to be parsed into properties for display in an information page. An aspect template can also specify certain constant property values and can contain a code resource that translates between property types and implements features in information pages. See also **information page template.**

associated font   A Roman font whose glyphs are automatically substituted for glyphs of a non-Roman font, for characters in the Roman range. For example, the Arabic script system uses an associated font to display all Roman characters, even within script runs of Arabic text.

asymmetrical session   A session in which only one end of the connection can control the communication. One end of the connection makes a request to which the other end can only respond.

asynchronous communication   A method of data transmission in which the receiving and sending devices don't share a common timer and no timing data is transmitted.

asynchronous device driver   A device driver that can begin processing a request and return control to the Device Manager before the request is complete. This type of driver typically uses hardware interrupts and callback routines to carry out background processing.

asynchronous execution   A mode of executing a routine in which the system returns control to the calling program directly after the program calls the routine so that the calling program can continue with other processing while the routine is either queued for execution or completes execution. See also **completion routine.**

asynchronous parameter block   In the Data Access Manager, the parameter block that allows a routine to return control to your application before the routine has completed execution.

asynchronous sound play   The playing of sound during other, non-sound related operations. Compare **synchronous sound play.**

at-least-once transaction   A type of ATP transaction that ensures that the responder application receives every request directed to it at least once. This type of ATP transaction allows for the possibility of a responder application receiving duplicate requests. Compare **exactly-once (XO) transaction.**

atom   The basic unit of data in a movie resource. There are a number of different atom types, including movie atoms, track atoms, and media atoms. There are two varieties of atoms: container atoms, which contain other atoms, and leaf atoms, which do not contain any other atoms.

atomic operations   Operations that pass extra information back to their callers by signaling exceptions but that hide internal exceptions, which might be irrelevant or misleading.

atop mode   A transfer mode type in which the source color is placed over the destination, but the resulting destination retains the original destination's transparency.

ATP   See **AppleTalk Transaction Protocol.**

ATP sequence number   The bitmap/sequence number field of the header, when the ATP packet is a response packet. The ATP sequence number is used to identify the sequential position of the response packet in the complete response message; ATP uses the sequence number to manage and handle lost or out-of-sequence response packets.

ATQ   See **AppleTalk Transition Queue.**

A-trap   See **A-line instruction.**

attached controller   A movie controller with an attached movie.

attribute   The smallest unit of data in an AOCE catalog; the data within a record is organized into attributes. Each attribute has a type indicating the type of data, a tag indicating the format of the data, a creation ID, and data (the attribute value).

attribute creation ID   A number assigned by a catalog that uniquely identifies an attribute value within a record. It persists for as long as the attribute value exists and is never reused. Not all catalogs support attribute creation IDs. See also **pseudo-persistent attribute creation ID.**

attribute mask   A means of editing the attributes of a collection object.

attributes   A property of many QuickDraw GX objects. The attributes property of an object is a set of flags that control various aspects of that object's behavior.

attribute tag   See **attribute value tag.**

attribute type   (1) An integer constant describing a data attribute of a dictionary entry. (2) The type of data in an attribute; for example, telephone number or picture. A record can contain more than one attribute type, and there can be more than one attribute value of the same attribute type in a record.

attribute value   The data in an attribute.

attribute value tag   The format of the data in an attribute value.

audible notification   A notification in which the Sound Manager plays the system alert sound or a sound contained in an `'snd '` resource.

audio compression   A technique of reducing the amount of memory space required for a buffer of sampled-sound data, usually at the expense of audio fidelity. See also **audio expansion.**

audio component   A component that works with the Sound Manager to adjust volumes or other settings of a sound output device. Compare **sound component.**

audio data   See **sampled-sound data, sound, square-wave data, wave-table data.**

audio decompression   See **audio expansion.**

audio expansion   The decompression of compressed sound data. See also **audio compression.**

audio information record   A structure you can use to specify information about an audio component. Defined by the `AudioInfo` data type.

Audio Interchange File Format (AIFF)   A sound storage file format designed to allow easy exchange of audio data among applications.

Audio Interchange File Format Extension for Compression (AIFF-C)   An extension of the Audio Interchange File Format that allows for the storage of compressed sound data.

audio port   Any independently-controllable sound-producing hardware connected or attached to a sound output device. A sound output device can have several audio ports.

audio selection record   A structure you can use to specify that only part of a sound be played. Defined by the `AudioSelection` data type.

authentication   The process of establishing the identity of an entity on a network or of one end of a communication link. The authentication mechanism of the PPC Toolbox identifies each user through an assigned name and password.

authentication identity   See **identity.**

Authentication Manager   The part of the Macintosh Operating System that authenticates users of AOCE messaging and catalog services and provides authentication services to applications.

authentication process   A process that ASDSP performs to positively identify two parties who want to communicate over a secure ADSP connection. The process, which is a kind of handshake, involves the use of a session key.

authentication server   A secure network-based server that holds the client keys of users and services and generates credentials that allow users to do mutual authentication.

auto-key event   An event indicating that a key is still down after a certain amount of time has elapsed.

auto-key rate   The rate at which a character key repeats after it's begun to do so.

auto-key threshold   The length of time a character key must be held down before it begins to repeat.

automatic form substitution   The process of automatically substituting one or more glyphs for one or more other glyphs.

automatic gain control (AGC)   A feature of sound recording that moderates the recording to give a consistent signal level.

automatic key frame   A key frame that is inserted automatically by the Image Compression Manager when it detects a scene change. When performing temporal compression, the Image Compression Manager looks for frames that have changed more than 90 percent since the previous frame. If such a change occurs, the Image Compression Manager assumes a scene change and inserts a key frame. A key frame allows fast random access and reverse play in addition to efficient compression and picture quality of the frame.

auto-pop bit   Bit 10 of a Toolbox trap word, signifying that an extra return address is placed on the stack.

autosense   A feature of SCSI Manager 4.3 that automatically sends a REQUEST SENSE command in response to a CHECK CONDITION status, and retrieves the sense data.

auxiliary script   A script system other than the system script that is available for application use. An auxiliary script can be used in documents, but it does not affect the default behavior of the system software.

auxiliary window record   A data structure that the Window Manager uses to tie together a list of windows and their corresponding window color information tables.

background   The part of a glyph bitmap that surrounds the pixels that constitute the glyph itself. Compare **foreground.**

background color   (1) The color that QuickDraw applies to the background parts of a glyph; specified by the bkColor field of the current graphics port. (2) The color of the pixels wherever no drawing has taken place. By default, the background color is white. (3) The color of the area between the dots of a halftone.

background-only application   An application that does not have a user interface.

background pattern   The pattern displayed in a graphics port when an area is erased or when pixels are scrolled out of it.

background printing   A feature supported by some printer drivers that allows the user to work with an application while documents are printing. These printer drivers send printing data to a spool file in the PrintMonitor Documents folder inside the System Folder.

background process   A process that isn't currently interacting with the user. Compare **foreground process.**

background task   A process that runs concurrently with another process without being the primary focus of the user's attention. The background task is allocated a percentage of the total processor time to accomplish its tasks. Several background tasks can be active at the same time. Compare **foreground task.**

backing-store file   The file in which the Virtual Memory Manager stores the contents of unneeded pages of memory. See also **file mapping, paging file.**

backing volume   See **paging device.**

bad block sparing   The process of working around a bad block by removing it from the pool of available free blocks.

badge   A visual element in a movie's display that distinguishes a movie from a static image. The movie controller component supplied by Apple supports badges.

bad parameter error   A nonfatal QuickDraw GX error indicating that one or more function parameters are incorrect.

bad reference error   A QuickDraw GX error indicating that an invalid reference to a view or font device, view group, or view port was made.

balloon definition function   An implementation of a window definition function that defines the general appearance of a help balloon. See also **help balloon.**

band   A horizontal strip from an image. The Image Compression Manager may break an image into bands if a compressor or decompressor component cannot handle an entire image at once.

base family   A group of closely related color spaces, across which color conversion can take place without the use of color profiles. RGB and HSV color spaces, for example, are all in the RGB base family.

base frequency   The pitch at which a sampled sound is recorded. The wave of a sampled sound may include frequencies other than the base frequency (and need not even include the base frequency).

baseline   An imaginary horizontal line that coincides with the bottom of each character in a font, excluding descenders (tails on letters such as *p*).

baseline delta   An array of distances (in points) between the various baseline types and $y = 0$. See **baseline type.**

baseline pitch   See **speech pitch.**

baseline type   The classification of baseline used with a particular kind of text. See, for example, **Roman baseline.**

base media handler component   A component that handles most of the duties that must be performed by all media handlers. See also **derived media handler component.**

basic graphics port   The drawing environment provided by basic QuickDraw. A basic graphics port is defined by a data structure of type `GrafPort` and contains the information that basic QuickDraw uses to create and manipulate onscreen either black-and-white images or color images that employ the eight-color system.

basic QuickDraw   The set of QuickDraw routines that you use to create and manipulate graphics information in a graphics port. All Macintosh computers have basic QuickDraw routines in ROM. See also **Color QuickDraw.**

baud   A measure of the bit sampling rate of a serial communication device.

bcc recipient   A "blind courtesy copy" recipient of a letter. Bcc recipients are not listed in copies of the letter received by To and cc recipients. See also **original recipient.**

best-effort delivery   The level of reliability for the data delivery services that a connectionless protocol offers. The network attempts to deliver packets that meet certain requirements, such as containing a valid destination address, but it does not inform the sender when it is unable to deliver the packet; nor does it attempt to recover from error conditions and packet loss.

Bézier curve   A curve, used for defining character shapes in outline fonts, defined by three outline points: two on-curve points that serve as endpoints and one off-curve point that determines the degree of curvature.

bias   (1) A number added to the binary exponent of a floating-point number so that the exponent field will always be positive. The bias is subtracted when the floating-point value is evaluated. (2) The number of bits to the right of a binary point in a fixed point number. See also `gxColorValue`, `Fixed`, **fixed-point number**, `fract`, `long`, `short`.

bidirectional script system   A script system where text is generally right-aligned with most characters written from right to left, but with some left-to-right text as well. Arabic and Hebrew are bidirectional script systems.

binade   The collection of numbers that lie between two successive powers of 2.

binary floating-point number   A collection of bits representing a sign, an exponent, and a significand. Its numerical value, if any, is the signed product of the significand and 2 raised to the power of the exponent.

bind   To find the referent of an import and place its address in a fragment's table of contents.

bit   The atomic memory unit. Each bit can be either set (the value of the bit is 1) or cleared (the value of the bit is 0).

bit-**bucketing**   The practice of throwing away excess data when a SCSI target tries to supply more data than the initiator expects. Also includes sending meaningless data when a target requests more data than the initiator is prepared to supply. Both of these situations are abnormal and cause the SCSI Manager to return an error result code.

bit image   A collection of bits in memory that forms a grid—that is, a rectangular pattern of bits. The bit image is pointed to in the `baseAddr` field of a `BitMap` record. Compare **pixel image.**

bitmap   (1) A data structure of type `BitMap` that represents the positions and states of a corresponding set of pixels, which can be either black and white or the eight predefined colors provided by basic QuickDraw. A bitmap is contained within a basic graphics port. See also **pixel map.** (2) A QuickDraw GX data structure that describes a pixel map on a physical device. A bitmap structure is a property of a view device object. (3) A type of QuickDraw GX shape.

bitmap color profile   The object that specifies color-matching information about the device on which a bitmap was created.

bitmap color set   An array of color values associated with a bitmap. If a bitmap uses a color set (as opposed to a color space), each pixel value in the bitmap's pixel image represents an index into this color set.

bitmap color space   A color space associated with a bitmap. If a bitmap uses a color space (as opposed to a color set), each pixel value in the bitmap's pixel image represents a color value in this color space.

bitmap height   The number of pixels in each column of a bitmap.

bitmapped font   A font made up of bitmapped glyphs. Compare **outline font.**

bitmapped glyph   A bitmap of a character designed for display at a fixed point size for a particular display device.

bitmap position   The position of the upper-left corner of a bitmap in geometry space.

bitmap/sequence number   An ATP header field that is 8 bits long, the use and significance of which depend on whether the ATP packet is a request packet or a response packet. For request packets, this is the transaction bitmap; for response packets, this is the ATP sequence number.

bitmap shape   A type of QuickDraw GX shape. The geometry of a bitmap shape contains a pixel image and color information.

bitmap structure   A data structure that describes a pixel image.

bitmap width   The number of pixels in each row of a bitmap.

bit pattern   An 8-by-8 pixel image drawn by default in black and white, although any two colors can be used on a color screen. A bit pattern can be repeated indefinitely to form a repeating design (such as stripes) when drawing lines and shapes or when filling areas on the screen. See also **pixel pattern.**

black generation   In CMYK color calculation, the substitution of black ink for areas with high intensities of cyan, magenta, and yellow. See also **undercolor removal.**

black level   The degree of blackness in an image. This is a common setting on a video digitizer. The highest setting will produce an all-black image whereas the lowest setting will yield very little, if any, black even with black objects in the scene. Black level is an important digitization setting since it can be adjusted so that there is little or no noise in an image.

blank access privileges   The directory access privileges under which a directory has the same access privileges as the directory's parent.

blend matte   A pixel map that defines the blending of video and digital data for a video digitizer component. The value of each pixel in the pixel map governs the relative intensity of the video data for the corresponding pixel in the result image.

blend mode　A transfer mode type in which the result is the average of the source and destination color components, weighted by a ratio specified by the operand component.

blind transfer　A Macintosh-specific method of transferring data between memory and the SCSI controller hardware, in which the SCSI Manager assumes that the SCSI controller (and the target device) can keep up with a specified transfer rate. Compare **polled transfer.**

block　A group regarded as a unit; usually refers to data or memory in which data is stored. See also **allocation block, memory block.**

block contents　The area that's available for use in a memory block.

block creator　A four-character sequence that indicates which application created a message block; analogous to a file's creator in HFS.

block device　A device that reads or writes blocks of bytes as a group. Disk drives, for example, can read and write blocks of 512 bytes or more. See also **character device.**

block header　The internal housekeeping information maintained by the Memory Manager at the beginning of each block in a heap zone.

block type　A code that indicates the format of the data contained within a message block.

board sResource　A unique sResource in an expansion card's declaration ROM that describes the card so that the Slot Manager can identify it. An expansion card can have only one board sResource. The board sResource entries include the card's identification number, board flags, vendor information, initialization code, and so on.

bomb box　See **system error alert box.**

Boolean transfer mode　(1) A specification of which Boolean operation QuickDraw should perform when drawing or copying an image into a bitmap or pixel map. Boolean transfer modes that draw patterns are called *pattern modes;* Boolean transfer modes that copy images or draw text are called *source modes.* Compare **arithmetic transfer mode.** (2) Transfer mode types in which the result color is achieved by using Boolean operations on the bits of the source and destination color-component values.

boot blocks　The first two logical blocks on every Macintosh volume. Boot blocks contain instructions and information necessary to start up (or "boot") a Macintosh computer. See also **system startup information.**

Bopomofo　Chinese phonetic characters. Also called *Zhuyinfuhao.*

bottomline input　A type of input method in which the user enters text in a small window, called a *floating input window,* that appears near the bottom of the screen.

bottom-side bearing　The white space between the bottom of the glyph and the visible ending of the glyph.

boundary objects　The elements, specified in a range descriptor record, that identify the beginning and end of the range. See also **range descriptor record.**

boundary rectangle　(1) A rectangle (by default, the entire main screen) that links the local coordinate system of a graphics port to QuickDraw's global coordinate system and defines the area of the pixel image or bit image into which QuickDraw can draw. The boundary rectangle is stored in either the pixel map or the bitmap. (2) The smallest rectangle that encloses a shape. The coordinates of a bounding rectangle are ordered.

bounding box　The smallest rectangle that entirely encloses the pixels or outline of a glyph.

bounding rectangle　A rectangle used to define other shapes, such as ovals and rounded rectangles. The lines of bounding rectangles completely enclose the shapes they bound; in other words, no pixels from these shapes lie outside the infinitely thin lines of the bounding rectangles.

browsing access　The file access permissions that allow users to read but not modify a file.

B*-tree　(1) A method of organizing information into a collection of nodes. The nodes are arranged in a way that allows efficient access to the stored information. (2) A data structure used by the Dictionary Manager to organize dictionary index entries for fast searching.

B*-tree control block   A block of memory that contains information about a B*-tree file (either a catalog file or an extents overflow file).

B*-tree file   A file that is organized as a B*-tree. See also **catalog file, extents overflow file.**

B*-tree header record   A record in a header node that contains information about the beginning of the tree, as well as the size of the tree.

buffered expansion   Audio expansion of a sound that does not occur while the sound is playing. Compare **real-time expansion.**

bundle bit   A flag in a file's Finder information record that informs the Finder that a bundle (`'BNDL'`) resource exists for the file. A file's Finder information record is stored in a volume's catalog file. The Finder uses the information in the bundle resource to associate icons with the file.

bundle resource   (1) A resource of type `'BNDL'` that is used by the Finder to associate an application and its files and icons. (2) A script system's **international bundle resource.**

bus   A path along which information is transmitted electronically within a computer. Buses connect computer devices, such as processors, expansion cards, and memory.

bus free phase   The phase in which no device is actively using the SCSI bus.

bus interface   The electronics connecting the processor bus to the NuBus expansion interface in Macintosh computers.

bus sizing   See **dynamic bus sizing.**

button   A control that appears on the screen as a rounded rectangle with a title centered inside. When the user clicks a button, the application performs the action described by the button's title. Button actions are usually performed instantaneously. Examples include completing operations defined by a dialog box and acknowledging an error message in an alert box.

byte   A bit quantity, used to store 2^8, or 256, different possible values. In the MC680x0 bit-numbering scheme, the first bit in a byte is bit number 7, and the last bit is bit number 0. See also **reversed bit-numbering.**

byte lane   Any of 4 bytes that make up the 32-bit NuBus data width. NuBus expansion cards may use any or all of the byte lanes to communicate with each other or with the Macintosh computer.

byte offset   (1) The indexed position of a byte in a text buffer, starting at zero for the first byte. In 1-byte script systems, byte offset is the same as character offset, and sequential values for byte offset correspond to the storage order of the characters. In 2-byte script systems, byte offset and character offset are different. (2) The numbering of character codes in source text. Compare **edge offset.**

byte smearing   The ability of certain members of the 680x0 family of microprocessors to duplicate byte- and word-sized data across all 32 bits of the data bus.

bytes per row   The number of bytes in a pixel image required to represent each row of a bitmap.

cache   See **data cache, disk cache, instruction cache, QuickDraw GX cache.**

cache error   A QuickDraw GX error indicating that a memory cache problem occurred.

callback event   A scheduled invocation of a Movie Toolbox callback function. Applications establish the criteria that determine when the callback function is to be invoked. When those criteria are met, the Movie Toolbox invokes the callback function.

callback function   An application-defined function that is invoked at a specified time or based on specified criteria. These callback functions are data-loading functions, data-unloading functions, completion functions, and progress functions. See also **callback event.**

callback procedure   An application-defined procedure that is invoked at a specified time or based on specified criteria.

callback routine   (1) An application-defined routine called by the Operating System. When you call certain functions, you provide a pointer to a callback routine, and the function installs your routine in memory. Then when a certain event occurs, the Operating System calls your callback routine. See also **completion routine.** (2) A function provided by the CE to provide a service for aspect code resources. When the CE calls your code resource, your code resource can call the CE's callback routines.

callee   A routine that is called by some routine.

caller   A routine that calls some routine.

calling conventions   A set of conventions that describe the manner in which a particular routine is executed. A routine's calling conventions specify where parameters and function results are passed. For a stack-based routine, the calling conventions determine the structure of the routine's stack frame.

canonical string   The preferred representation of a character or string in a particular writing system, language, or region, often corresponding to a token type defined by the Script Manager `IntlTokenize` function. For example, the left literal double curly quotes (") can, in the appropriate context, also be represented as double straight quotes ("). This stored preference is the canonical string.

cap   See **cap property.**

cap attributes   A set of flags that modify the way QuickDraw GX draws cap shapes.

cap property   A property of a style object that is used to specify how the end points of contours are drawn.

cap shape   A shape drawn at the end points of another shape's contours.

card   See **expansion card.**

caret   A vertical or slanted blinking bar, appearing at a caret position in the display text, that marks the point at which text is to be inserted or deleted. Compare **cursor, split caret.**

caret angle   The angle of a caret or the edges of a highlight. The caret angle can be perpendicular to the baseline or parallel to the angle of the style run's text.

caret-blink time   The interval between blinks of the caret that marks an insertion point.

caret position   A location (on the screen) corresponding to the offset (in memory) of the current text insertion point. At the boundary between a right-to-left and left-to-right direction run on a line, one character offset may correspond to two caret positions, and one caret position may correspond to two offsets.

caret type   A designation of the behavior of the caret at direction boundaries in text. See **left-to-right caret, right-to-left caret, split caret.**

Cartesian coordinate   A coordinate system used for view devices in which the positive x direction is to the right and the positive y direction is down with respect to the origin, at the upper-left corner. A point is defined by specifying the x- and y-coordinates in the format (x, y). Compare **polar coordinate.**

case   Uppercase or lowercase, an attribute of the characters of some writing systems such as Roman.

catalog   See **AOCE catalog, catalog file.**

Catalog Browser   A Finder extension that allows a user to search through an AOCE catalog by opening folders on the desktop.

catalog discriminator   A name and reference number that uniquely identifies a catalog.

catalog file   A special file, located on a volume, that contains information about the hierarchical organization of files and folders on that volume.

Catalog Manager   The part of the Macintosh Operating System that manages the organization, reading, and writing of data in AOCE catalogs.

catalog node   (1) An entry in a volume's catalog file that describes either a file or a directory. (2) See **dNode.**

catalog node ID   A unique number assigned to a node in a catalog file. For a directory, the catalog node ID is the directory ID; for a file, the catalog node ID is the file ID.

catalog service access module (CSAM) A code module, implemented as a device driver, that makes an external catalog available within an AOCE system by supporting the Catalog Manager API.

catalog service function A CSAM-defined function that responds to requests for AOCE catalog services from clients of the Catalog Manager.

Catalogs Extension (CE) An extension to the Finder that makes it possible for the Finder to display the contents of AOCE catalogs and for the user to edit the contents of records.

catalog type The type of a file as maintained in a volume's HFS catalog file. See also **translation file type.**

caution alert An alert box that warns the user of an operation that may have undesirable results if it's allowed to continue. A caution alert gives the user the choice of continuing the action (by clicking the OK button) or stopping the action (by clicking the Cancel button). A caution alert is identified by an icon bearing an exclamation point in the upper-left corner of the alert box. See also **note alert, stop alert.**

CCB (1) See **command control block.** (2) See **connection control block.**

cc recipient A "courtesy copy" or secondary recipient of a letter. See also **original recipient.**

CDB See **command descriptor block.**

CE See **Catalogs Extension.**

cell A rectangular part of a list displaying information about one item from the list.

certificate See **public-key certificate.**

certificate issuer The organization that authorized, or issued, a particular public-key certificate. Each certificate is digitally signed by its issuer.

certificate owner The person or organization to which a particular public-key certificate has been issued. Each certificate contains the public key of its owner.

certificate request See **approval request.**

certificate set A chain of public-key certificates that, combined with a digital signature, make up a full signature. A certificate set consists of the public-key certificate of the signer (owner), digitally signed by the organization that issued the certificate; plus the certificate of the issuing organization, signed by the organization that issued that certificate; and so on, until the last signature is that of the prime issuing organization. The certificate set provides the signer's public key for decryption of the signer's signatures and ensures the validity of that public key.

certification authority See **certificate issuer.**

chain of certificates See **certificate set.**

channel A portion of sound data that can be described by a single sound wave. Do not confuse with sound channel or speech channel. See also **monophonic sound, stereo sound.**

character A symbol standing for a sound, syllable, or notion used in writing; one of the simple elements of a written language, for example, the lowercase letter *a* or the number *1*. Compare **character code, glyph.**

character attribute The font, size, style, or color of text. Text of a single style run has uniform character attributes.

character class A return value of the `CharacterType` function. Character class is a subtype of **character type.**

character cluster A collection of characters treated as individual components of a whole, including a principal character plus attachments in memory. For example, in Hebrew, a cluster may be composed of a consonant, a vowel, a dot to soften the pronunciation of the consonant, and a cantillation mark.

character code An 8-bit or 16-bit value representing a text character. Text is stored in memory as character codes. Each script system's keyboard-layout (`'KCHR'`) resource converts the virtual key codes generated by the keyboard or keypad into character codes; each script system's fonts convert the character codes into glyphs for display or printing.

character-code mapping table   A table in a font that matches character codes to glyph indexes.

character device   A device that reads or writes a stream of characters, or bytes, one at a time. The keyboard and the serial ports are examples of character devices. See also **block device.**

character encoding   The organization of the numeric codes that represent the characters of a character set in memory.

character key   A key that generates a keyboard event when pressed (any key but Shift, Caps Lock, Command, Control, or Option).

character offset   (1) The indexed position of a character in a text buffer, starting at zero for the first character. Sequential values for character offset correspond to the storage order of the characters. In 1-byte script systems, character offset is equivalent to byte offset; in 2-byte systems it is not. (2) The horizontal separation between a character rectangle and a font rectangle—that is, the position of a given character within the font's bit image.

character origin   See **glyph origin.**

character type   A return value of the `CharacterType` function. Character type describes the features of a given character, such as whether it is a letter, number, or subscript character.

character width   The distance from one character's origin to the next character's origin. It is how far QuickDraw moves the pen after drawing a character.

checkbox   A control that appears onscreen as a small square with an accompanying title. A checkbox displays one of two settings: on (indicated by an X inside the box) or off. When the user clicks a checkbox, the application reverses its setting. See also **radio button.**

checksum   A calculated value based on the contents of a packet's header and data information. A checksum is used to verify that the packet contents have not been corrupted by memory or data bus errors within routers on the internet.

child view port   For a given view port, a view port immediately below it in the view port hierarchy.

child view port list   A view port object property. A view port's child view port list is an array of references to the child view ports of that view port.

chromaticity   An intensity-independent color designation, represented by a pair of values (chromaticity coordinates) for the x and y components in Yxy space.

chunk   (1) Any distinct portion of a sound file. (2) In the movie resource formats, a collection of sample data in a media. Chunks allow optimized data access. A chunk may contain one or more samples. Chunks in a media may have different sizes and the samples within a chunk may have different sizes.

chunk header   The first segment of a chunk, which defines the characteristics of the chunk. Defined by the `ChunkHeader` data type.

CIE   See **Commission Internationale d'Eclairage.**

client   In AppleTalk, a protocol that uses the services of another protocol in order to carry out some functions. An application or process that uses the services of a protocol is also considered a client of the protocol.

client application   (1) A program that requests text services such as input methods, spell-checking, and hyphenation from the Text Services Manager. Client applications use the Text Services Manager to search for, obtain information about, and communicate with text service components. (2) An application that uses Apple events to request a service (for example, printing a list of files, checking the spelling of a list of words, or performing a numeric calculation) from another application (called a *server application*). These applications can reside on the same local computer or on remote computers connected to a network.

client key   A key that is known only to a specific entity and to the authentication server.

clip   A property of a transform object, view port object, or view device object. It is a primitive shape, bitmap shape, or glyph shape that controls the visibility of a shape object.

clipped movie boundary region   The region that is clipped by the Movie Toolbox. This region combines the union of all track movie boundary regions for a movie, which is the movie's movie boundary region, with the movie's movie clipping region, which defines the portion of the movie boundary region that is to be used.

clipping region   A region to which an application can limit drawing. The initial clipping region of a graphics port is an arbitrarily large rectangle: one that covers the entire QuickDraw coordinate plane. An application can set the clipping region to any arbitrary region, to aid in drawing inside the graphics port.

clock chip   A special integrated circuit (IC) used for storing parameter RAM and the current date and time. This IC is powered by a battery when the system is off, thus keeping correct time and preserving the parameter RAM information.

clock component   A component that supplies basic time information to its clients. Clock components have a component type value of `'clok'`.

clone   To create another current reference to an existing object. The effect of cloning an object is to increase its owner count by 1.

close box   The small white box on the left side of the title bar of an active window. Clicking it closes the window.

closed connection   A connection state in which both connection ends have terminated the connection and disposed of the connection information that each maintains. Compare **half-open connection, open connection.**

closed file   A file without an access path. You cannot read from or write to closed files.

closed-frame fill   A shape fill that connects the points of the geometry from the start point through the end point and on to the start point again. Same as *hollow fill.*

close region   The area occupied by a window's close box. See also **close box.**

close routine   A device driver routine that deactivates the driver and usually deallocates memory. All device drivers must implement a close routine.

clump   A group of contiguous allocation blocks. Space is allocated to a new file in clumps to promote file contiguity and avoid fragmentation.

clump size   The number of allocation blocks to be allocated to a new file.

CLUT   See **color lookup table.**

CMYK color space   A color space whose four components measure the cyan, magenta, yellow, and black elements of a color. Used mostly for printing.

CNID   See **catalog node ID.**

CNode   See **catalog node.**

codec   See **compression/decompression component.**

code fragment   See **fragment.**

code fragment information record   A part of a code fragment resource that provides information about a specific code fragment. There can be more than one code fragment information record in a code fragment resource.

Code Fragment Loader   The part of the Macintosh system software that reads containers and loads the fragments they contain into memory. Currently, the application programming interface to the Code Fragment Loader is private. See also **Code Fragment Manager.**

Code Fragment Manager   The part of the Macintosh system software that loads fragments into memory and prepares them for execution. See also **Code Fragment Loader, fragment.**

code fragment resource   A resource of type `'cfrg'` that identifies the instruction set architecture, location, size, and name of an application or import library, as well as version information for import libraries. See also **code fragment information record.**

code patch   See **patch.**

code resource   See **executable resource.**

code section   A section of a fragment that contains executable code. See also **data section.**

code type   See **instruction set architecture.**

coercion handler   A routine that coerces data from one descriptor type to another.

coercion handler dispatch table   A table in either the application heap or the system heap that the Apple Event Manager uses to map desired coercions to the appropriate coercion handler. See also **coercion handler.**

Collaboration package   The high-level APIs for the AOCE system software collaboration managers: the Standard Mail Package and the Standard Catalog Package. See also **Collaboration toolbox.**

Collaboration toolbox   The low-level APIs for the AOCE system software collaboration managers: the Authentication Manager, Catalog Manager, and Interprogram Messaging Manager. See also **AOCE toolbox, Collaboration package.**

collection   See **collection object.**

collection index   A means of uniquely identifying each item within a collection.

collection item   A part of a collection object.

Collection Manager   A part of system software, related to QuickDraw GX, that manages collection objects.

collection object   An extensible object, managed by the Collection Manager, that is used to hold any kind of information. Unlike an array, a collection object allows you to store variable-sized items. See **job collection, format collection, paper-type collection.**

collision detection   The ability of an ADB device to detect that another ADB device is transmitting data at the same time.

color   A QuickDraw GX data structure—also a property of an ink object—that specifies a color in terms of a particular color space and the values for each of the color's components within that color space. A color structure can also contain a reference to a color profile object.

color-average tint   A halftone tint type in which the tint color is specified by the average of all the components of the input color.

color bank   A structure into which all the colors of a picture, pixel map, or bitmap are gathered by the Picture Utilities or by your application for later selection. The Picture Utilities generate a color bank consisting of a histogram to a resolution of 5 bits per color.

color component   An individual dimension, or component, of a color space. For example, RGB space has three components: red, green, and blue.

color-component value   A value representing the intensity of a single color component.

color conversion   The conversion of a color value from one color space to another. If the color spaces are not in the same base family, accurate color conversion requires color matching.

color graphics port   The sophisticated color drawing environment provided by Color QuickDraw. A color graphics port is defined by a data structure of type `CGrafPort` and contains the information that Color QuickDraw uses to create and manipulate grayscale and color images onscreen.

color icon record   A data structure of type `CIcon` used for information obtained from a color icon (`'cicn'`) resource.

color icon resource   A resource of type `'cicn'` used for color icon resource data. A color icon resource can define a color icon of any size without a mask or a 32-by-32 pixel color icon with a mask. You can define the bit depth for a color icon resource and you can use resources of type `'cicn'` in menus and dialog boxes. Note that the Finder does *not* use or display any resources that you create of type `'cicn'`. To create an icon for display by the Finder, create one or more of the icons in an icon family. See also **icon resource, icon family, small icon resource.**

colorimetric matching   A color-matching method in which colors common to the gamuts of both devices are maintained across the match. Compare **perceptual matching, saturation matching.**

colorize   To use the `CopyBits` procedure to copy colors into black-and-white images.

color lookup table (CLUT)   A data structure that maps color indexes specified with QuickDraw into actual color values. Color lookup tables are internal to certain types of graphics devices. Compare **color table.**

Color Manager   A set of system software routines that supply color-selection support for Color QuickDraw. Most applications never need to call the Color Manager directly.

color matching   A method of accurately converting colors in one color space to another color space, or from display on one device to display on another device.

color-matching method   A specific algorithm for matching colors. Different algorithms have different purposes. See, for example, **colorimetric matching, perceptual matching, saturation matching.**

color-mixture tint   A halftone tint type in which the tint color is specified by the mixture of dot color and background color closest to the input color.

color packing   The storing of colors in formats that are smaller than the unpacked formats. Whereas unpacked colors may require 48 or 64 bits to describe a color value, packed formats may require only 16 or 32 bits.

Color Picker Utilities   A set of system software routines that enable your application to solicit color choices from users. The Color Picker Utilities also provide routines that allow your application to convert colors between those specified in `RGBColor` records as used by Color QuickDraw and those used in other color models, such as the CMYK model used by most color printers.

color profile   A QuickDraw GX object associated with a transfer mode, color, or bitmap data structure and used for color matching. A color profile usually describes the color response curve of a display device in terms of an objective standard.

Color QuickDraw   The set of QuickDraw routines that you use to create and manipulate graphics information in a color graphics port. You can use Color QuickDraw to create a color image and then display it on any type of screen—black and white, color, or grayscale. Most Color QuickDraw routines are in ROM on Macintosh computers that use an MC68020 or faster processor. See also **basic QuickDraw.**

color ramp   A shape or image in which the shading goes from one color to another in smooth increments.

color set   A QuickDraw GX object associated with a transfer mode or bitmap data structure. A color set defines the individual colors available for drawing a shape.

color space   A specification of a particular method for color representation, such as RGB or HSV. QuickDraw GX recognizes over 30 different color space definitions.

ColorSync Utilities   A part of Macintosh system software that manages color matching, color profiles, and the drawing of matched colors. QuickDraw GX color profile objects contain ColorSync color profiles, and QuickDraw GX uses the ColorSync Utilities to perform its color matching.

color table   A collection of colors available for a pixel image on indexed devices. Color tables are specified by either `ColorTable` records or `'clut'` resource types. The Color Manager stores a color table for the currently available colors in the graphics device's CLUT. Compare **color lookup table.**

color value   A structure that holds the full specification of a single color in a particular color space. For example, an RGB color value consists of three color-component values: one each for red, green, and blue. A color value is itself a component of a color structure.

color-value array   A property of a color set object; it is the array of color values that constitute the colors of the color set.

come-from patch   A system software patch used only by Apple to add enhancements to system software. Come-from patches are placed before any other types of patches in a patch daisy chain.

command   See **embedded speech command, sound command.**

command block   A data structure specifying an AFP command and its parameters that the .XPP driver sends to an AFP server to be executed. The XPP parameter block for the `AFPCommand` function contains a pointer to the command block.

command control block (CCB)   An array at the end of the XPP parameter block that the .XPP driver uses internally to build the data structures, parameter blocks, and buffer data structures (BDS) that it needs to make function calls to the .ATP driver.

command delimiter   A sequence of one or two characters that indicates the start or end of an embedded speech command.

command descriptor block (CDB)   A data structure defined by the SCSI specification for communicating commands from an initiator to a target.

Command-key equivalent   Refers specifically to a keyboard equivalent that the user invokes by holding down the Command key and pressing another key (other than a modifier key) at the same time.

Commission Internationale d'Eclairage (CIE)   An organization that carried out experimental work that resulted in the definition of the XYZ and Yxy color spaces.

common parent   The lowest-level directory that appears in the pathnames of two objects on a volume.

command phase   The phase in which a SCSI target requests a command from the initiator.

Communications Toolbox   A part of the Macintosh system software that you can use to provide your application with basic networking and communications services.

compact   See **heap compaction.**

comparison descriptor record   A coerced AE record of type `typeCompDescriptor` that specifies an Apple event object and either another Apple event object or data for the Apple Event Manager to compare to the first object.

compatibility   The ability of an application to execute properly in different operating environments.

compiled script   Compiled code that a client application can decompile into source data or execute using the standard scripting component routines.

compiled script file   A script file with the file type `'scpt'` that contains script data as a resource of type `'scpt'`. Before executing the script in a compiled script file, a user must first open the script from the Finder or from an application such as Script Editor.

compile-time library   See **definition version.**

completer key   A keypress, following a dead key, that generates a character. The key *e* is a completer key for the dead-key combination *Option-E.*

completion character   The character produced by a completer key. The completion character for the completer key *e* pressed after the dead-key combination *Option-E* is *é.*

completion routine   A routine that is executed when an asynchronous call to some other routine is completed.

complex expression   An expression made up of more than one simple expression, that is, an expression with more than one floating-point operation.

component   A piece of code that provides a defined set of services to one or more clients. Applications, system extensions, and other components can use the services of a component. See also **audio component, color component, sound component, text service component.**

component connection   An access path to a component. A single component can serve multiple client applications at the same time by supporting multiple connections.

component description record   A structure that contains information about a component. Defined by the `ComponentDescription` data type.

component identifier   A value that identifies a particular component.

component instance   A value that identifies a single executing version of a component. There can be more than one instance of a given component running at one time. Each instance of a component can maintain separate storage and error information, and manage its A5 world.

Component Manager   A collection of routines that allows your application or other clients to access components. The Component Manager manages components and also provides services to components.

component mode   A transfer mode type, as applied to a single color component. It is the specification of the kind of transfer mode—such as copy mode or XOR mode—to apply to that color component when drawing a shape or pixel.

component-specific storage descriptor record   A descriptor record returned by `OSAStore`. The descriptor type for a component-specific storage descriptor record is the scripting component subtype value for the scripting component that created the script data.

component subtype   A value that identifies variations on the basic interface that a component supports. As with component types, a component subtype is a sequence of four characters. The value of the component subtype is meaningful only in the context of a given component type.

component tint   A halftone tint type in which the tint color is specified by the value of one component of the input color.

component type   A value that identifies the type of service provided by a component. As with resource types, a component type is a sequence of four characters. See also **component subtype.**

compressed sound data   Sampled-sound data that has been subjected to audio compression.

compressed sound header   A sound header that can describe noncompressed and compressed sampled-sound data, whether monophonic or stereo. Defined by the `CmpSoundHeader` data type. See also **extended sound header, sampled sound header.**

compression   See **audio compression.**

compression/decompression component (codec)   A component that handles data compression and decompression.

compression information record   A structure you use to specify information about a sound component that can decompress compressed audio data. Defined by the `CompressionInfo` data type.

compressor component   See **image compressor components, image decompressor components.**

computer-generated speech   See **synthesized speech.**

concatenate   To add (through matrix multiplication) the effects of one mapping matrix to another, as when the mappings of view ports in a view port hierarchy are concatenated to convert from local space to global space.

concurrent driver   A driver that can handle several requests at once.

conditional view   A view in an information page that is displayed only if certain conditions are met in the aspect associated with that information page.

Condition Register (CR)   A register in the PowerPC processor that holds the result of certain integer and floating-point operations.

configuration resource   See **international configuration resource.**

configuration ROM   See **declaration ROM.**

confirm   To accept converted text in an active input area or floating input window as final and send it to the application. Compare **convert, raw text.**

connection   (1) A channel of communication between a component and its client. A component instance is used to identify the connection. (2) A link between two fragments.

connection control block (CCB)   A data structure that is used by ADSP to store state information about the connection end.

connection end   The combination of a socket and the ADSP information maintained by a socket client for establishing and maintaining a session. The client applications associated with either end of a connection can communicate with each other over the session connection.

connection ID   A reference number that uniquely identifies a connection. Defined by the ConnectionID data type.

connectionless network   A network over which an application or process can directly send and receive data one packet at a time without having to first set up a session or connection. A connectionless network is also referred to as a *packet-oriented network* or *datagram network.* A protocol can also be connectionless.

connection listener   A socket that accepts open-connection requests and passes them along to its client, a connection server process, for further processing. A connection listener can also deny an open request.

connection-oriented protocol   A protocol that requires that a path or session be established over which the two communicating parties at either end of the connection can send and receive data. The process of establishing a session often requires that the two parties identify themselves in a handshake.

connection server   A routine that accepts an open-connection request passed to it by a connection listener and selects a socket to respond to the request.

connection state   One of three conditions that define the association between two connection ends: open connection, closed connection, and half-open connection.

connectivity   The ability to connect to one or another type of data link or network. The connectivity infrastructure includes the communication hardware and the associated link-access protocols for controlling access to the hardware links.

constructive geometry   Mathematical operations, such as intersection and union, that construct new shape geometries out of input shape geometries.

container   (1) The storage for a fragment. A container is a contiguous chunk of storage that holds a fragment and information describing the location of the parts of the fragment and the format of the container. (2) An Apple event object that contains another Apple event object. A container is specified in an object specifier record by a keyword-specified descriptor record with the keyword keyAEContainer. The keyword-specified descriptor record is usually another object specifier record. It can also be a null descriptor record, or it can be used much like a variable when the Apple Event Manager determines a range or performs a series of tests. The objects a container contains can be either elements or properties. See also **Apple event object, element, object specifier record, property.**

container atom   A QuickTime atom that contains other atoms, possibly including other container atoms. Examples of container atoms are track atoms and edit atoms. Compare **leaf atom.**

container hierarchy   The chain of containers that determine the location of one or more Apple event objects. See also **container.**

content block   A message block that contains the body of a letter in standard interchange format.

content enclosure   An enclosure that contains a letter's content. It may be the sole content in a letter or be accompanied by content in a content block, an image block, or both. See also **regular enclosure.**

content region   The part of a window in which the contents of a document, the size box, and the window controls (including the scroll bars) are displayed.

context   (1) The information about a process maintained by the Process Manager. This information includes the current state of the process, the address and size of its partition, its type, its creator, a copy of its low-memory globals, information about its `'SIZE'` resource, and a process serial number. (2) The block of static data (global variables, static variables, and function pointers) associated with one loading of an import library. Each application is loaded into its own context. (3) A data structure used by some Digital Signature Manager routines to hold information and the results of calculations needed when processing data. See also **queue context.**

context block   See **680x0 context block.**

context dependence   In text, when the glyph corresponding to a character may be modified depending on the preceding or following characters in the text.

context switch   A major or minor switch.

contextual form   An alternate form of a glyph whose use depends on the glyph's placement in a word.

contextual script system   A script system, such as Arabic, in which the displayed glyph for a character may be context-dependent. It may be modified based on the characters it is adjacent to.

contiguous highlighting   Highlighting that consists of a single, contiguous shape across direction boundaries, even when it does not exactly match the selection range it corresponds to. Compare **discontiguous highlighting.**

continuous play from disk   See **play from disk.**

continuous recording   A feature of a sound input device driver that allows recording from the device while other processing continues.

continuous style   In TextEdit, a style value that is constant over an entire selection range.

contour   A connected series of lines and curves. The geometry property of a geometric shape is made up of one or more contours.

contour direction   A value, either clockwise or counterclockwise, that QuickDraw GX assigns to each contour in a shape's geometry.

contour index   A number used to specify a particular geometric point in a contour: the first geometric point in a contour has contour index 1, the second has contour index 2, and so on. See also **geometry index.**

control   An onscreen object that the user can manipulate with the mouse. By manipulating a control, the user can take an immediate action or change a setting to modify a future action.

control bits   A set of bit flags in a path geometry that determines which geometric points are on curve and which are off curve.

control color table   In an item color table resource, a specification for the colors used to draw the various parts of a control.

control definition function   A function that defines the appearance and behavior of a control. A control definition function, for example, draws the control. See also **standard control definition functions.**

control definition ID   A number passed to control-creation routines to indicate the type of control. It consists of the control definition function's resource ID and a variation code.

control device function   A function that interacts and communicates with the Finder, responding to requests from the Finder to handle events and perform actions. Every implementation of a control panel must contain a control device function in the control device code (`'cdev'`) resource.

controller boundary rectangle   The rectangle that completely encloses a movie controller. If the controller is attached to its movie, the rectangle also encloses the movie image.

controller boundary region   The region occupied by a movie controller. If the controller is attached to its movie, the region also includes the movie image.

controller clipping region   The clipping region of a movie controller. Only the portion of the controller and its movie that lies within the clipping region is visible to the user.

controller window region   The portion of a movie controller and its movie that is visible to the user.

control list   A series of entries pointing to the descriptions of the controls associated with the window.

Control Manager   A collection of routines that applications use to create and manipulate controls, especially those in windows.

control panel   A modeless dialog box which contains controls that let users specify basic settings and preferences for a systemwide feature, such as the speaker volume, desktop pattern, or picture displayed by a screen saver.

control panel extension   A collection of routines that manages a certain part of a control panel's display area.

control panel file   A file of type `'cdev'` that contains the required and optional resources to implement a control panel. These resources also define the look of a control panel, including its icon. One of the required resources is a code resource containing a control device function.

Control Panels folder   A directory located in the System Folder for storing control panels, which allow users to modify the work environment of their Macintosh computer.

control point   A geometric point used to control the curvature of a curve.

control record   A data structure of type `ControlRecord`, which the Control Manager uses to store all the information it needs for its operations on a control.

control routine   A device driver routine used to send control information. The function of the control routine is driver-specific. This routine is optional and need not be implemented.

convert   To change the text entered in an active input area or floating input window into an ideographic or other complex form. An input method converts raw text, such as Hiragana, into converted text, such as Kanji. See also **confirm.**

convertor   See **translator.**

cooperative multitasking environment   A multitasking environment in which applications explicitly cooperate to share the available system resources. See also **multitasking environment.**

coordinate plane   See **coordinate space.**

coordinate space   A planar region defined by all possible values for a pair of fixed-point coordinates. The coordinate spaces supported by QuickDraw GX include geometry space, local space, global space, and device space.

coordinate system   See **coordinate space.**

copy-back cache   A cache whose data is written to RAM only when necessary to make room in the cache for data accessed more recently or when the cache is explicitly flushed. See also **write-through cache.**

copying   As used by AOCE utility routines: the process of taking the contents of each field in a source structure and placing them in the corresponding field of a destination structure. This process includes all nested structures as well. Compare **duplicating.**

copy mode   A transfer mode type in which the source color component is copied to the destination, and the destination component is ignored.

core Apple event   An Apple event defined as part of the Core suite of Apple events in the *Apple Event Registry: Standard Suites.*

counter   The oval in glyphs such as *p* or *d.*

cover function   An application-defined function that is called by the Movie Toolbox whenever a movie covers a portion of the screen or reveals a portion of the screen that was previously hidden by the movie.

CR   See **Condition Register.**

create function   A function called by a scripting component whenever it creates an Apple event during script execution. You must provide an alternative create function if you want to gain control over the creation and addressing of Apple events. If you don't provide an alternative create function, scripting components call the standard Apple Event Manager function `AECreateAppleEvent` with default parameters.

creation ID   See **attribute creation ID, record creation ID.**

credentials   (1) Encrypted information provided by a server and sent by an initiator to a recipient as part of the authentication process. The credentials contain the session key and the initiator's identification. (2) Information that is required to prove that the potential users of both ends of an ASDSP connection are who they claim to be before ASDSP can establish an authenticated session between the two ends. This information includes the session key, the initiator's identity, and an intermediary, if one is used.

cross-mode call   A call to code that is in a different instruction set architecture from the caller's. See also **explicit cross-mode call, implicit cross-mode call.**

cross-stream kerning   The automatic movement of glyphs perpendicular to the line orientation of the text. Compare **with-stream kerning.**

cross-stream shift   A type of positional shift that applies equally to all glyphs in a style run by raising or lowering the entire style run (or shifts it sideways if it's vertical text). Compare **with-stream shift.**

cross-TOC call   A call to code that is in a different fragment from the caller's. A cross-TOC call requires that the Table of Contents Register be changed to the callee's TOC value.

CSAM   See **catalog service access module.**

current block   The message block last added to a message.

current device   The graphics device on which drawing is actually taking place. A handle to its `GDevice` record is stored in the global variable `TheGDevice`.

current directory   The directory whose contents are listed in the dialog box displayed by the Standard File Package. See also **default directory.**

current disk   The current volume.

current error   One of two error values maintained by the Movie Toolbox. The current error value is updated by every Movie Toolbox function. The other error value, the sticky error, is updated only when an application directs the Movie Toolbox to do so.

current font   The current font for drawing text; the font specified in the `txFont` field of the current graphics port.

current heap zone   The heap zone currently under attention, to which most Memory Manager operations implicitly apply.

current menu list   A data structure that contains handles to the menu records of all menus in the current menu bar and the menu records of any submenus or pop-up menus that an application inserts into the list.

current port   The graphics port to which the next drawing or measuring operation applies. The current port is specified by the global variable `thePort`, and changed by the QuickDraw `SetPort` procedure.

current printer   The printer that the user last selected from the Chooser.

current process   The process that is currently executing and whose A5 world is valid; this process can be in the background or the foreground.

current resource file   The file whose resource fork the Resource Manager searches first when searching for a resource; usually the file whose resource fork was opened most recently.

current script   The script system currently used for text manipulation or display. It is the script system used by a script-aware text-handling routine when the identity of the script or its resources is not an explicit parameter of the call. The current script can be either the font script or the system script.

current selection   A portion of a QuickTime movie that has been selected for a cut, copy, or paste operation.

current sound input device   The sound input device that the user has chosen through the Sound In subpanel of the Sound control panel.

current sound output device   The sound output device that the user has chosen through the Sound Out subpanel of the Sound control panel.

current time   The time value that represents the point of a QuickTime movie that is currently playing or would be playing if the movie had a nonzero rate value.

current volume   The volume on which the current directory is located.

cursive font   A set of characters in one typeface in which letters are connected together as in cursive handwriting.

cursor   A 256-bit image defined by a 16-by-16 bit square. The mouse driver displays the cursor on the screen and maps the movement of the mouse to relative locations on the screen as the user moves the mouse. The cursor follows the movement of the mouse or shows where the user's next action will take place. The cursor can be an arrow, an I-beam, a crossbar, a wristwatch, or another appropriate image. Called the *pointer* in Macintosh user documentation. See also **caret, insertion point.**

Cursor Utilities   A collection of system software routines for creating and using cursors, including color and animated cursors.

curve error   A property of the style object used to specify the accuracy of certain operations, such as converting paths to polygons.

curve join   A join attribute specifying that a shape should be drawn with curved corners.

curve shape   A type of QuickDraw GX shape. The geometry of a curve shape defines a Bézier curve.

cushion   See **memory cushion.**

custom alert box   An alert box whose upper-left corner contains blank space or displays an icon other than those used by caution alerts, stop alerts, or note alerts.

custom Apple event   An Apple event you define for use by your own applications. Instead of creating custom Apple events, you should try to use the standard Apple events and extend their definitions as necessary for your application. If you think you need to define custom Apple events, you should check with the Apple Event Registrar to find out whether Apple events that already exist or are under development can be adapted to the needs of your application.

customized icon   An icon created by the user or by an application and stored with a resource ID of –16455 in the resource fork of a file. A file with a customized icon has the `hasCustomIcon` bit set in its Finder flags field.

DAC   See **digital-to-analog convertor.**

daisy chain   A chain of any number of patches and one system software routine.

dangling pointer   A pointer that no longer points to the correct memory address.

dangling reference   Typically, a pointer whose target has been either destroyed or moved elsewhere in memory.

dash   (n) See **dash property.** (v) Applying a dash shape to the contours of another shape.

dash advance   The distance between dashes in a dashed contour.

dash attributes   A set of flags that modify the way QuickDraw GX dashes a shape.

dash phase   How far into a dash a contour begins.

dash property   A property of the style object used to draw contours as repeated patterns of shapes rather than continues lines.

dash scale   The factor to divide by when scaling a dash shape perpendicularly to the dashed shape's contours.

dash shape   A shape used to dash the contours of another shape.

dashed shape   A shape whose contours have been drawn with a dash shape.

data attribute   In a dictionary, some information about raw data—for example, grammatical or context-sensitive details.

database extension   The interface between the Data Access Manager and a data server.

data buffer   A buffer (usually in an application's heap) that contains information to be written to a file from the application, or read from a file to an application.

data cache   An area of memory internal to some microprocessors (for example, the MC68030 and MC68040 microprocessors) that holds recently accessed data. See also **instruction cache.**

data communication equipment (DCE)   Any device connected to the serial port, such as a modem or printer.

data dependency   An aspect of image compression in which compression ratios are highly dependent on the image content. Using an algorithm with a high degree of data dependency, an image of a crowd at a football game (which contains a lot of detail) may produce a very small compression ratio, whereas an image of a blue sky (which consists mostly of constant colors and intensities) may produce a very high compression ratio.

Data Encryption Standard (DES)   A standard algorithm for data encryption.

data fork   The part of a file that contains data accessed using the File Manager. The data usually corresponds to data entered by the user; the application creating a file can store and interpret the data in the data fork in whatever manner is appropriate. Compare **resource fork.**

datagram   See **packet.**

Datagram Delivery Protocol (DDP)   A connectionless AppleTalk protocol that provides best-effort delivery. DDP, which is implemented at the network level, transfers datagrams between sockets over an AppleTalk internet with each packet carrying its destination internet socket address. See also **packet.**

datagram network   See **connectionless network.**

data handler   A piece of software that is responsible for reading and writing a media's data. The data handler provides data input and output services to the media's **media handler.**

data phase   The phase in which data transfer takes place between a SCSI initiator and target.

data reference   A reference to a media's data.

data section   A section of a fragment that contains its static data, including the fragment's table of contents. See also **code section.**

data server   An application that acts as an interface between a database extension on a Macintosh computer and a data source, which can be on the Macintosh computer or on a remote host computer. A data server can be a database server program that can provide an interface to a variety of different databases, or it can be the data source itself, such as a Macintosh application.

data stream   A highly structured sequence of bytes that contains all of the information required to store, print, or display QuickDraw GX objects.

data terminal equipment (DTE)   The initiator or controller of a serial data connection, typically the computer.

Date & Time control panel   A control panel that allows the user to set the current date and time and to specify formatting preferences for both.

date cache   A temporary storage area used to convert strings to date and time values.

date-time record   A data structure that represents date and time as a record rather than a 32-bit long integer. The date-time record is a translation of the standard date-time value, so it can represent only dates and times between midnight on January 1, 1904 and 6:28:15 A.M. on February 6, 2040.

DCE   (1) See **data communication equipment.** (2) See **device control entry.**

DDP   See **Datagram Delivery Protocol.**

dead cache   A shape cache that is out of date. The object or environment associated with the cache has been changed since the cache was created.

dead key   A keypress or modifier-plus-keypress combination that produces no immediate effect, but instead affects the character or characters produced by the next key (called the *completer key*) that is pressed. For example, in the U.S. Roman system *Option-E* has no effect; however, when you type *e* after pressing *Option-E,* the accented form appears: *é.*

debugging environment   The QuickDraw GX application development environment consisting of the debugging version; errors, warnings, and notices; application-defined message handlers; the drawing errors; validation function; and the MacsBug and GraphicsBug utilities. See also **error, message handler, notice, warning.**

debugging version   The version of QuickDraw GX that provides validation and an extended set of errors, warnings, and notices. This version is intended for use during application development. See also **error, non-debugging version, notice, warning.**

decimal format structure   A data type for specifying the formatting for decimal (base 10) numbers (of conversions). It specifies the decimal number's style and number of digits. It is defined by the decform data type.

decimal structure   A data type for storing decimal data. It consists of three fields: sign, exponent, and significand (a C string). It is defined by the decimal data type.

declaration ROM   A ROM on a NuBus expansion card that contains information identifying the card and its functions, and that may also contain code or other data. Proper configuration of the declaration ROM firmware will allow the card to communicate with the computer through the Slot Manager routines.

decompressed sound data   Sampled-sound data that has been subjected to audio compression and expansion.

decompression   See **audio expansion.**

decrypt   To restore encrypted data to its previous, legible (unscrambled) state. In most cryptographic systems, decryption is performed by mathematically manipulating the data with a large number called a *key.*

de facto C++ standard   The current C++ language definition described in the working paper *American National Standard for Information Systems—Programming Language—C++,* ANSI X3J16.

default ADB device address   A 4-bit bus address between $0 and $E that uniquely identifies the general type of ADB device (such as a mouse or keyboard).

default attributes   The attributes that determines the initial attribute values assigned to items added to a collection.

default button   In an alert box or a dialog box, the button whose action is invoked when the user presses the Return key or the Enter key. The Dialog Manager automatically draws a bold outline around the default button in alert boxes; applications should draw a bold outline around the default button in dialog boxes. The default button should invoke the preferred action which, whenever possible, should be a "safe" action— that is, one that doesn't cause loss of data.

default container   The outermost container in an application's container hierarchy; usually the application itself. See also **container hierarchy.**

default directory   The directory used in File Manager routines whenever you don't explicitly specify some directory. See also **current directory.**

default environment   The environment settings when a PowerPC Numerics implementation starts up: rounding is to nearest and all exception flags are clear.

default implementation   The implementation of a printing message that is provided by QuickDraw GX. This is the code that executes if your printing extension or printer driver does not totally override the message.

default memory size   The implementation limit size of the graphic client memory heap that QuickDraw GX will select if the memory size is not specified.

default object   (1) For most kinds of objects, an object with the properties of a newly created object. When it creates an object, QuickDraw GX assigns it the default properties for that kind of object; an application may then alter those properties through accessor functions. (2) For color sets, the color set to assign as the default to a bitmap shape of a given pixel depth. (3) For color profiles, the profile to use for color matching when no profile is specified.

default operating system   The operating system that gets initialized and booted on a Macintosh computer. Currently, the only default operating system allowed is the Macintosh Operating System.

default scripting component   The scripting component used by the generic scripting component when an application passes `kOSANullScript` rather than a valid script ID to `OSACompile` or `OSAStartRecording`.

default startup device   The first drive on which the boot code attempts to start up the Macintosh Operating System.

default video device   The first monitor on which the system displays the startup message "Welcome to Macintosh." and other startup indications.

default volume   The volume that contains the default directory.

defer   To postpone the execution of an interrupt task until all interrupts have been reenabled.

deferred printing   A method of printing whereby some printer drivers record each page of a document's printed image in a structure similar to a QuickDraw picture, which the driver writes to a spool file. An application must use the `PrPicFile` procedure to send the spool file to the printer. Deferred printing is also known as *spool printing*. Compare **draft-quality printing**.

deferred task   An interrupt task whose execution has been postponed until interrupts have been reenabled.

Deferred Task Manager   The part of the Macintosh Operating System that allows you to defer the execution of lengthy interrupt tasks until interrupts have been reenabled.

deferred task queue   An operating-system queue that contains deferred task records.

deferred task record   A record that contains information about a deferred task. Defined by the `DeferredTask` data type.

definition function   A function that defines the appearance and behavior of some user interface element (for example, a control, list, or window). See also **stub definition function.**

definition resource   A resource that contains a definition function. See also **stub definition resource.**

definition version   The version of an import library used by the linker to resolve imports in the application (or other fragment) being linked. The definition version defines the external programming interface and data format of the library. Compare **implementation version.**

delimiter   See **command delimiter.**

delimiter information record   A structure that defines the characters used to indicate the beginning and end of a command embedded in text. Defined by the `DelimiterInfo` data type.

delivery indication   Information within a report that indicates the successful delivery of a specific message to a specific recipient.

denormalized number   A nonzero binary floating-point number whose significand has an implicit leading bit of 0 and whose exponent is the minimum exponent for the number's data format. Also called *denorm*. See also **normalized number.**

deny modes   A set of file permissions that specify what abilities should be denied to users attempting to open a file fork already opened by another user. See also **access modes.**

depth   A number indicating the position in front to back order at which a picture item is drawn. The greater a shape's depth, the more other shapes are drawn on top of the shape.

dereference   To refer to a block by its master pointer instead of its handle.

derived font   A font whose characteristics are partially determined by modifying an intrinsic font. A derived font might be one whose characters are scaled from an intrinsic font to achieve a desired size or are slanted to achieve an italic style.

derived media handler component   A component that allows the Movie Toolbox to access the data in a media. Derived media handler components isolate the Movie Toolbox from the details of how or where a particular media is stored. This not only frees the Movie Toolbox from reading and writing media data, but also makes QuickTime extensible to new data formats and storage devices. These components are referred to as *derived* components because they rely on the services of a common base media handler component, which is supplied by Apple. See also **base media handler component.**

DES   See **Data Encryption Standard.**

descent line   An imaginary horizontal line that coincides with the bottoms of character descenders (such as the tail on a lowercase *p*) extending farthest below the baseline. See also **ascent line.**

descriptor list   A descriptor record of data type `AEDescList` whose data handle refers to a list of descriptor records.

descriptor record   A data structure of type `AEDesc` that consists of a handle to data and a descriptor type that identifies the type of the data referred to by the handle. Descriptor records are the fundamental data structures from which Apple events are constructed.

descriptor type   An identifier for the type of data referred to by the handle in a descriptor record.

DES encryption   A form of secret-key encryption used by the Digital Signature Manager solely for keeping users' private keys secure. See also **secret-key cryptography.**

desk accessory   A "mini-application" that is available from the Apple menu regardless of which application you're using—for example, the Calculator, Note Pad, Alarm Clock, Puzzle, Scrapbook, Key Caps, and Chooser.

desktop   The working environment on the computer—the menu bar and the gray area on the screen. The user can have a number of documents on the desktop at the same time. At the Finder level, the desktop displays the Trash icon and the icons (and windows) of volumes that have been mounted.

desktop database   A database of icons, file types, applications, and comments maintained by the Finder for all volumes over 2 MB. Compare **Desktop file.**

Desktop file   A resource file in which the Finder stores icons, file types, applications, version data, and comments for all volumes less than 2 MB. Compare **desktop database.**

Desktop Folder   A directory, located at the root level of each volume, used by the Finder for storing information about the icons that appear on the desktop area of the screen. The Desktop Folder is invisible to the user. What the user sees onscreen is the union of the contents of Desktop Folders for all mounted volumes.

Desktop Manager   A collection of routines that manages the desktop database.

desktop printer   A printer accessible through an icon on the user's desktop. The user prints to a desktop printer by dragging the icon of a document to the printer icon.

despool   To open a print file and send its data to a device for printing. Compare **spool.**

despooling   In QuickDraw GX printing, the process during the imaging phase of printing during which each previously spooled page is read from the spool file. See also **imaging phase.**

destination color   The preexisting color of the destination onto which a shape or pixel is to be drawn. Compare **result color, source color.**

destination color limits   In a transfer mode, limits on the permissible values for destination color to use in transfer-mode calculations. Compare **result color limits, source color limits.**

destination profile   The color profile attached to the device on which a color is to be drawn. Compare **source profile.**

destination rectangle   In TextEdit, the rectangle defining the area in which the text is drawn. Text drawn in the destination rectangle is made visible to the application user in the view rectangle.

destination service access point (DSAP)   An 802.2 packet header field that is used to differentiate between different protocols using the 802.2 interface in a single node. One service access point, $AA, is reserved for use by protocols that are not standard IEEE protocols.

detached controller   A movie controller component that is separate from its associated movie.

device   A physical part of a Macintosh computer, or a piece of external equipment, that can exchange information with applications or with the Macintosh Operating System. Input devices transfer information into a Macintosh computer, while output devices receive information from a Macintosh computer. An I/O device can transfer information in either direction.

device communications phase   In QuickDraw GX printing, the phase when the data that represents the rendered form of each page is sent to the output device. A printing extension or printer driver can only communicate with the printing device during this phase of printing.

device control entry (DCE)   A Device Manager data structure containing information about a device driver.

device coordinates   Paired values that specify a size or location in device space.

device driver   A program that controls devices.

device handler   A low-level routine that communicates with a particular ADB device.

device list   A linked list containing the `GDevice` records for a user's computer system. The global variable `DeviceList` holds a handle to the first record in the list.

Device Manager   The part of the Macintosh Operating System that controls the exchange of information between applications and device drivers.

device matrix   A 5 × 4 matrix, part of the transfer mode structure, that allows you to manipulate the components of the destination color.

device package   A type of code resource that responds to Chooser messages. The device package is responsible for communicating the user's choices to a device driver.

device space   The coordinate system that defines the position and scale (pixel size) of a specific view device. Compare **geometry space, global space, local space.**

diacritic   See **diacritical mark.**

diacritical mark   A sign that modifies the implicit sound or value of the character with which it is associated. For example, in the Roman system, the acute accent (´) is a diacritical mark.

dial   A control, similar to a scroll bar, that graphically represents the ranges of values that a user can set or that simply displays the value, magnitude, or position of something, typically in some pseudo-analog form.

dialect   A version of a scripting language that resembles a specific human language or programming language; for example, the AppleScript scripting language provides dialects that resemble English, Japanese, and other languages. See also **AppleScript scripting language.**

dialog box   A window that's used for some special or limited purpose, such as to solicit information from the user before the application carries out the user's command. See also **modal dialog box, modeless dialog box, movable modal dialog box.**

dialog color table resource   A resource (of type `'dctb'`) that lets an application display a dialog box using colors other than the system's default window colors.

dialog hook function   An application-defined function that handles item selections in a dialog box displayed by the Standard File Package.

dialog-item component   The portion of an `'hdlg'` resource in which you specify the help messages for a particular item in a dialog or alert box.

dialog item list   See **item list.**

Dialog Manager   The part of the Macintosh Toolbox that provides routines for creating and manipulating alerts and dialog boxes.

dialog record   A data structure of type `DialogRecord` that the Dialog Manager uses to create dialog boxes and alerts.

dialog resource   A resource (of type `'DLOG'`) that specifies the window type, display rectangle, and item list for a dialog box.

dictionary   (1) A collection of records used by input methods and other software modules that let the user enter, format, and process text. See also **main dictionary, user dictionary.** (2) See **pronunciation dictionary.**

dictionary entry   An item associated with a dictionary key. Each entry consists of raw data plus optional data attributes.

dictionary key   A Pascal search string that may have a maximum length of 129 bytes. Data associated with the key may consist of one or more dictionary entries.

Dictionary Manager   The part of Macintosh system software that makes dictionaries available to input methods.

dictionary record   In a dictionary, a key and one or more entries (data associated with the key).

digest   A number, 16 bytes long, that is calculated from the contents of a given set of data. A digest is like a sophisticated checksum; it is almost impossible for two data sets of any size with any difference to yield the same digest value.

digital signal processor (DSP)   A processor that manipulates digital data.

digital signature   A data structure associated with a document or other set of data that uniquely identifies the person or organization that is signing, or authorizing the contents of, the data and ensures the integrity of the signed data. It is a digest of the data to which the signature applies, encrypted with the private key of the signer. A digital signature can be verified by decrypting with the signer's public key. Same as *encrypted digest.* See also **full signature.**

Digital Signature Manager   The part of the Macintosh Operating System that manages digital signatures and certificates.

digital-to-analog convertor (DAC)   A device that converts data from digital to analog form.

digitizer rectangle   The portion of the active source rectangle that you want to capture and convert with a video digitizer component.

direct colors   Up to 16 million colors that have a direct correlation between a value placed in a graphics device and the color displayed onscreen.

direct device   A plug-in video card, a video interface built into a Macintosh computer, or an offscreen graphics world that supports up to 16 million colors having a direct correlation between a value placed in the device and the color displayed onscreen. Compare **indexed device.**

direction   See **dominant direction, glyph direction, line direction, text direction.**

direction boundary   A point between offsets in memory or glyphs on a display, at which the direction of the stored or displayed text changes.

direction level   A hierarchical ranking of dominant direction in a line. Direction levels can be nested so that complex mixed-direction formatting is preserved.

direction-level run   A sequence of contiguous glyphs that share the same text direction.

direction override   A means of overriding the directional behavior of glyphs, on a style-run basis, for special effects.

direction run   A contiguous (in memory) sequence of characters having the same right-to-left or left-to-right **line direction.**

direct memory   Memory directly addressable by an application or by QuickDraw GX. Compare **remote memory.**

direct memory access (DMA)   A technique for transferring data in or out of memory without using the CPU.

direct mode   See **job format mode.**

directory　A subdivision of a volume, available in the hierarchical file system. A directory can contain files and other directories (known as subdirectories).

directory access privileges　A set of conventions for controlling access to a directory.

directory ID　A unique number assigned to a directory. The File Manager uses this number to distinguish a directory from others on the same volume. See also **catalog node ID.**

direct mode　A fast printing mode that uses information built into the printer.

direct parameter　The parameter in an Apple event that contains the data or object specifier record to be used by the server application. For example, a list of documents to be opened is specified in the direct parameter of the Open Documents event. See also **Apple event parameter.**

direct pixel　A pixel displayed on a direct device. Direct pixels can have pixel values of 16 or 32 bits.

disabled interrupt　An interrupt whose priority level is lower than or the same as that of an interrupt that is currently being serviced.

disabled item　In an alert box or a dialog box, an item for which the Dialog Manager does not report user events. An example of a disabled item is static text, which typically does not respond to clicks.

discontiguous memory　One or more non-continuous blocks of memory. For example, a graphics client heaps might be discontiguous.

discontiguous highlighting　Highlighting that exactly matches the selection range it corresponds to. It may consist of discontiguous areas when the selection range crosses direction boundaries. Compare **contiguous highlighting.**

discontinuous selection　A type of selection range in which the selected characters themselves are not contiguous in memory. Not to be confused with **discontinuous highlighting.**

discrete resolution　A printing resolution that has been predefined by a printer driver. A printer supporting discrete resolution prints only a limited number of such resolutions. Compare **variable resolution.**

disk　A physical medium capable of storing information.

disk-based pixel image　A bitmap pixel image that is stored in a file (rather than in memory) even when the bitmap shape is memory.

disk cache　A part of RAM that acts as an intermediate buffer when data is read from and written to file systems on secondary storage devices.

disk formatting　The process of writing special information onto a disk so that the disk driver can read from and write to the disk.

disk initialization　The process of making a disk usable by the Macintosh Operating System.

disk initialization dialog box　A dialog box asking the user whether a disk should be ejected or initialized.

Disk Initialization Manager　The part of the Macintosh Operating System that manages the process of initializing disks.

disk-inserted event　An event generated when the user inserts a disk in a disk drive or takes any other action that requires a volume to be mounted.

disk location record　A data structure that provides information about the location of a fragment in the data fork of a file on disk. Defined by the `DiskFragment` data type.

disk switch dialog box　A dialog box asking the user to insert a particular disk.

disk verification　The process of reading every bit on the disk to ensure that the disk has been formatted correctly and contains no bad blocks.

disk zeroing　The process of creating on the disk the data structures and files necessary for the disk to be recognized as a hierarchical file system (HFS) volume.

dispatch routine   A routine in a script system that dispatches script utility calls. WorldScript I and WorldScript II each contain a single dispatch routine that works for all compatible 1-byte and 2-byte scripts, respectively.

dispatch table   A table that is part of a script system's script record; it contains the addresses of the script utilities for that script system.

display coordinate system   The QuickDraw graphics world, which can be used to display QuickTime movies, as opposed to the movie's time coordinate system, which defines the basic time unit for each of the movie's tracks.

display line   The horizontal extent of an area for drawing text on a display device. The left and right ends of the display line are the text area's left and right margins.

display list   In a standard file dialog box, the list of files, folders, and volumes at one level of the display hierarchy, from which the user can select items.

display order   (1) The left-to-right order in which glyphs are drawn on a screen by QuickDraw. Because not all text is read left-to-right, the display order of glyphs may be different from the storage order of their corresponding character codes in memory. (2) The left-to-right order in which QuickDraw GX displays glyphs. Display order determines the glyph index of each glyph in a line and may differ from the input order of the text. See **glyph index.** Compare **input order, source text.**

display rectangle   A rectangle that defines the size and location of an item in an alert box or a dialog box. The display rectangle is specified in an item list and uses coordinates local to the alert box or a dialog box.

display text   The visual representation of the text of a typographic shape. Display text consists of a sequence of glyphs, arranged in display order. Compare **source text.**

dispose   To delete a reference to an object. When an application no longer needs an object, it disposes of the object. That action deletes the object from memory if there are no other current references to the object; otherwise, disposing of an object merely decreases its owner count by 1.

disposed handle   A handle whose associated relocatable block has been disposed of.

distinguished name   The complete identifier of the owner or issuer of a certificate. A distinguished name includes elements such as common name, organization, street address, and country.

dither   To approximate colors that a display device cannot draw with patterns of similar colors that the display device can draw.

dithering   A technique used to improve picture quality when you are attempting to display an image that exists at a higher bit-depth representation on a lower bit-depth device. For example, you might want to dither a 24 bits per pixel image for display on an 8-bit screen.

dither level   A property of a view port object. It specifies the number of colors that can be dithered together when drawing a shape to that view port. Also called *dither.*

divide-by-zero exception   A floating-point exception that occurs when a finite, nonzero number is divided by zero or some other improper operation on zero has occurred.

divider   A gray line used in menus to separate groups of menu items.

DMA   See **direct memory access.**

dNode   A container within an AOCE catalog that contains records, other dNodes, or both.

dNode number   A number assigned by a catalog that uniquely identifies a catalog node within that catalog. Not all catalogs support dNode numbers. See also **pathname.**

dNode window   A Finder window that displays the dNodes and records contained in a dNode.

document   (1) A file that a user can create and edit. A document is usually associated with a single application, which the user expects to be able to open by double-clicking the document's icon in the Finder. (2) Any collection of information that is displayed in a document window.

document record   An application-defined data structure that contains information about the window, any controls in the window (such as scroll bars), and the file (if any) whose contents are displayed in the window.

document window   A window in which the user enters text, draws graphics, or otherwise enters or manipulates data.

dominant direction   The direction in which successive groups of glyphs are read. Dominant direction is independent of glyph direction. See also **glyph direction, line direction.**

dot color   The color of the dots of a halftone.

dot type   The shape of dot employed in a halftone pattern, such as round, line, or triangle.

double buffering   A technique used by the Sound Manager to manage a play from disk. When using this technique, the Sound Manager plays one buffer of sampled-sound data while filling a second with more data. When the first buffer of sound finishes playing, the Sound Manager plays the data in the second buffer while filling the first with more data. See also **play from disk, sampled-sound data**.

double-click time   The greatest interval between a mouse-up and mouse-down event that would qualify two mouse clicks as a double-click.

double-double format   A 128-bit application data format made up of two double-format numbers. It has the same range as the double format but much greater precision.

double format   A 64-bit application data format for storing floating-point values of up to 15- or 16-decimal digit precision.

double indirection   The means by which the Memory Manager or an application accesses the data associated with a handle variable.

double page fault   A page fault that occurs while the Virtual Memory Manager is handling another page fault. See also **page fault.**

dpi   Dots per inch in the *x* and *y* directions; used to measure the resolution of a screen or printer. The higher the value, the finer the detail of the image. See also **resolution.**

draft-quality printing   The method by which printer drivers convert into drawing operations calls only to QuickDraw's text-drawing routines. The printer driver sends these routines directly to the printer instead of using deferred printing to capture the entire image for a page in a spool file. Draft-quality printing, which is supported on the ImageWriter printer driver, produces quick, low-quality drafts of text documents that are printed straight down the page, from top to bottom and left to right. Compare **enhanced draft-quality printing.**

drag region   The area occupied by a window's title bar, except for the close box and zoom box. The user can move a window on the desktop by dragging the drag region.

drawing error   A QuickDraw GX error indicating why your shape did not draw successfully. The `GXGetShapeDrawError` function posts such a single error.

drawing process sequence   The sequence in which QuickDraw processes objects: shape, style, ink, transform, view port, and view device.

drift   To deviate or vary from scheduled execution.

drift-free   Executed precisely as scheduled, without drifting.

drive queue   A list of all volumes connected to the computer.

driver   See **device driver.**

driver reference number   A number that identifies each installed device driver. It is the one's complement of the driver's unit number.

drop capital   A large uppercase letter that drops below the main line of text for aesthetic reasons.

drop-in   See **application extension.**

drop-launch   To drag a document's icon onto an application's icon, thereby opening the document.

drop-sample conversion   A form of sample rate conversion that uses an existing sample as an interpolated sample point. Compare **linear interpolation.**

DSAP   See **destination service access point.**

DSP   See **digital signal processor.**

DTE   See **data terminal equipment.**

dual caret   A high caret and a low caret, each measuring half the line's height. The dual caret appears only when the text insertion point is at the boundary between two direction runs in a line of text. The high (primary) caret is displayed at the primary caret position, corresponding to the character offset in the direction run that corresponds to the system direction. The low (secondary) caret is displayed at the secondary caret position, corresponding to the character offset in the direction run that is counter to the system direction. When the caret position is unambiguous (not on a direction boundary), the primary and secondary carets are at the same position, so the user sees one caret. Also called *split caret.* Compare **left-to-right caret, right-to-left caret, single caret.**

duplicating   As used by AOCE utility routines: the process of copying the pointers to data structures and not the actual data structures themselves. Compare **copying.**

duration   A time interval. Durations are time values that are interpreted as spans of time, rather than as points in time.

dynamically assigned socket   One of two classes of sockets that DDP maintains. When an application opens a socket without specifying a number within the range of statically assigned sockets, DDP dynamically assigns the application a socket from a pool of available sockets. See also **statically assigned socket.**

dynamically linked library   See **import library.**

dynamic bus sizing   The ability of certain members of the 680x0 family of microprocessors to allow I/O devices with 8-bit and 16-bit data paths to work with the processor's 32-bit data bus.

dynamic highlighting   The process of continually drawing and redrawing the highlighted area as the user moves the cursor through the text while holding down the mouse button.

dynamic window   A window that can change its title or reposition any of the objects within its content area.

EASC   See **Enhanced Apple Sound Chip.**

echoer socket   On every node, the statically assigned DDP socket, socket number 4, that AEP uses to receive packets sent from other nodes over DDP and echo those packets back to the sending node. See also **AEP Echoer, AppleTalk Echo Protocol.**

Echo Reply packet   A packet sent from the AEP Echoer to the originator of the Echo Request packet. Whenever the AEP Echoer receives an Echo Request packet, it modifies the function field, which is the first byte in the packet's data portion, setting it to a value of 2 to indicate that the packet is now a reply packet, then it calls DDP to send a copy of the packet back to the socket from which it originated. See also **Echo Request Packet.**

Echo Request packet   A packet send to the AEP Echoer from a DDP client. The first byte of the data portion of the packet serves as a function field. When this byte is set to 1, the packet is an Echo Request packet. When the AEP Echoer receives an Echo Request packet, it modifies the function field to now identify the packet as an Echo Reply packet. Then the AEP Echoer calls DDP to send a copy of the packet back to the socket from which it originated. See also **Echo Reply packet.**

edge   A line or curve that makes up part of a shape contour.

edge offset   A byte offset into the source text of a layout shape that specifies a position *between* byte values. Edge offsets in source text are related to caret positions in display text. Compare **byte offset, caret position.**

edition   The data written to an edition container by a publisher. A publisher writes data to an edition whenever a user saves a document that contains a publisher, and subscribers in other documents may read the data from the edition whenever it is updated. See also **publisher, subscriber.**

edition container   A file that holds edition data, represented on the desktop by an edition icon. An edition container obtains its data from a publisher within a document. See also **edition, publisher.**

Edition Manager   The collection of routines that allows applications to automate copy and paste operations between applications, so that data can be shared dynamically.

edit state   Information defining the current state of a movie or track with respect to an edit session. The Movie Toolbox uses edit states to support its undo facilities.

eight-color system   The eight predefined colors provided by basic QuickDraw for display on color screens and color printers.

ELAP   See **EtherTalk Link-Access Protocol.**

element   An Apple event object contained by another Apple event object specified as the element's container. An Apple event object can contain many elements of the same element class, whereas an Apple event object can have only one of each of its properties. See also **Apple event object, container, element classes, property.**

element classes   In the *Apple Event Registry: Standard Suites,* a list of the object classes for the elements that an Apple event object of a given object class can contain. See also **Apple event object, object class.**

embedded speech command   In a buffer of input text, a sequence of characters enclosed by command delimiters that provides instructions to a speech synthesizer.

empty handle   A handle whose master pointer has the value NIL (possibly indicating that the underlying relocatable block has been purged).

empty shape   A type of QuickDraw GX shape. Empty shapes have no geometry, are contained by every other shape, and do not appear when drawn.

emulated application   An application whose executable code is not in the instruction set architecture of the CPU. An emulated application relies on an emulator to translate its code into that instruction set. See also **680x0 application.**

emulation   The process by which a microprocessor is able to execute code in an instruction set different from its native instruction set. See also **68LC040 Emulator.**

emulation environment   The 680x0-compatible environment on PowerPC processor-based Macintosh computers provided by the 68LC040 Emulator and the Mixed Mode Manager.

emulator   See **68LC040 Emulator.**

enable   To make a script system available. The Script Manager and the script extensions enable only those script systems that have a required set of resources and fonts. Compare **install, initialize.**

enabled item   In an alert box or a dialog box, an item for which the Dialog Manager reports user events. For example, the Dialog Manager reports clicks in an enabled OK button.

enclosure   A file or folder sent along with a letter, like an attachment to a conventional hard-copy letter. See also **content enclosure, regular enclosure.**

encoding   A style object property. It is the type of character encoding used to represent the text of a shape, as well as its script and language.

encoding/rendering resource   An international resource of type `'itl5'`. The encoding/rendering resource specifies character encoding or rendering information for a particular script system. The encoding/rendering resource is optional and has different formats in 1-byte and 2-byte script systems.

encrypt   To hide data by putting it into a scrambled (illegible) state, in such a way that its original state can be restored later. In most cryptographic systems, encryption is performed by mathematically manipulating the data with a large number called a *key*.

encrypted digest   See **digital signature.**

encryption   The process of encoding data based on an algorithm that makes the data unreadable by anyone other than the intended recipient.

encryption key   See **key.**

ending prosody   The rhythm, modulation, and stress patterns associated with the end of a sentence of speech.

end-of-file (EOF)   See **logical end-of-file, physical end-of-file.**

Enhanced Apple Sound Chip (EASC)   A modified Apple Sound Chip that generates stereo sound using pulse-code modulation. Compare **Apple Sound Chip.**

enhanced draft-quality printing   The method by which some printer drivers print bitmaps, pixel maps, and text without writing to or reading from a spool file. The ImageWriter printer driver, for example, supports enhanced draft-quality printing. Compare **deferred printing, draft-quality printing.**

enhanced Sound Manager   Any version of the Sound Manager greater than 2.0.

entity name   A name that is associated with a network entity to register that entity with NBP. An entity name consists of three fields: object, type, and zone.

entry   See **dictionary entry.**

environmental access switch   A switch, recommended in the FPCE technical report, that specifies whether a program accesses the rounding direction modes and exception flags.

environmental controls   The rounding direction modes and the exception flags.

environmental selector   A Gestalt selector code, used with the `Gestalt` function, that returns information about the operating environment that can be used by an application to guide its actions. Compare **informational selector.**

EOF   See **logical end-of-file, physical end-of-file.**

epilog   A standard piece of code at the end of a routine that restores any nonvolatile registers saved by the routine's prolog, tears down the routine's stack frame, and returns to the caller. See also **prolog.**

erase   To draw both the outline of a shape and its interior with the background pattern for the current graphics port. The background pattern is typically solid white on a black-and-white screen or a solid background color on a color screen. Making the shape blend into the background pattern of the graphics port effectively erases the shape.

error   A single descriptive phrase that is posted by QuickDraw GX whenever an application is unable to execute. Execution is terminated at the nonexecutable function. Each error message is assigned a unique number in the range –27999 through –27000. Errors are posted in both the debugging and non-debugging versions of QuickDraw GX.

error callback function   An object callback function that gives the Apple Event Manager an address. The Apple Event Manager writes to this address the descriptor record it is currently working with if an error occurs during the resolution of an object specifier record. See also **object callback function.**

error callback procedure   An application-defined procedure that is executed whenever the Speech Manager encounters an error in an embedded speech command in a buffer of input text.

error diffusion   A process of dithering for bitmaps in which the error (the difference between the computed color of a given pixel and the nearest color available on the view device) is passed to adjacent pixels.

Ethernet Phase 1 packets   The original style of Ethernet packet as defined by the IEEE 802.3 protocol. If the value of the last 2 bytes in the packet header is greater than 1500, the packet is an Ethernet Phase 1 packet.

Ethernet Phase 2 packets   The style of Ethernet packet defined by the IEEE 802.2 protocol. If the value of the last 2 bytes in the header is less than or equal to 1500, the packet is an Ethernet Phase 2 packet.

EtherTalk   The data link that allows an AppleTalk network to be connected by Ethernet cables.

EtherTalk Link-Access Protocol (ELAP)   The AppleTalk link-access protocol used in an EtherTalk network. ELAP is built on top of the standard Ethernet data-link layer.

evaluation format   The data format used to evaluate the result of an expression. The evaluation format must be at least as wide as the expression's semantic type. (It may be the same as the semantic type.)

even-odd fill   A shape fill that follows the even-odd rule. Same as *solid fill.*

even-odd rule   A rule used when drawing filled shapes to determine which areas are filled. The even-odd rule does not fill areas which lie under overlapping contours. Compare **winding-number rule.**

event   The means by which the Event Manager communicates information about user actions, changes in the processing status of the application, and other occurrences that require a response from the application.

event class   An attribute that identifies a group of related Apple events. The event class appears in the `message` field of the Apple event's event record. The event class and the event ID identify the action an Apple event performs. See also **Apple event attribute, event ID.**

event-driven programming   A way of structuring an application so that it is guided by events reporting a user's actions and other occurrences in the computer.

event filter function   An application-defined routine that supplements the Dialog Manager's ability to handle events—for example, an event filter function can test for disk-inserted events and can allow background applications to receive update events.

event ID   An attribute that identifies a particular Apple event within a group of related Apple events. The event ID appears in the `where` field of the Apple event's event record. The event ID and the event class identify the action an Apple event performs. See also **Apple event attribute, event class.**

event loop   A section of code that repetitively retrieves events from the Event Manager and dispatches to the appropriate event-handler.

Event Manager   The collection of routines that an application can use to receive information about actions performed by the user, to receive notice of changes in the processing status of the application, and to communicate with other applications.

event mask   An integer with one bit position for each event type. You specify an event mask as a parameter to Event Manager routines to specify the event types you want your application to receive, thereby disabling (or "masking out") the events you are not interested in receiving.

event priority   The order in which an event of a particular type is returned to an application.

event record   A data structure of type `EventRecord` that your application uses when retrieving information about an event. The Event Manager returns, in an event record, information about what type of event occurred (a mouse click or keypress, for example) and additional information associated with the event.

exactly-once (XO) transaction   A type of ATP transaction that ensures that the responder application receives a specific request only once.

exception   An error or other special condition detected by the microprocessor in the course of program execution. The floating-point exceptions are invalid, underflow, overflow, divide-by-zero, and inexact.

exception code   A constant that indicates which kind of exception has occurred.

exception flag   Each exception has a flag that can be set, cleared, and tested. It is set when its respective exception occurs and stays set until explicitly cleared.

exception handler   Any routine invoked automatically by the processor in any of a variety of exceptional circumstances. For example, the trap dispatcher is an exception handler that is called by the processor, to dispatch unimplemented A-line instructions.

exception information record   A data structure that contains information about an exception, such as the exception kind, the machine state at the time of the exception, and so forth. Defined by the `ExceptionInformation` data type.

Exception Manager   The part of the Macintosh system software that handles exceptions that occur during the execution of PowerPC applications or other software.

exception stack frame   A block of data placed on the stack automatically by the processor when an exception occurs.

exclude mode   A transfer mode type in which the destination color remains visible only where the source is transparent, and the source color is copied anywhere the destination is transparent.

exclusive access   The file access permissions that deny other users both read and write access to a file.

executable resource   Any resource that contains executable code. See also **accelerated resource, private resource.**

exhaustive search   A search using an algorithm that scans an entire volume to look for possible matches.

expansion   See **audio expansion.**

expansion card   A removable printed circuit card that plugs into a connector (slot) in the computer's expansion interface. Macintosh computers can use expansion cards designed for the NuBus expansion interface or for the processor-direct slot expansion interface. Also called *slot cards* or simply *cards.*

explicit cross-mode call   A call to code that is in a different instruction set architecture from the caller's, caused by the caller explicitly calling the `CallUniversalProc` function.

explicit scaling   Scaling performed by the Font Manager when an application specifically asks QuickDraw to change text from a particular size or shape to another. Compare **implicit scaling.**

explicit translation   The conversion of a file or scrap requiring direct intervention from an application. See also **implicit translation.**

exponent   The part of a binary floating-point number that indicates the power to which 2 is raised in determining the value of the number. The wider the exponent field in a numeric data format, the greater range the format will handle.

export   To make a symbol externally visible. Also, a synonym for **exported symbol.**

exported symbol   A symbol in a fragment that is visible to some other fragments. See also **import library, imported symbol.**

expression evaluation method   The method by which an evaluation format is determined for an expression.

extended addressing   A method of addressing that allows an extended network to use a range of network numbers. In principle, extended addressing allows an extended network to have over 16 million (2^{24}) nodes. In any specific implementation, the hardware or software might limit the network to fewer nodes.

Extended Common Object File Format (XCOFF)   A format of executable file generated by some PowerPC compilers. See also **Preferred Executable Format.**

extended DDP header   See **long DDP header.**

extended item list   A resource that extends an item list (`'DITL'`) resource by responding automatically to items when they are manipulated by the user.

extended network   An AppleTalk network that allows addressing of more than 254 nodes. An extended network can support multiple zones.

extended parameter RAM   The 236 bytes of parameter RAM that is reserved by the system software.

extended sound header   A sound header that can describe monophonic and stereo sampled-sound data, but not compressed sound data. Defined by the `ExtSoundHeader` data type. See also **compressed sound header, sampled sound header.**

extended version 2 picture format   The format for all pictures created with the `OpenCPicture` function. Available on all Macintosh computers running System 7, this format allows applications to specify resolutions when creating images.

extension   (1) An object class that duplicates all the characteristics of an object class of the same name and adds some of its own. Like a word in a dictionary, a single object class ID can have several related definitions. (2) See **application extension, system extension.**

Extensions folder   A directory located in the System Folder for storing system extension files such as printer and network drivers and files of types `'INIT'`, `'scri'`, and `'appe'`.

extension type   A four-character value that identifies a type of messaging system that uses a specific addressing convention; for example, an AppleLink system or an X.400 system.

extent   A contiguous range of allocation blocks that have been allocated to some file.

extent data record   A data record that contains three extent descriptors. Extent data records are stored in the leaf nodes of the extents overflow file, in the catalog file, and in the boot blocks.

extent descriptor   A description of an extent, consisting of the number of the first allocation block of the extent followed by the length of the extent. Defined by the `ExtDescriptor` data type.

extents overflow file   A special file containing all extent data records that are not stored elsewhere by the File Manager.

external catalog   A catalog or database accessible to AOCE-enabled applications through the Catalog Manager API. For a user to have access to an external catalog, the user's AOCE system must include a CSAM for that catalog service.

external code   Any block of executable code that is not directly contained in an application or other software.

external messaging system   Any non-AOCE messaging system.

external reference   A reference to a routine or variable defined in another code segment.

external service   A service that is not provided automatically with PowerTalk system software and PowerShare servers.

face layers   A structure that describes part of a text face. Several face layers are combined to form the visual composite of a glyph.

factoring   Using Apple events to separate the code that controls an application's user interface from the code that responds to the user's manipulation of the interface. In a fully factored application, any significant user actions generate Apple events that a scripting component can record as statements in a compiled script. See also **recordable application.**

fade mode   A transfer mode type in which the source is blended with the destination, using the relative alpha values as the ratio for the blend.

fake definition resource   See **stub definition resource.**

fake handle   A handle that was not created by the Memory Manager but is passed to some Memory Manager routine.

fake pointer   A pointer that was not created by the Memory Manager but is passed to some Memory Manager routine.

fast search   A search that employs an algorithm designed to find the target of an alias record quickly. See also **absolute search.**

fat   Containing or describing code of multiple instruction sets.

fatal system error   A system error that causes the entire system to crash.

fat application   An application that contains code of two or more instruction sets. See also **680x0 application, PowerPC application.**

fat binary   Any piece of executable code (application, code resource, trap, or trap patch) that contains code of multiple instruction sets. See also **fat application, fat patch, fat resource, fat trap.**

fat patch   A trap patch that contains executable code in two or more instruction sets.

fat resource   A code-bearing resource that contains executable code in two or more instruction sets. A fat resource begins with a fat routine descriptor.

fat routine descriptor   A routine descriptor that contains routine records for a routine's code in two or more instruction sets.

fat trap   A system software routine that is implemented in two or more instruction sets. In general, the Operating System selects the trap implementation that avoids mode switches. See also **split trap.**

FCB   See **file control block.**

FDDITalk   The data link that allows an AppleTalk network to be connected by FDDI fiber-optic cables.

FDDITalk Link-Access Protocol (FLAP)   The AppleTalk link-access protocol used in an FDDITalk network. FLAP is built on top of the standard FDDI data-link layer.

feature selectors   A means of defining particular font features in a feature type. See also **feature type.**

feature type   A group of font features in a style object that are applied to each style run based on font defaults. See also **feature selectors.**

fiber optics   The thin transparent fibers of glass or plastic in which data is transmitted through light pulses.

FIFO   See **first-in, first-out.**

file   A named, ordered sequence of bytes stored on a Macintosh volume, divided into a data fork and a resource fork.

file access permissions   See **file permissions.**

file and directory registry   A list of files and directories that the Code Fragment Manager should search when looking for import libraries. See also **ROM registry.**

file control block (FCB)   A fixed-length data structure, contained in the file-control-block buffer, where information about an access path to a file is stored.

file-control-block buffer   A block in the system heap that contains one file control block for each access path.

file filter function   An application-defined function that helps determine which files appear in the list of files to open. This list appears in the dialog boxes displayed by the Standard File Package.

file fork   One of the two parts of a file. See also **data fork, resource fork.**

file ID   A unique number assigned to a file. The File Manager uses this number to distinguish a file from others on the same volume. See also **catalog node ID.**

file ID reference   An internal record in the volume's catalog file. This record specifies the filename and parent directory ID of the file with a given file ID.

file ID thread record   See **file ID reference.**

file I/O queue   A queue containing parameter blocks for all I/O requests to the File Manager.

File Manager   The part of the Macintosh Operating System that manages the organization, reading, and writing of data located on physical data storage devices such as disk drives.

file mapping   The process of using a file's data fork as the virtual memory paging file.

file mark   A marker the File Manager uses to keep track of its place in a file during a read or write operation. The file mark specifies the position of the next byte that will be read or written.

filename   A sequence of up to 31 printing characters, excluding colons, that identifies a file.

file permissions   A set of conventions for controlling access to a file. A file's permissions consist of access modes and deny modes.

file reference number   A number (greater than 0) that is returned to your application when it opens a fork of a file using File Manager routines; each file reference number corresponds to a unique access path.

file server   A computer running software that provides network users with access to shared disks or other mass-storage devices.

file system   A method of organizing files and directories on a volume.

file system specification   A record that identifies a stored file or directory by volume reference number, parent directory ID, and name. Defined by the `FSSpec` data type.

file translation list   A list of source and destination file types among which a file translation system can translate. Defined by the `FileTranslationList` data type.

file translation system   A translation system that can recognize and translate files from one format to another.

file type template   An AOCE template that extends the list of file types that may contain an AOCE template. During system startup, the Catalogs Extension searches for AOCE templates in files whose types are on the list.

file type specification   A way of specifying the catalog type and translation file type of a file, as well as other information about translating the file. Defined by the `FileTypeSpec` data type.

fill   (1) To draw both the outline of a shape and its interior with any pattern you specify. The procedure transfers the pattern with the `patCopy` pattern mode, which directly copies your requested pattern into the shape. (2) See **shape fill.**

filter   See **translator.**

Finder   A Macintosh application that works with the system software to keep track of files and manage the user's desktop display.

Finder Interface   A set of routines, data structures, and resources that you can use to coordinate your application with the Finder.

Finder sound file   A file of file type `'sfil'` containing a sound resource. If a user opens a Finder sound file, the Finder plays the sound resource contained within it. See also **sound file, sound resource.**

firmware   Programs or data permanently stored in ROM.

first-in, first-out (FIFO)   Characteristic of a queue in which the first item put into the queue becomes the first item to be taken out of it. Compare **last-in, first-out.**

fixed-frequency   Of constant frequency.

fixed input   In inline input, text that has already been converted from phonetic to ideographic representation, and thus can be removed from the active input area. Usually, the text service component continually gets rid of fixed input. In certain situations, a client application may need to explicitly fix input, if for example it must suspend input in progress.

`Fixed` number   A 32-bit signed integer with 16 bits to the left and 16 bits to the right of the binary decimal point. A fixed-point number with a bias of 16. `Fixed` numbers range from –32,768 to nearly +32,768. The `Fixed` number for 1.0 is 0x0001000.

fixed point   A point that uses fixed-point numbers to represent its coordinates. The Movie Toolbox uses fixed points to provide greater display precision for graphical and image data.

fixed-point number   A signed 16-bit, 32-bit, or 64-bit quantity containing an integer part in the high-order word and a fractional part in the low-order word. Integers are interpreted as real numbers by the use of bias to define where the decimal point is located. Numbers having the `gxColorValue`, `short`, `long`, `fixed`, `fract`, and `wide` number formats are fixed point numbers. See also **bias, `fract` number, `gxColorValue`, `long number`, `short number`, wide number**.

fixed rectangle   A rectangle that uses fixed points to represent its vertices. The Movie Toolbox uses fixed rectangles to provide greater display precision.

fixed token   A token associated with a single, invariant set of characters. The token `tokenPeriod` is a fixed token; it represents a period (.). The token `tokenNumeric` is not fixed; it could represent any number.

fixed-width font   A font whose characters all have the same width. Compare **proportional font.**

flagship name   A personalized name that users can enter to identify their nodes when they are connected to an AppleTalk network. The flagship name is different from the Chooser name that a node uses for server-connection identification.

Flagship Naming Service   A feature that allows users to specify a flagship name to identify their nodes when the node is connected to an AppleTalk network.

FLAP   See **FDDITalk Link-Access Protocol.**

flat font list   A list that QuickDraw GX creates when you flatten a shape that contains fonts. This list specifies which fonts were used in a shape, which glyphs were used in a font, or both.

flatten   To convert the private, object-based description of an object or set of objects into a public-format data stream suitable for file or clipboard storage. Used when saving a print job. Compare **unflatten.** See also **stream format.**

flattening   The process of copying all of the original data referred to by reference in QuickTime tracks into a QuickTime movie file. This can also be called *resolving references.* Flattening is used to bring in all of the data that may be referred to from multiple files after QuickTime editing is complete. It makes a QuickTime movie stand-alone—that is, it can be played on any system without requiring any additional QuickTime movie files or tracks, even if the original file referenced hundreds of files. The flattening operation is essential if QuickTime movies are to be used with CD/ROM discs.

floating input window   A floating window used for text entry by an input method.

floating-point operation   An operation that is performed on numbers in floating-point formats. The IEEE standard requires that a numerics environment support addition, subtraction, multiplication, division, square root, remainder, and round-to-integer as the basic floating-point arithmetic operations.

Floating-Point Status and Control Register (FPSCR)   A 32-bit PowerPC register used to store the floating-point environment.

floating window   A window that is similar to a standard Window Manager window except that it occupies a special layer so that it always remains in front of any application windows.

floating window service   A service, managed by the Text Services Manager and the Process Manager, that provides floating windows for text service components.

flush   (1) To write data from a cache in memory to a volume. (2) To write data or instructions from a cache in the microprocessor to RAM.

Flush   An ADB command to a device that forces it to remove any existing user-input data from the appropriate device register. See also **Listen, SendReset, Talk.**

flush-to-zero system   A system that excludes denormalized numbers. Results smaller than the smallest normalized number are rounded to zero.

focus box   See **focus rectangle.**

focus rectangle   A heavy border around a panel or around the content portion of a window. This border indicates to the user that the area it encloses is active and that any subsequent key-down event pertains to that portion of the window. Also called *focus box.*

folder   A directory. See **directory.**

font   (1) For bitmapped fonts, a complete set of glyphs in one typeface, size, and style. (2) For outline fonts, a complete set of glyphs in one typeface and style. A font also has a table that associates those glyphs with their equivalent character codes. (3) A style object property. It is the reference to the font to use in drawing the text of a shape. (4) A collection of glyphs that usually have some element of design consistency such as the shapes of the counters, the design of the stem, stroke thickness, or the use of serifs.

font attributes   A group of flags that modify the behavior or identity of a font.

font characterization table   A table of parameters in a device driver that specifies how best to adapt fonts to that device.

font descriptors   The identifiable characteristics of each font object within a family, such as weight, width, italic slant, and optical point size.

font embedding   The technique of storing a font object's binary data in a document so that the text in the document always displays the correct font.

font family   A complete set of fonts for one typeface including all available styles and sizes of the glyphs in that typeface. A font family may include both bitmapped and outline fonts. Font families are defined by resources of type `'FOND'`.

font-family ID   The number that identifies the resource file (of type `'FOND'`) that specifies the font family. Every font family has a unique font-family ID, in a range of values that determines the script system to which the font family belongs.

font features   The set of typographic and layout capabilities that create a specific appearance for a layout shape.

font force flag   A Script Manager variable that forces text whose font has an ID in the range of the Roman script system to be interpreted as belonging to the system script instead.

font height   The vertical distance from a font's ascent line to its descent line.

font ID   (1) A font-family ID. (2) A number that identifies the resource file of a particular individual font, of type `'FONT'`, `'nfnt'`, or `'sfnt'`.

font instance   A setting identified by the font's designer that matches specific values along the available variation axes and gives those values a name.

font layout   (1) The mapping of character codes to the glyphs of one typeface. (2) The mapping of glyph indexes to the glyphs of one typeface.

font management error   A QuickDraw GX error that involves the storage, attributes, or parameter of a font.

Font Manager   The part of the Toolbox that supports the use of various fonts for QuickDraw when it draws text.

font name   (1) The name, such as Geneva or Kyoto, given to a font family to distinguish it from other font families. (2) A set of specific information in a font object about a font, such as its family name, style, copyright date, version, and manufacturer. Some font names are used to build menus in an application, whereas other names are used to identify the font uniquely.

font number   See **font ID**.

font object   An object type that hides the complexity of font data from your application.

font rectangle   The smallest rectangle enclosing all the glyphs in a font if the images are all superimposed over the same glyph origin.

font run   A sequence of text that is contiguous in memory and in which all characters are in the same font.

font scaler error   A QuickDraw GX error that involves the conversion of a glyph outline to a bitmap.

font scaler warning   A QuickDraw GX warning that involves the conversion of a glyph outline to a bitmap.

font scaling   The process of changing a glyph from one size or shape to another. The Font Manager can scale bitmapped and outline fonts by changing both sizes and shapes of glyphs.

font scaling factors   Ratios that indicate how the Font Manager should scale a glyph in the vertical and horizontal directions.

font script   The script system that corresponds to the current font (the font specified in the `txFont` field of the current graphics port), hence the script that determines in which writing system to display text characters in the window.

Fonts folder   A directory located in the System Folder for storing fonts.

font size   The size of the glyphs in a font in points; nominally a measure of the distance from the baseline of one line of text to the baseline of the next line of single-spaced text.

font substitution   Substitution of a screen font for a printer font by a printer driver. PostScript printer drivers may substitute PostScript printer fonts for bitmapped screen fonts.

font variation   An algorithmic way to produce a range of typestyles along a particular variation axis.

font variations   A style object property. It is the list of font variations—stylistic variations built into the font—available for drawing the text of a shape.

font variation suite   A complete listing of every axis supported in a font in the order specified by the font. Each axis is given a value in the listing.

foreground   The part of a glyph bitmap that constitutes the glyph itself. Compare **background.**

foreground color   The color that QuickDraw applies to the foreground parts of a glyph; specified by the `fgColor` field of the current graphics port. By default, the foreground color is black.

foreground process   The process currently interacting with the user; it appears to the user as the active application. The foreground process displays its menu bar, and its windows are in front of the windows of other applications. Compare **background process.**

foreground task   The process that is currently the main task being executed by the system. This generally corresponds to the application that owns the frontmost window on the user's screen. There is only one foreground task at any given time.

foreign dNode   A dNode in a PowerShare catalog used by AOCE system software to route messages to an external messaging system through a server MSAM.

fork   See **file fork.**

form   A property of a format object that allows a picture shape to be printed as a backdrop to the contents of the page. A form can optionally include a mask shape that defines areas that are not printed.

format block   An element in the firmware structure of a declaration ROM that provides a standard entry point for other elements in the structure. The format block allows the Slot Manager to find the declaration ROM and validate it.

format collection   A collection of items that are relevant to a format but are not required to define a format. See also **collection object.**

format object   An object that represents how pages of a document are to be formatted, including scaling, orientation, and paper type. It allows a form to be associated with a format. See also **paper-type object, form.**

formatting   See **disk formatting.**

formatting printer   The printer for which a document's format is retained. See also **output printer.**

forward   To pass a message on to the next message handler in a message chain. See also **message chain, message handler, override.**

Forwarder record   A catalog record that contains identifying information about a server MSAM.

forwarder template   An AOCE template that allows existing aspect templates and information page templates to be used for new types of records and attributes.

forward reset   The event that occurs when one connection end cancels delivery of all outstanding data to the other connection end, causing ADSP to discard all data in the send queue, all data in transit to the remote connection end, and all data in the other connection end's receive queue that the client has not yet read.

FP   See **frame pointer.**

FPCE   Floating-Point C Extensions. See also **ANSI X3J11.1, FPCE technical report.**

FPCE technical report   A report authored by the Numerical C Extensions Group (ANSI X3J11.1) that proposes a standard for floating-point operations in the C programming language.

FPSCR   See **Floating-Point Status and Control Register.**

fraction   A field in a floating-point data format that stores all but the leading bit of the significand of a floating-point number.

`fract` number   A 32-bit signed integer with two bits to the left and 30 bits to the right of the binary decimal point. A fixed-point number with a bias of 2. `Fract` numbers range from –2 to +2. The `fract` number for 1.0 is 0x40000000.

fragment   Any block of executable PowerPC code and its associated data.

fragmentation   See **heap fragmentation.**

fragment initialization block   A parameter block passed to a fragment's initialization routine that contains information about the fragment. Defined by the `InitBlock` data type.

fragment location record   A data structure that provides information about the location of a fragment. Defined by the `FragmentLocator` data type.

frame   (1) To draw the outline of a shape (such as a rectangle) using the size, pattern, and pattern mode of the graphics pen for the current graphics port. The interior of the shape is unaffected, allowing previously existing pixels in the image to show through. (2) The part of a window drawn automatically by the Window Manager, namely, the title bar, including the close box and zoom box, and the window's outline. (3) A single image in a sequence of images. (4) A group of bits that form a discrete transmission unit that is sent between data-link protocol implementations across an AppleTalk internet. Each frame includes its own addressing and control information in the header. The first several bits in a frame form the header, followed by the message data, and ending with a check sequence for error detection. A DDP datagram or packet is enclosed within a frame to transmit the packet at

the data-link layer. Whether the datalink type is LocalTalk, TokenTalk, EtherTalk, or FDDITalk, all datalink frames are constructed as LLAP (LocalTalk Link-Access Protocol) frames because that is the frame format that AppleTalk recognizes and expects to receive. (5) See **stack frame, switch frame.**

framed fill   A shape fill that indicates a shape's geometry describes an outline—the outline defined by the contours of the shape's geometry. Framed fills include open-frame fill and closed-frame fill.

frame differencing   A form of temporal compression that involves examining redundancies between adjacent frames in a moving image sequence. Frame differencing can improve compression ratios considerably for a video sequence.

framed shape   A shape that describes an outline—the outline defined by the contours of the shape's geometry. The shape fill of a framed shape can be open-frame fill or closed-frame fill.

frame pointer (FP)   A pointer to the beginning of a stack frame. See also **stack pointer.**

frame rate   The rate at which a movie is displayed—that is, the number of frames per second that are actually being displayed. In QuickTime the frame rate at which a movie was recorded may be different from the frame rate at which it is displayed. On very fast machines, the playback frame rate may be faster than the record frame rate; on slow machines, the playback frame rate may be slower than the record frame rate. Frame rates may be fractional.

free block   A memory block containing space available for allocation.

frequency   (1) The number of times per second that an action (such as the issuance of an interrupt) occurs. An action's frequency is measured in cycles per second, or hertz. See also **period.** (2) The size of cells in a halftone pattern, in cells per inch.

From recipient   The sender of a message. See also **original recipient.**

full digital signature   See **full signature.**

full-duplex dialog   A transmission method that permits simultaneous two-way communication.

full justification   See **justification.**

full pathname   A pathname that begins in the root directory.

full shape   A type of QuickDraw GX shape. Full shapes have no geometry, contain every other shape, and cover all area when drawn.

full signature   A digital signature plus the certificate set of the signer. The Digital Signature Manager creates and verifies full signatures. Same as *full digital signature.*

fully justified   See **justification.**

functional address   A token ring hardware address that is shared by a subset of nodes on a particular data link.

functional-area Apple event   A standard Apple event supported by applications with related features; for example, an Apple event related to text manipulation for word-processing applications, or an Apple event related to graphics manipulation for drawing applications. Functional-area Apple events are defined by Apple Computer, Inc., in consultation with interested developers and are published in the *Apple Event Registry: Standard Suites.*

functional sResource   An sResource in an expansion card's declaration ROM that describes a specific function of the card. For example, a video card may have separate functional sResources for all of the display modes it supports.

function field   The first byte of the data portion of a packet sent to or from the AEP Echoer that indicates whether the packet is an Echo Request packet (byte value is 1) or an Echo Reply packet (byte value is 2).

function prototype   A declaration of the types of parameters expected by a function and of the type of the result it returns. ANSI C requires function prototypes for all functions you define.

gain   The ratio of the output volume to the input volume. See also **automatic gain control.**

gamut   The limits of the colors that a device can produce. Different devices have different gamuts, so color matching is necessary when converting colors from one device to another.

garbage data   A type of data in a dictionary that exists if the size of the information associated with a key increases or decreases or if the information is deleted. This data is no longer used by the dictionary.

GB   See **gigabyte.**

`GDevice` **record**   A data structure of type `GDevice` that holds information about the physical characteristics of a video device or offscreen graphics world, including a pixel map that describes the pixel depth for that video device or offscreen graphics world, information about whether the video device or offscreen graphics world supports indexed or direct colors, and—for indexed devices—specifications for the colors that are currently available for the video device or offscreen graphics world. System software allocates and initializes one `GDevice` record for each installed video device and stores the record in the system's **device list.**

generic script ID   Special script IDs used by the generic scripting component to keep track of script IDs provided by multiple scripting components. The generic scripting component translates generic scripting IDs into the corresponding component-specific script IDs and vice versa when necessary.

generic scripting component   A special scripting component that establishes connections dynamically with the appropriate scripting component for each script that a client application attempts to manipulate or execute. The generic scripting component also provides routines that you can use to determine which scripting component created a particular script, get an instance of a specific scripting component, and perform other useful tasks when you are using multiple scripting components. See also **scripting component.**

generic storage descriptor record   A descriptor record of type `kOSAGenericStorage` that can be used by the generic scripting component or any other scripting component to store script data. The script data in a generic storage descriptor record is followed by a trailer that contains the subtype for the scripting component that created the script data.

genlock   A circuit that locks the frequency of an internal clock to an external timing source. This term is used to refer to the ability of a video digitizer to rely on external clocking.

geometric operations   Mathematical operations on the geometries of shape objects. See also **constructive geometry.**

geometric pen   The pen used by QuickDraw GX to draw framed shapes. The width and placement of this pen are affected by style properties.

geometric point   An (x, y) coordinate pair used to specify a location in a shape's geometry. Geometric points can specify the ends of lines or curves or the off-curve control points used to control curvature.

geometric shape   Any QuickDraw GX shape that has one of the following shape types: empty, full, point, line, curve, rectangle, polygon, path.

geometry   A property of a QuickDraw GX shape object. A shape's geometry is the specification of the actual size, position, and form of the shape. For example, for a line shape, the geometry specifies the locations (in local coordinates) of the end points of the line.

geometry coordinates   Paired values that specify a size or location in geometry space.

geometry index   A number used to specify a particular geometric point in a geometry: the first geometric point in a geometry has geometry index 1, and so on. Whereas contour indices start over with each contour in a geometry, geometry indices do not.

geometry space   The coordinate system represented by the geometry of a shape object. Compare **device space, global space, local space.**

Gestalt Manager   The part of the Macintosh Operating System that you can use to determine the features of the current software and hardware operating environment.

gigabyte (GB)   1024 megabytes, or 1,073,741,824 bytes.

global coordinates   (1) Paired values that specify a size or location in global space. (2) For QuickDraw GX, the coordinate system used for a view group. For example, a view port's location is described in global coordinates. This coordinate system represents all potential drawing space. The origin, point (0,0), of the global coordinate system is located at the upper-left corner of the main screen. The positive *x*-axis extends to the right. The positive *y*-axis extends downward.

global coordinate system   The coordinate system that represents all potential QuickDraw drawing space. The origin of the global coordinate system—that is, the point (0,0)—is at the upper-left corner of the main screen. Compare **local coordinate system.**

global instantiation   The method of allocating an import library's static data in which only one copy of that data is created regardless of how many connections to the library are made. See also **per-context instantiation, per-load instantiation.**

global space   The coordinate system, used by a view group, resulting from the application of the view port mapping shape dimensions measured in local space. A view port's location, for example, is described in global coordinates. Compare **device space, geometry space, local space.**

global variables   See **application global variables, QuickDraw global variables, system global variables.**

global width table   A data structure used by the Font Manager to communicate character widths to QuickDraw.

glue routine   A run-time library routine, usually provided by the development environment, that provides a linkage between high-level language code and a system routine with an interface protocol different from that of the high-level language. Also, any short special-purpose assembly-language routine.

glyph   The distinct visual representation of a character in a form that a screen or printer can display. A glyph may represent one character (the lowercase *a*), more than one character (the *fi* ligature), part of a character (the dot over an *i*), or a nonprinting character (the space character). See also **character.**

glyph code   A number that specifies a particular glyph in a font. Fonts map character codes to glyph codes, which in turn specify individual glyphs.

glyph direction   The direction in which successive glyphs are read. Compare **dominant direction.**

glyph ductility   The ability to stretch the actual form of a glyph during justification.

glyph index   (1) A number that specifies a particular glyph in a font. Some fonts directly specify glyphs with character codes, whereas others map character codes to glyph indexes, which in turn specify the glyphs. (2) The order of a glyph in a line of display text. The leftmost glyph in a line of text has a glyph index of 1; each succeeding glyph to the right has an index one greater than the previous glyph. Compare **edge offset, glyph code.**

glyph justification overrides array   A style object property used only by layout shapes. It is an array that redefines the justification priorities and behaviors for individual glyphs.

glyph origin   (1) The point on a baseline used as a reference location for drawing a glyph. QuickDraw draws a glyph so that the glyph origin corresponds to the current pen position. (2) The point that QuickDraw GX uses to position a glyph when drawing.

glyph shape   A typographic shape that allows you to vary the position, font, rotation, and scale of each glyph in a line of text. Compare **layout shape, text shape**. See **typographic shape.**

glyph substitutions array   A style object property used only by layout shapes. It is an array specifying substitute glyphs for those that would normally be displayed in a style run.

good-bye message   A message sent by the Operating System to notify device drivers when an application quits or the system shuts down. To receive a good-bye message, drivers must set the `dNeedGoodBye` bit in the `drvrFlags` word.

gradual underflow   A process that occurs on a computer system that includes denormalized numbers.

GraphicsBug   A tool for debugging QuickDraw GX applications; its mode of use and command set are analogous to those of MacsBug.

graphics client   A region of memory where bookkeeping data is stored for a graphics client heap. This includes the memory starting address, the size and location of all of the heap's memory blocks, and the error, warning, and notice state. See also **graphics client heap.**

graphics client heap   A region of memory that contains all of the objects that a QuickDraw GX application creates. A heap that consists of public objects, such as shapes, styles, inks, and transforms, as well as private objects used for heap management. See also **application heap, graphics client, heap.**

graphics device   Anything into which QuickDraw can draw. There are three types of graphics devices: video devices (such as plug-in video cards and built-in video interfaces) that control screens, offscreen graphics worlds (which allow your application to build complex images off the screen before displaying them), and printing graphics ports. For a video device or an offscreen graphics world, Color QuickDraw stores state information in a `GDevice` record.

graphics pen   A metaphorical device for performing drawing operations onscreen. Your application can set this pen to different sizes, patterns, and colors.

graphics port   A complete drawing environment in QuickDraw, defined by a `GrafPort` record (basic graphics port) or `CGrafPort` record (color graphics port), that contains all the information QuickDraw needs to transmit drawing operations from bits in memory to onscreen pixels.

gray area   The area within a scroll bar, excluding the scroll arrows and the scroll box. When the user clicks the gray area of a scroll bar, the application moves the displayed area of the document by an entire window less one line (or column, row, or character).

gray region   The region that represents all available desktop area—that is, a collection of rounded rectangles representing the display areas of all screens available to a computer.

grayscale   Consisting entirely of shades of gray.

gray space   A color space whose single component is the lightness or brightness of a color. Same as *luminance color space.*

greeked   Said of text that is drawn so that its individual characters are replaced with shading or illegible marks. Text at very small point sizes is often greeked when drawn to the screen.

Gregorian calendar   The calendar used in Europe and America. It is not universally accepted—for example, different calendar systems are often used in Japan, China, and the Middle East.

grid point   (1) A location in the QuickDraw GX coordinate system. Grid points are infinitely thin, and fall between pixels. (2) The distance between two grid points.

grow image   An outline of a window's new frame, drawn on the screen while the user is resizing the window with the size box.

grow limit   The maximum amount by which glyphs of a given priority can be extended during justification, before processing passes to glyphs of lower priority. Compare **shrink limit.**

grow-zone function   A function supplied by the application program to help the Memory Manager create free space within a heap.

guest   A user who is logged on to a file server without a registered user name and password.

gxColorValue   A 16-bit unsigned integer. A fixed-point number that ranges from 0 to 65,535 to represent the numbers 0 to 1. The integer must be divided by 65,535 to obtain the real number represented. The color value number for 1.0 is 0xFFFF.

hairline   The thinnest possible line that can be drawn on a device.

half-duplex dialog   A transmission method that permits communication in either direction, but in only one direction at a time.

half-open connection   A connection state in which one connection end is established but the other connection end is unreachable or has disposed of its connection information. Compare **closed connection, open connection.**

halftone   A QuickDraw GX data structure—also a property of a view port object—that specifies a pattern and a set of colors. A halftone is used to achieve a greater range of colors than may be available on a display device. See also **angle, background color, dot color, dot type, frequency, tint type.**

Han   A general term for Chinese-derived ideographic characters. Includes Hanzi, Kanji, and Hanja.

handle   A variable containing the address of a master pointer, used to access a relocatable block. See also **pointer.**

handler   A recipient and processor of messages. It can be a printing extension, a printer driver, QuickDraw GX printing, or an application. For example, an application can supply a handler for errors, warnings, and messages. See also **message chain.**

handshake   The exchange of predetermined signals between two processes engaged in establishing a connection.

hanging baseline   The baseline used by Devanagari and similar scripts, where most of the glyph is below the baseline.

hanging glyphs   A set of glyphs, usually punctuation, that typically extend beyond the left and right margins of the text area and whose widths are not counted when line length is measured.

Hangul   A Korean subscript which consists of blocks of component glyphs called Jamo that are arranged and transformed into boxes. Hangul characters differ from typical character clusters in that they are treated as singular units in memory; there are no principal characters and attachments.

Hanja   Korean ideographic characters borrowed from Chinese.

Hanzi   Native Chinese ideographic characters.

hard import   An imported symbol that must be defined at run time and whose corresponding code or data must therefore be available in an import library on the host machine. Compare **import, soft import.**

HBA   See **host bus adapter.**

header   The information that comes at the beginning of a frame or a packet before the message text. It often includes control and addressing information.

header component   The portion of a help resource in which you supply information that applies to all help balloons specified in the resource—information such as the version number of the Help Manager, the balloon definition function, and the variation code.

header node   The first node in a B*-tree file; it contains essential information about the entire B*-tree file.

head patch   A patch that, upon completion does not regain control. A head patch jumps to the next routine. Compare **tail patch.**

heap   An area of memory in which space is dynamically allocated and released on demand, using the Memory Manager. See also **application heap, graphics client heap.**

heap compaction   The process of moving allocated blocks within a heap to collect the free space into a single block.

heap fragmentation   The state of a heap when the available free space is scattered throughout the heap in numerous unused blocks.

heap zone   An area of memory initialized by the Memory Manager for heap allocation. A heap zone consists of a zone header, a heap, and a zone trailer.

help balloon   A rounded-rectangle window that contains explanatory information for the user. With tips pointing at the objects they annotate, help balloons look like the bubbles used for dialog in comic strips. Help balloons are turned on by the user from the Help menu; when Balloon Help assistance is on, a help balloon appears whenever the user moves the cursor over the balloon's hot rectangle. See also **alternate rectangle, hot rectangle.**

Help Manager   A collection of routines that your application can use to provide Balloon Help assistance to your application's users.

help messages   Descriptive text or pictures that appear inside help balloons.

help resources   Application-supplied resources that describe help messages, balloon definition functions, variation codes, and, when necessary, the tips and the hot rectangles or alternate rectangles for the Help Manager to use in drawing help balloons. These help resources are the menu help (`'hmnu'`) resource, the dialog item help (`'hdlg'`) resource, the rectangle help (`'hrct'`) resource, the window help (`'hwin'`) resource, the Finder icon help (`'hfdr'`) resource, and the default help override (`'hovr'`)resource.

hertz (Hz)   A unit of frequency, equal to one cycle per second.

HFS   See **hierarchical file system.**

HFS volume   A volume that is organized according to the hierarchical file system.

hicharge counter   A counter in portable Macintosh computers that measures the time required to raise the battery voltage to 7.2 volts.

hierarchical file system (HFS)   A method of organizing files and directories on a volume in a hierarchical or tree-like structure.

hierarchical menu   A menu to which a submenu is attached.

hierarchy   See **view port hierarchy.**

high caret   See **primary caret.**

high-level event   An event sent from one application to another requesting transfer of information or performance of some action.

high-level event queue   A separate queue that the Event Manager maintains to store high-level events transmitted to an application. The Event Manager maintains a high-level event queue for each open application capable of receiving high-level events.

highlighting   (1) The display of text in inverse video or with a colored background, to designate a selection range. (2) A QuickDraw capability that displays background bits or pixels in a distinctive visual way, such as inverting them.

highlight mode   A transfer mode type in which the source component and operand component are swapped in the destination. Other component values in the destination are ignored.

highlight type   The angular character of carets and edges of highlighting areas. Highlighting and carets are either straight or angled. See **angled caret, straight caret.**

high-order bit   The bit contributing the greatest value in a string of bits. For example, in the MC680x0 numbering scheme bit number 7 contributes a value of 2^7, or 128. Same as **most significant bit.** Compare **low-order bit.**

high-quality printing   Printing that produces documents using all of the fonts and formatting that the user has included.

histogram   A color bank composed of frequency counts of each color within a picture, pixel map, or bitmap at a particular resolution.

Hiragana   A cursive, phonetic subscript of the Japanese writing system, with 50 syllables that represent all sounds of the Japanese language. Compare **Katakana.**

hit point   In hit-testing, the point (commonly corresponding to a mouse-down location) to be tested for coincidence with a shape or part of a shape.

hit-test info structure   A structure, filled out by a hit-testing function, that contains the results of a hit-test.

hit-testing   The conversion of a specific geometric location, such as pixel position in a view port, to logical location (part, control point, or glyph) in the geometry of a shape object. Hit-testing is used to highlight or activate parts of geometric shapes or to highlight or draw a caret within the displayed text of a typographic shape.

hit-test parameters   A property of a transform object. They consist of a shape-parts mask and a tolerance that together specify the conditions of a hit-test.

HLS color space   A color space whose three components measure the hue, lightness, and saturation of a color.

hold   To temporarily prevent a range of physical memory from being paged out by the Virtual Memory Manager.

hollow fill   See **closed-frame fill.**

hop count   The number of internet routers that a datagram passes through in transit to its destination; each internet router counts as one hop.

host bus adapter (HBA)   The hardware that controls a SCSI bus.

hot rectangle   An area defined to display a help balloon. When the user moves the cursor over this area, the Help Manager displays the help balloon associated with the hot rectangle. Compare **alternate rectangle.**

hot-rectangle component   The portion of an `'hrct'` resource in which you specify hot rectangles and the help messages associated with each hot rectangle.

hot spot   The portion of the cursor that must be positioned over a screen object before mouse clicks can have an effect on that object. Designated as a point (not a bit) in the image of the cursor. The mouse driver uses the hot spot to align the cursor with the mouse location.

HSV color space   A color space whose three components measure the hue, saturation, and value (similar to lightness) of a color.

hue value   A setting that is similar to the tint control on a television. Hue value can be specified in degrees with complementary colors set 180˚ apart (red is 0˚, green is +120˚, and blue is –120˚). Video digitizer components support hue values that range from 0 (–180˚ shift in hue) to 65,535 (+179˚ shift in hue), where 32,767 represents a 0˚ shift in hue. Hue value is set with the video digitizer component's `VDSetHue` function.

hybrid environment   See **mixed environment.**

hyphenation point   An entry in an array of edge offsets in the source text at which it is appropriate to break a line of display text.

Hz   See **hertz.**

IAC   See **interapplication communication (IAC) architecture.**

icon   An image on a Macintosh screen that graphically represents some object (such as a file, a folder, or the Trash), a concept, or a message. See also **icon family.**

icon cache   An icon suite that includes a pointer to an icon getter function and a pointer to data that can be used as a reference constant. See also **icon suite, icon getter function.**

icon component   The portion of an `'hfdr'` resource in which you specify a help message for your application's Finder icon.

icon family   A set of icons that represent a single object and share the same resource ID. The resource types and names of each member of an icon family are: `'ICN#'`—a large (32-by-32 pixel) black-and-white icon and mask; `'ics#'`—a small (16-by-16 pixel) black-and-white icon and mask; `'icl4'`—a large (32-by-32 pixel) color icon with 4 bits of color data per pixel; `'ics4'`—a small (16-by-16 pixel) color icon with 4 bits of color data per pixel; `'icl8'`—a large (32-by-32 pixel) color icon with 8 bits of color data per pixel; and `'ics8'`—a small (16-by-16 pixel) color icon with 8 bits of color data per pixel.

icon getter function   An application-defined function that returns a handle to icon data for a specified icon type. You can associate an icon getter function with an icon cache. Subsequent calls to Icon Utilities routines that use icons not present in the icon cache use the icon getter function to read the icon data into memory.

icon resource   A resource of type `'ICON'` that contains a bitmap for a 32-by-32 pixel black-and-white icon. You can use resources of type `'ICON'` in menus and dialog boxes. Note that the Finder does *not* use or display any resources of type `'ICON'` that you create. To create an icon for display by the Finder, create one or more of the icons in an icon family. See also **color icon resource, icon family, small icon resource.**

icon suite   One or more handles to icon data that represents icons from a single icon family. Some Icon Utilities routines accept a handle to an icon suite and draw the appropriate icon from that suite for the destination rectangle and the bit depth of the display device.

Icon Utilities   A collection of routines that your application can use to display icons in graphics ports (such as windows or dialog boxes) created by your application.

identity   A number used as shorthand for the name and key or name and password of a user or service. See also **local identity, specific identity.**

identity mapping   See **identity matrix.**

identity matrix   A transformation matrix that specifies no change in the coordinates of the source image. The resulting image corresponds exactly to the source image.

ideographic   A type of character representation in which characters do not represent pronunciation alone, but are also related to the component meanings of words; for example, Japanese Kanji, Chinese Hanzi, and Korean Hanja.

ideographic centered baseline   The baseline used by Chinese, Japanese, and Korean ideographic scripts, in which glyphs are centered halfway on the line height.

ideographic writing system   The glyphs that symbolize component meanings of words in a language. Compare **alphabetic writing system, syllabic writing system.**

idle procedure   A routine that handles events and updates information while system software completes a task. For example, applications displaying a print status dialog box while a printer driver directs output to a printer typically use an idle procedure that checks for user-generated events indicating that the user wishes to cancel the printing.

idle state   A power conservation state of portable Macintosh computers in which the processor slows from its normal clock speed to a 1 MHz clock speed. Also called the *rest state.* See also **power-saver state, sleep state.**

IEEE standard   See **IEEE Standard 754.**

IEEE Standard 754   A standard that defines how computers should perform binary floating-point arithmetic.

IEEE Standard 854   A standard that defines how computers should perform radix-independent floating-point arithmetic.

ignore notice stack   A stack that can contain the implementation limit of notice numbers. Notices on the ignore notice stack are not posted by QuickDraw GX.

ignore warning stack   A stack that can contain the implementation limit of warning numbers. Warnings on the ignore warning stack are not posted by QuickDraw GX.

image block   A message block containing a graphic representation of a letter's content. It may be the sole content in a letter or be accompanied by content in a content block, a content enclosure, or both. The format of data in an image block is sometimes referred to as *snapshot format.*

image compressor component   A component that provides image-compression services. Image compressor components have a component type of `'imco'`.

image decompressor component   A component that provides image-decompression services. Image decompressor components have a component type value of `'imdc'`.

image sequence   A series of visual representations usually represented by video over time. Image sequences may also be generated synthetically, such as from an animation sequence.

imaging   The construction and display of graphical information. Such graphical information can consist of shapes, pictures, and text and can be displayed on output devices such as screens and printers.

imaging phase   In QuickDraw GX printing, the phase when each previously spooled page is rendered into a form that can be printed on the output device. The imaging phase is composed of two processes: despooling and rendering. See also **despooling, rendering.**

imaging system   A part of the QuickDraw GX printing software that manages the conversion of QuickDraw GX shapes into data for a specific type of output device, including raster, vector, and PostScript printing devices. When the output device is a printing device, also referred to as a *print imaging system.* See also **raster imaging system, vector imaging system, PostScript imaging system.**

implementation limit error   A QuickDraw GX error indicating that the implementation limit of a structure has been exceeded. See also **implementation limit.**

implementation limit   An upper or lower bounds of a size, number, or value. This limit is defined by the current version of QuickDraw GX. See also **default memory size.**

implementation version   The version of an import library that is connected at load time to the application (or other fragment) being loaded. The implementation version provides the actual executable code and data exported by the library. Compare **definition version.**

implicit cross-mode call   A call to code that is in a different instruction set architecture from the caller's, caused by the caller executing a routine descriptor.

implicit scaling   Scaling performed by the Font Manager when an application asks QuickDraw to draw text in a size that is not represented by the available fonts. Compare **explicit scaling.**

implicit translation   The automatic conversion of a file or scrap without direct intervention from an application. See also **explicit translation.**

implied length   The definition of a specific length for a data type. An example of this is the Data Access Manager's `typeInteger` data type, which has a defined length of 4 bytes.

import   To refer to a symbol located in some other fragment. Also, a synonym for **imported symbol.**

imported symbol   A symbol in a fragment that references code or data exported by some other fragment. See also **exported symbol, import library.**

import library   A shared library that is automatically loaded at run time by the Code Fragment Manager.

imposed width   A run control feature that forces a specific width onto the glyphs of a style run, regardless of its text content or other style properties.

inactive control   A control that has no meaning or effect in the current context—for example, the scroll bars in an empty window. The Control Manager dims inactive controls or otherwise visually indicates their inactive state.

inactive window   A window in which the user is not working.

incoming message   A message coming into an AOCE system from an external messaging system.

incoming queue   A queue belonging to a mail slot into which a personal MSAM puts letters coming into an AOCE system from an external system.

index   (1) The part of a dictionary through which records are retrieved. Each index entry contains a key. (2) A zero-based, ordinal position in a buffer or data structure. (3) A number that indicates the position of an item in a list. See also **contour index, geometric index, glyph index.**

indexed colors   A set of up to 256 colors contained in a video data interface called a color lookup table (or, more commonly, a CLUT). Video devices and offscreen graphics worlds that use indexed colors support pixels of 1-bit, 2-bit, 4-bit, or 8-bit depths.

indexed color space   A color space whose single component defines an index into a list of color values in a color set.

indexed device   A plug-in video card, a video interface built into a Macintosh computer, or an offscreen graphics world that supports up to 256 colors in a color lookup table. Indexed devices support pixels of 1-bit, 2-bit, 4-bit, or 8-bit depths. Compare **direct device.**

indexed pixel   A pixel displayed on an indexed device. Indexed pixels can have pixel values of 1, 2, 4, or 8 bits.

index node   A node containing records that point to other nodes in the B*-tree hierarchy.

inexact exception   A floating-point exception that occurs when the exact result of a floating-point operation must be rounded.

indicator   A moving part in a dial or slider control. A user moves an indicator to set a value, and an application moves it to indicate the current setting of the control. In a scroll bar, the scroll box is the indicator.

Infinity   A special value produced when a floating-point operation should produce a mathematical infinity or when a floating-point operation attempts to produce a number greater in magnitude than the largest representable number in a given format. Infinities are signed.

informational selector   A Gestalt selector code, used with the `Gestalt` function, that supplies information about the operating environment that cannot be used to determine whether a software or hardware feature is available. Compare **environmental selector.**

information card   An HFS file located on a user's local disk that contains a single record.

information page   A formatted display of data and controls, similar in appearance to a dialog box, showing information about an AOCE catalog record or a portion of a record. See also **information page template.**

information page template   An AOCE template that defines the layout and contents of an information page, using the properties in a specific aspect.

information page window   A window that contains one or more information pages. If the window contains more than one information page, only one information page is displayed at a time. In that case, the window contains a pop-up menu with a list of the information pages available.

initialize   For a script system, to create and set up a script record at system startup. Script systems either initialize themselves or are initialized by the Script Manager. Only script systems that are installed can be initialized.

initialization   See **disk initialization.**

initialization block   See **fragment initialization block.**

initialization routine   A function contained in a fragment that is executed immediately after the fragment has been loaded and prepared. See also **termination routine.**

initiator   (1) The ASDSP client application of a connection end that retrieves information from an authentication server and makes a request to open a session. (2) The originator of the authentication process.

initiator device   A device capable of initiating SCSI transactions.

ink   A QuickDraw GX object associated with a shape object. An ink object contains information that affects the color of a shape and the transfer mode with which it is drawn.

inline input   An input method that allows the user to enter text directly into a document. In inline input, entry and conversion of characters take place at the current line position—where the converted text is intended to appear—rather than in a separate window. Inline input is the principal example of the kind of text service supported by the Text Services Manager.

input method   A software facility for 2-byte script systems that converts phonetic or syllabic characters, entered from a keyboard, into ideographic or other complex representations of text. Because 2-byte script systems have too many characters to be entered directly from a keyboard, the input method uses a conversion technique, such as translating sequences of phonetic characters that are typed into a special input window. For example, the Japanese script system provides software for transcribing Kana (phonetic Japanese) into ideographic Kanji.

input order   The order in which characters are written or entered from a keyboard. The input order of a line of text can differ from its display order. Compare **display order.**

input/output (I/O)   The parts of a computer system that transfer data to or from peripheral devices.

insertion location descriptor record   A record of type typeInsertionLoc that consists of two keyword-specified descriptor records. The first is an object specifier record, and the data for the second is a constant that specifies the insertion location in relation to the Apple event object described by the object specifier record.

insertion mode   For a dictionary, the manner in which insertion of a new record occurs—for example, whether its data adds to or replaces data of an existing matching key.

insertion point   A location (offset) in a text buffer at which the next insertion or deletion of text is to take place. An insertion point is equivalent to a selection range of zero characters and is usually marked by a blinking vertical bar. Compare **caret.** See also **caret position.**

Inside Macintosh   A collection of books, organized by topic, that describe the system software of Macintosh computers. Together, these books provide a definitive guide and essential reference for anyone writing software for Macintosh computers.

install   To place (the resources of a script system) in the System file.

instance   A single copy of a message handler in memory. See also **instantiate.**

instantiate   To create an instance of a message handler separate and unique from all other instances. See also **instance.**

instantiation   See **global instantiation, per-context instantiation, per-load instantiation.**

instruction cache   An area of memory internal to some microprocessors (for example, the MC68020, MC68030, and MC68040 microprocessors) that holds recently used instructions. See also **data cache.**

instruction set architecture (ISA)   The set of instructions meaningful to a particular microprocessor or to a family of microprocessors.

instrument   A sampled sound played at varying rates to produce a number of different pitches or notes. See also **voice.**

integer types   System types for integral values. Integer types typically use 16- or 32-bit two's-complement integers. Integer types are not PowerPC Numerics formats but are available to PowerPC Numerics users.

integral value   A value, perhaps in a numeric data format, that is exactly equal to a mathematical integer. For example, –2, –1, 0, 1, 2, and so on.

interapplication communication (IAC) architecture   A standard and extensible mechanism for communication among Macintosh applications, including the Edition Manager, the Open Scripting Architecture, the Apple Event Manager, the Event Manager, and the PPC Toolbox.

intercharacter spacing   Extra pixels that are added between glyphs, in addition to the space surrounding the glyph as defined by the font, in formatting or justifying text.

interesting time   A time value in a movie, track, or media that meets certain search criteria. You specify the search criteria in the Movie Toolbox. The Movie Toolbox then scans the movie, track, or media and locates time values that meet those search criteria.

interface files   See **universal interface files.**

interface type   A specification of the set of Apple events and component commands associated with a component; part of the component description record. Currently, all text service components have the same interface type: `kTextService`, whose associated 4-character tag is `'tsvc'`.

interlacing   A video mode that updates half the scan lines on one pass and goes through the second half during the next pass.

interleaving   (1) A technique in which sound and video data are alternated in small pieces, so the data can be read off disk as it is needed. Interleaving allows for movies of almost any length with little delay on startup. (2) The technique of combining two or more channels of sound data by alternating small pieces of the data in each channel into a single data stream. See also **sample frame.**

intermediary   A representative of a user or service that uses a proxy to obtain credentials for mutual authentication and then performs some function for the user or service represented.

internal error   A nonfatal QuickDraw GX error indicating a damaged file, memory problem, or incorrect implementation.

internal validation   An optional validation mode in which object parameter validation occurs whenever an application uses a public function and whenever QuickDraw GX uses an internal function. Compare **public validation.**

international bundle resource   An international resource of type `'itlb'`. The international bundle resource identifies the complete set of international resources and keyboard resources used by a script system. It also specifies some of the script's default behavior. Every script system has one international bundle resource.

international configuration resource   An international resource of type `'itlc'`. The international configuration resource identifies and configures the system script. There is only one international configuration resource for each Macintosh System file, regardless of the number of script systems it supports.

international resources   A specific set of resources used by the Script Manager, the Text Utilities, and TextEdit. The international resources contain information specific to language or region, such as date and time formats, sorting order, and word-break rules.

international resources cache   A cache that holds resource IDs of international resources used by an application.

international resources selection flag   A Script Manager variable that determines which set of international resources are to be used for text processing operations. When the flag is set, the resources belonging to the system script are used. When the flag is clear, the resources belonging to the font script are used.

internet   See **AppleTalk internet.**

internet address   See **internet socket address.**

internet socket address   The combination of the socket number, the node ID, and the network number associated with an application or process. An internet socket address provides a unique identifier for any socket in the AppleTalk internet.

interpolation   The process of generating sample points between two given sample points. See also **linear interpolation.**

Interprogram Messaging Manager (IPM)   The part of the Macintosh Operating System that manages the creation, sending, and receiving of messages. IPM messages conform to a specific structure and can be transmitted over an AppleTalk network or any other communication link. The Interprogram Messaging Manager provides store-and-forward messaging services for Macintosh computers.

interrupt   An exception signaled by a device to the processor, notifying it of a change in the condition of the device, such as the completion of an I/O request.

interrupt handler   A routine that services interrupts.

interrupt priority level   A number that identifies the importance of an interrupt. It indicates which device is interrupting, and which interrupt handler should be executed in response to the interrupt.

interrupt programming   A type of programming in which QuickDraw GX allows an application to switch tasks, but only when it is not performing critical functions.

interrupt service routine (ISR)   A routine that processes interrupts generated by the processor, expansion cards, or external devices.

interrupt table   A list (stored in low memory) of interrupt vectors.

interrupt task   A routine executed as the result of an interrupt.

interrupt vector   The address of an interrupt handler.

interword spacing   Extra pixels that are added to word delimiters—whether whitespace or extension bars—when formatting or justifying text.

intraframe coding   A process that compresses only a single frame. It does not require looking at adjacent frames in time to achieve compression, but allows fast random access and reverse play.

intranode delivery An AppleTalk feature that allows two programs running on the same node to communicate with each other through AppleTalk protocols. The AppleTalk `PSetSelfSend` function enables or disables intranode delivery.

intrinsic font A font whose characteristics are entirely defined in a `'FONT'` or `'NFNT'` resource. The plain-style font of any family is an intrinsic font. Other styles may or may not be intrinsic. Compare **derived font.**

invalid data warning A QuickDraw GX warning indicating that an object contains incorrect data or that extra data was passed.

invalid exception A floating-point exception that occurs if an operand is invalid for the operation being performed.

invalid-operation exception See **invalid exception.**

inverse even-odd fill A shape fill that is the inverse of even-odd fill.

inverse fill A shape fill that indicates a shape's geometry describes an area—the area not contained within the contours of the shape's geometry. Inverse fills include inverse even-odd fill, and inverse winding fill.

inverse of a mapping The mathematical inverse of the mapping matrix. A mapping concatenated with its inverse results in the identity matrix.

inverse solid fill See **inverse even-odd fill.**

inverse table A special data structure arranged by the Color Manager in such a manner that, given an arbitrary RGB color, the Color Manager can very rapidly look up its pixel value.

inverse winding fill A shape fill that is the inverse of winding fill.

invert To reverse the colors of all pixels within a shape. On a black-and-white screen, this changes all the black pixels in the shape to white and all the white pixels to black. Inverting operates on color pixels in color graphics ports, but the results are predictable only with direct pixels.

I/O See **input/output.**

I/O queue See **file I/O queue.**

I/O request A request for input from or output to a file or device driver; caused by calling a File Manager or Device Manager routine asynchronously.

IPM See **Interprogram Messaging Manager.**

ISA See **instruction set architecture.**

ISR See **interrupt service routine.**

issuer See **certificate issuer.**

issuing organization See **certificate issuer.**

item color table resource A resource (of type `'ictb'`) that an application can use to display an alert box or a dialog box with items using a typeface, font style, font size, or colors other than the system's default font and colors. (For an application to use a nonstandard typeface, font style, or font size, the user must have a color monitor.)

item list A resource (of type `'DITL'`) that specifies the items—such as buttons and static text—to display in an alert box or a dialog box.

item number An integer that identifies an item in either a menu or dialog box. Menu items are assigned item numbers starting with 1 for the first menu item in the menu, 2 for the second menu item in the menu, and so on, up to the number of the last menu item in the menu. Dialog items are assigned numbers that correspond to the item's position in its item list. For example, the first item listed in a dialog item list is item number 1.

`'itl0'` resource See **numeric-format resource.**

`'itl1'` resource See **long-date-format resource.**

`'itl2'` resource See **string-manipulation resource.**

`'itl4'` resource See **tokens resource.**

`'itl5'` resource See **encoding/rendering resource.**

`'itlb'` resource See **international bundle resource.**

`'itlc'` resource See **international configuration resource.**

`'itlk'` **resource**   See **key-remap resource.**

`'itlm'` **resource**   See **script-sorting resource.**

Jamo   An individual phonetic glyph in the Korean script that is transformed and combined into clusters called *Hangul.*

job collection   A collection of items that are relevant for a print job but not required to define a print job. See also **collection object.**

job dialog box   A dialog box—usually displayed by an application in response to the user choosing the Print command—that solicits printing information from the user, such as the number of copies to print, the print quality, and the range of pages to print.

job format mode   A mode of printing, either graphics (the QuickDraw GX default), text-only, or PostScript-only. The text and PostScript modes are sometimes called *direct-mode printing*; used to trade off the ability to redirect output to another printer for faster output on a specific printer.

job object   An object that represents the parameters associated with printing, such as the printer and page range. These parameters specify a "print job."

join   See **join property.**

join attributes   A set of flags that modify the way QuickDraw GX adds a join shape to the corners of a shape.

join property   A property of a style object that specifies how the corners of a geometric shape should be drawn.

join shape   A shape drawn at the corners of another shape.

Joint Photographic Experts Group (JPEG)   Refers to an international standard for compressing still images. This standard supplies the algorithm for image compression. The version of JPEG supplied with QuickTime complies with the baseline International Standards Organization (ISO) standard bitstream, version 9R9. This algorithm is best suited for use with natural images.

JPEG   See **Joint Photographic Experts Group.**

jumping caret   See **single caret.**

jump table   An area of memory in a 680x0 application's A5 world that contains one entry for every externally referenced routine in every code segment of the application. The jump table is the means by which the loading and unloading of segments are implemented.

jump table entry   A single entry in a jump table.

justification   A type of alignment that involves the spreading or compressing of printed text to fit into a given line width so that it is flush on both left and right edges of the text area (destination rectangle).

justification gap   The difference in the length of a line before and after justification.

justification priority   The priority order in which classes of glyphs are processed during justification.

Kana   A collective term for the Japanese subscripts **Hiragana** and **Katakana.**

Kanji   Japanese ideographic characters borrowed from Chinese.

kashida   An extension-bar glyph that is added to certain Arabic glyphs during justification.

Katakana   An angular, phonetic subscript of the Japanese writing system, with 50 syllables that represent all sounds of the Japanese language. Compare **Hiragana.**

KB   Abbreviation for kilobyte. A kilobyte is 1024 bytes.

`'KCAP'` **resource**   See **key caps resource.**

`'KCHR'` **resource**   See **keyboard-layout resource.**

`'kcs#'` **resource**   See **keyboard icons family.**

`'kcs4'` **resource**   See **keyboard icons family.**

`'kcs8'` **resource**   See **keyboard icons family.**

kern   To draw part of a glyph so that it overlaps the space of an adjacent glyph.

kerning   An adjustment to the normal spacing that occurs between two or more specifically named glyphs, known as the *kerning pair.*

kerning adjustments array   A style object property. It is an array specifying changes to the font-specified kerning for pairs of glyphs in a style run. (This property is used by layout shapes only.)

kerning pair   Two specifically named glyphs that are kerned together by a set amount. See also **kerning.**

key   (1) A number used by an encryption algorithm to encrypt or decrypt data. (2) See **dictionary key.**

keyboard   (1) A hardware input device consisting of an array of keys that the user presses in order to enter text into the computer. (2) For the Macintosh script management system, a keyboard-layout resource that provides for keyboard input in a given script system. In this sense, to change keyboards means to activate a different keyboard layout, rather than physically switching keyboards.

Keyboard control panel   A control panel that allows the user to switch among available keyboard layouts.

keyboard equivalent   A keyboard combination of one or more modifier keys and another key that invokes a corresponding menu command when pressed by the user. See also **Command-key equivalent.**

keyboard icon   A small icon associated with each keyboard through its keyboard-layout (`'KCHR'`) resource. Keyboard icons are used in the Keyboard menu and the Keyboard control panel.

keyboard icon family   A set of keyboard resources, of types `'kcs#'`, `'kcs4'`, and `'kcs8'`. The keyboard icon family specifies keyboard icons for screens of different bit depth (black-and white, 4-bit, and 8-bit, respectively). There is one keyboard icon family for every keyboard-layout (`'KCHR'`) resource.

keyboard layout   (1) The specification of the physical arrangement of keys on a keyboard and the characters produced when those keys are pressed. (2) The keyboard-layout resource.

keyboard-layout resource   A keyboard resource of type `'KCHR'`. The keyboard-layout resource defines a particular character set by associating a character code with each virtual key code produced by a keystroke or combination of keystrokes on the keyboard or keypad. Each script system has one or more `'KCHR'` resources.

Keyboard menu   A menu on the right side of the menu bar that appears when more than one script system is enabled. The Keyboard menu is managed by the Operating System and permits the user to change keyboard layouts, input methods, and script systems for text input.

keyboard resources   A specific set of resources used by the Script Manager, the Text Utilities, and TextEdit for text input. The keyboard resources provide for text input in any language from any keyboard, for convenient switching from one input language to another on a single keyboard, and for simultaneous input from multiple keyboards.

keyboard script   The script system for keyboard input. It determines the character input method and the mapping of keystrokes to character codes. The keyboard script may be different from the font script, which determines how text is displayed.

keyboard swap resource   A keyboard resource of type `'KSWP'`. The keyboard swap resource specifies key combinations that can be used to change the keyboard script and the current keyboard layout. There is one `'KSWP'` resource per system.

Key Caps   A desk accessory that displays the keyboard layout for a given keyboard and a specified font.

key caps resource   A keyboard resource of type `'KCAP'`. The key caps resource specifies the physical arrangement of keys on a keyboard and is used by the Key Caps desk accessory. There is one `'KCAP'` resource for each physical keyboard supported.

Key Chain   See **PowerTalk Key Chain.**

Key Chain Access Code   The master password providing access to a PowerTalk Key Chain.

key code   An integer representing a key on the keyboard or keypad, without reference to the character the key stands for. See also **raw key code, virtual key code.**

key color   A color in a destination image that is replaced with video data by a video digitizer component. Key colors represent one technique for selectively displaying video on a computer display. Other techniques include the use of alpha channels and blend mattes.

key data   The data in an object specifier record that distinguishes one or more Apple event objects from other Apple event objects of the same object class in the same container. Key data is specified by a keyword-specified descriptor record with the keyword `keyAEKeyData`. The Apple Event Manager interprets key data according to the key form specified in the same object specifier record.

key-down event   An event indicating that the user pressed a key on the keyboard.

key entry   In a Dictionary Manager dictionary, contains raw data and optional attributes. Each entry may have a maximum length of 256 bytes. The maximum length of the associated data is 1024 bytes.

key form   The form taken by the key data in an object specifier record. The key form is specified by a keyword-specified descriptor record with the keyword `keyAEKeyForm`. The keyword-specified descriptor record contains a constant that determines how the Apple Event Manager and a target application use the key data to locate specific Apple event objects. For example, the key form constant `formName` indicates that the key data consists of a name, which should be compared to the names of Apple event objects in the container specified by the object specifier record.

key frame   A sample in a sequence of temporally compressed samples that does not rely on other samples in the sequence for any of its information. Key frames are placed into temporally compressed sequences at a frequency that is determined by the key frame rate. Typically, the term *key frame* is used with respect to temporally compressed sequences of image data. See also **sync sample.**

key frame rate   The frequency with which key frames are placed into temporally compressed data sequences.

key-map resource   A keyboard resource of type `'KMAP'`. The key-map resource takes the raw key codes that have been generated by the keyboard microprocessor and maps them into standard virtual key codes. There is exactly one `'KMAP'` resource for each physical keyboard on a Macintosh system.

key-remap resource   A keyboard resource of type `'itlk'`. The key-remap resource provides hardware-specific modifications for certain keyboards. It remaps a few key combinations into the virtual key codes needed for input to certain versions of the keyboard-layout (`'KCHR'`) resource. There is one `'itlk'` resource for every `'KCHR'` resource that needs one.

key translation   The process of converting raw key codes to virtual key codes, and thence to character codes, during text input.

key-up event   An event indicating that the user released a key on the keyboard.

keyword   A four-character code that uniquely identifies a descriptor record inside another descriptor record. In Apple Event Manager functions, constants are typically used to represent the four-character codes.

keyword-specified descriptor record   A record of data type `AEKeyDesc` that consists of a keyword and a descriptor record. Keyword-specified descriptor records are used to describe the attributes and parameters of an Apple event.

kHz   See **kilohertz.**

kill   To cause a process or task to stop executing.

killer template   An AOCE template that disables other AOCE templates. A killer template can disable any type of AOCE template except another killer template.

kind resource   A resource that contains kind strings for document types. Defined by the `'kind'` resource type.

kind string   The string displayed in the "Kind" column in a Finder window when a folder's contents are viewed by name, size, kind, label, or date (that is, by any method other than by icon or small icon).

kilohertz (kHz)   A unit of frequency, equal to one thousand cycles per second.

'KMAP' resource   See **key-map resource.**

'KSWP' resource   See **keyboard swap resource.**

L*a*b* space   A universal color space, designed to create perceptually linear gradations between colors, that is a nonlinear transformation of the Munsell color-notation system.

language   (1) The written and spoken methods of combining words to create meaning used by a particular group of people. (2) For the Macintosh script management system, a particular implementation of a writing system. Languages within a writing system usually share a character set but differ in rules of composition. For example, English and Spanish are two languages within the Roman writing system.

language code   A number used to indicate a particular written version of a language on the Macintosh. Constants are defined for each of the language codes recognized by the Macintosh script management system.

LAP Manager   See **Link-Access Protocol (LAP) Manager.**

large-catalog mode   A set of algorithms used by certain components of a PowerTalk system when retrieving information from large catalogs and displaying that information to the user.

large character set   A character set with more than 256 characters. Japanese, Chinese, and Korean writing systems have large character sets. The script system for such a writing system requires 2-byte character codes, and is therefore called a *2-byte script system.*

last-in, first-out (LIFO)   Characteristic of a queue in which the last item put into the queue becomes the first item to be taken out of it. Compare **first-in, first-out.**

layer   A mechanism for prioritizing the tracks in a movie. When it plays a movie, the Movie Toolbox displays the movie's tracks according to their layer—tracks with lower layer numbers are displayed first; tracks with higher layer numbers are displayed over those tracks.

layer flag   An element of a face layer that describes the characteristics of one layer of a text face. Layer flags are used primarily to determine the underlining capabilities of the text face.

layout shape   A type of QuickDraw GX shape. The geometry of a layout shape contains a line of text and sophisticated typographic formatting information. Compare **glyph shape, text shape**. See **typographic shape.**

leading   The amount of blank vertical space between the descent line of one line of text and the ascent line of the next line of single-spaced text. In early typesetting, strips of lead were placed between lines of type for spacing, hence the term. See also **line spacing.**

leading edge   The edge of a glyph that is encountered first when reading text of that glyph's language. For glyphs of left-to-right text, the leading edge is the left edge; for glyphs of right-to-left text, the leading edge is the right edge. Compare **trailing edge.**

leaf atom   A QuickTime atom that contains no other atoms. A leaf atom, however, may contain a table. An example of a leaf atom is an edit list atom. The edit list atom contains the edit list table. Compare **container atom.**

leaf node   A node that contains data records.

leaf procedure   A routine that calls no other routines.

least significant bit   The bit contributing the least value in a string of bits. For example, in the MC680x0 numbering scheme bit number 0 in a byte contributes a value of 2^0, or 1. Same as **low-order bit.** Compare **most significant bit.**

left-side bearing   The white space between the glyph origin and the visible beginning of the glyph.

left-to-right caret   A type of caret that, at direction boundaries, appears at the proper caret position for inserting left-to-right text. Compare **dual caret, right-to-left caret.**

letter   A type of message consisting of a defined set of message blocks. A letter is intended to be read by a person. See also **mailer, non-letter message.**

letter attribute   A piece of information about a letter stored in the letter header or the letter's message summary. Letter attributes include information such as the sender, the subject, the time the letter was sent, and so forth. Not to be confused with **attribute.**

letter header block   A message block found in every letter. It contains recipient information and letter attributes.

level   A number indicating how many pictures separate a shape from the root picture in a picture hierarchy.

level cap   A cap shape that is not rotated to match the angle of the contour on which it is drawn.

level join   A join shape that is not rotated to match the angle that bisects the corner on which it is drawn.

library   See **import library.**

library directory   A directory used by an application or other fragment to store import libraries used by that application or fragment. An application's library directory is specified in the application's code fragment resource.

LIFO   See **last-in, first-out.**

ligature   A glyph that is created when two or more characters are combined to create a new character.

ligature decomposition   The replacement of ligatures with the glyphs for their component characters during justification.

ligature splitting   The process of separating a ligature into its component glyphs.

line   A graphic image defined by two points: the current location of the graphics pen and its destination. The graphics pen, which can draw with different patterns, hangs below and to the right of the defining points.

linear interpolation   A form of interpolation that uses the calculated mean of two sample points as the interpolated sample point. Compare **drop-sample conversion.**

line breaking   The process of determining the proper location at which to truncate a line of text so that it fits within a given text width.

line direction   Also called *text direction, character direction,* or simply *direction.* The direction in which text in a particular language is written and read. The English language has a left-to-right line direction; Arabic and Hebrew have a (primarily) right-to-left line direction. See also **system direction.** Line direction is not the same as alignment.

line layout error   The difference between the width of the printed line and the width of the screen line after the printer driver has performed font substitution. Certain printer drivers compensate for this by distributing the error to major glyphs and minor glyphs.

line length   The distance, in points, from the origin of the first glyph on a line through the advance width of the last glyph.

line shape   A shape type that represents a straight line.

line spacing   The vertical distance between two lines of type, measured from baseline to baseline. For example, 10/12 indicates 10-point type with 12 points base to base (that is, with 2 points of leading).

line span   The distance, in points, from the lowest descender on a line to the highest ascender.

link   A data transmission medium shared by nodes and used for communication among these nodes. A link forms the basis for networking these nodes.

Link-Access Protocol (LAP) Manager   A set of operating-system utilities that makes it possible for the user to select among AppleTalk connection files by using the Network control panel to specify which network is to be used for the node's AppleTalk connection. The LAP Manager provides for AppleTalk's data-link independence.

linkage area   The area in a PowerPC stack frame that holds the caller's RTOC value and saved values of the Count Register and Link Register. See also **parameter area.**

link independence   The ability to connect to various types of data links that are installed on a node and to switch among those data links.

Link Register (LR)   A register in the PowerPC processor that holds the return address of the currently executing routine.

list   A series of items displayed within a rectangle. Lists may have zero, one, or two scroll bars.

list definition procedure   A code resource of type `'LDEF'` that defines the appearance of a list.

Listen   An ADB command to a device that instructs it to prepare to receive additional data. See also **Flush, SendReset, Talk.**

List Manager   A collection of routines that your application can use to create and display lists in your application's windows or dialog boxes.

live cache   A QuickDraw GX cache that contains current information. The object associated with the cache has not been changed since the cache was created. See also **dead cache.**

LLC   See **Logical Link Control.**

load   (1) To move a segment or fragment into RAM. (2) To return an unloaded QuickDraw GX object from external storage to memory. QuickDraw GX automatically and transparently loads and unloads objects in the course of managing memory; an application need never know whether an object it accesses is currently loaded or unloaded.

load directory   The directory that contains a fragment being loaded into memory and prepared for execution.

local coordinates   (1) Paired values that specify a size or location in local space. (2) For QuickDraw GX, the coordinate space local to each shape. For example, a shape's geometry is described in local coordinates.

local coordinate system   The coordinate system defined by the port rectangle of a graphics port. When the window manager creates a window, it places the origin of the local coordinate system at the upper-left corner of the window's port rectangle. Compare **global coordinate system.**

local identity   A number used as shorthand for the name and password of the principal user of a particular computer. A local identity gives the user access to all the services for which names and passwords are stored in the PowerTalk Setup catalog. See also **specific identity.**

localization   The adaptation of system software or applications to a particular language or region. Localization involves translating strings and providing proper conventions for sorting, date and time formats, currency and measurement units, calendars, numbers, and other culturally specific items such as icons.

localized system software   Macintosh system software that has been adapted to a particular language or region. Localization may involve adding a second script system, as in the case of Japanese system software; or it may simply require modifying the U.S. Roman script system, as in the case of French or Turkish system software.

local space   The coordinate system, interior to a view port, resulting from the application of the transform mapping to the geometry of a shape object. Compare **device space, geometry space, global space.**

local variable   A variable allocated and used only within the current procedure.

location name   An identifier for the network location of the computer on which a port resides. The PPC Toolbox provides the location name. It contains an object string, a type string, and a zone. An application can specify an alias for its location name by modifying its type string. See also **port.**

location record   See **fragment location record.**

lock   (1) To prevent a relocatable block from being moved during heap compaction. (2) To temporarily prevent a range of physical memory from being paged out or moved by the Virtual Memory Manager. (3) To prevent an object in the QuickDraw GX heap from being moved. You can lock some QuickDraw GX objects and manipulate their properties directly, instead of using functions to copy them into and out of application memory. See also **unlock.**

lock attribute   When set, this attribute prevents an item in a collection from being replaced.

locked file   A file whose data cannot be changed.

locked range   A range of bytes in a file whose data cannot be changed.

locked volume   A volume whose data cannot be changed.

logical address   An address used by software. The logical address might be translated into a physical address by the memory management unit.

logical block   (1) An abstract location on a storage device, defined by software and independent of the physical characteristics of the device. See also **physical block.** (2) A portion of a volume. Usually 512 bytes long.

logical descriptor record   A coerced AE record of type `typeLogicalDescriptor` that specifies a logical expression—that is, an expression that the Apple Event Manager evaluates to either `TRUE` or `FALSE`. The logical expression is constructed from a logical operator (one of the Boolean operators `AND`, `OR`, or `NOT`) and a list of logical terms to which the operator is applied. Each logical term in the list can be either another logical descriptor record or a comparison descriptor record.

logical end-of-file   The position of 1 byte past the last byte in a file; equal to the actual number of bytes in the file.

Logical Link Control (LLC)   A data-link standard defined by the Institute of Electrical and Electronics Engineers (IEEE) for use on Ethernet, token ring, FDDI, and certain other data links. At the physical level, these protocols include the 802.3 CSMA/CD protocol, the 802.4 token bus protocol, and the 802.5 token ring protocol. At the data-link level, you access these protocols through the IEEE 802.2 Logical Link Control (LLC) protocol.

logical size   The number of bytes in a memory block's contents.

log on   To connect to a networked file server or to a local machine that requires user authentication. Usually a user must specify a user name and password to be able to log on to a file server.

long-date-format resource   An international resource of type `'itl1'`. The long-date-format resource defines conventions for formatting long dates, including names of days and months. Each installed script system has one or more long-date-format resources.

long date-time record   A data structure that represents date and time as a record rather than a 64-bit long integer.

long date-time value   A 64-bit integer in SANE `comp` format that represents date and time purely in seconds. This format allows dates and times before and after the range of the date-time record (30,000 B.C. to 30,000 A.D.).

long DDP header   A DDP packet header that includes the source node ID as well as the destination node ID.

`long` number   A 32-bit signed integer. A fixed-point number with a bias of 0. Long numbers range from –2,147,483,648 to +2,147,483,647. The `long` number for 1.0 is 0x00000001.

long word   A 32-bit quantity used to store 2^{32} (or 4,294,967,296) values.

longword boundary   The memory location that divides two long words.

lookup table   A resource in an aspect template that parses attribute values into properties and properties into attribute values. A lookup table contains an entry for each type of attribute value to be translated into and from properties.

lossless compression   A compression scheme that preserves all of the original data.

lossy compression   A compression scheme that does not preserve the data precisely; some data is lost, and it cannot be recovered after compression. Most lossy schemes try to compress the data as much as possible, without decreasing the image quality in a noticeable way.

low ASCII character set   Same as ASCII character set; the standard set of Roman characters with character-code values from $00 to $7F.

low caret   See **secondary caret.**

low-level event   The type of event returned by the Event Manager to report very low level hardware and software occurrences. Low-level events report actions by the user, changes in windows on the screen, and that the Event Manager has no other events to report. Compare **high-level events, operating-system events.**

low-memory global variables   See **system global variables.**

low-order bit   The bit contributing the least value in a string of bits. For example, in the MC680x0 numbering scheme bit number 0 in a byte contributes a value of 2^0, or 1. Same as **least significant bit.** Compare **high-order bit.**

LR   See **Link Register.**

luminance   The intensity of light in a color. Color QuickDraw uses a color's luminance to convert the color to an appropriate grayscale color.

luminance color space   A color space whose single component is the lightness or brightness of a color. Same as *gray space.*

luminance tint   A halftone tint type in which the tint color is specified by the luminance of the input color.

L*u*v* space   A universal color space, designed to create perceptually linear gradations between colors, that is a nonlinear transformation of XYZ space.

MACE   See **Macintosh Audio Compression and Expansion.**

machine information record   A data structure that contains information about the state of the machine at the time an exception occurs. Defined by the `MachineInformation` data type.

Machine State Register   A 32-bit PowerPC supervisor-level register that records the state of the processor, including if floating-point instructions and floating-point exceptions are enabled.

Macintosh Audio Compression and Expansion (MACE)   A set of Sound Manager routines that allow your application to compress and expand audio data.

Macintosh character set   The characters and character codes originally defined for the Macintosh computer. The Macintosh character set consists of the ASCII character set, plus additional characters (sometimes called *high ASCII* or *extended ASCII*) with character codes between $80 and $D8. Compare **Standard Roman character set.**

Macintosh Easy Open   The part of the Macintosh system software that provides translation services for users of Macintosh computers. Macintosh Easy Open uses the Translation Manager to provide these services.

Macintosh file system (MFS)   A now-obsolete method of organizing files on a volume in a "flat" or nonhierarchical structure. See also **hierarchical file system.**

Macintosh interface functions   A set of Macintosh-specific functions. Most other QuickDraw GX functions can exist on any platform.

Macintosh Operating System   The part of Macintosh system software that manages basic low-level operations such as file reading and writing, memory allocation and deallocation, process execution, and interrupt handling.

Macintosh Programmer's Workshop (MPW)   A software development system for the Macintosh family of computers provided by Apple Computer.

Macintosh script management system   The Script Manager, script-aware parts of other text managers, the WorldScript extensions, and one or more script systems.

Macintosh system software   A collection of routines that you can use to simplify your development of Macintosh applications. See also **Macintosh Toolbox, Macintosh Operating System.**

Macintosh Toolbox   The part of the Macintosh system software that allows you to implement the standard Macintosh user interface in your application or other software.

Macintosh User Interface Toolbox   See **Macintosh Toolbox**.

macro   A sequence of predefined directives that the C preprocessor interprets at compile time. When the preprocessor encounters the macro name in the source code, the preprocessor substitutes the macro definition for it. QuickDraw GX provides macros for number format conversions.

MacsBug   A Macintosh debugging utility.

mail   A term used to refer collectively to letters.

mailer   A region added to a document window that transforms the document into a letter. The mailer enables the user to enter addresses and subject information, enclose other files and folders in the letter, and add a digital signature to the letter.

mailer set   All of the mailers belonging to a forwarded letter.

mail slot   A personal MSAM slot that serves to transfer letters. See also **slot.**

main aspect   An aspect that contains the properties the CE needs to fill in the data for an item in a sublist. Compare **main view aspect.**

main aspect template   A template for a main aspect.

main dictionary   A dictionary that contains most of the information used by an input method for its conversion operations. Compare **user dictionary.**

main enclosure   See **content enclosure.**

main routine   A function contained in a fragment whose use depends on the kind of fragment it is in. For applications, the main routine is the usual entry point. See also **main symbol.**

main screen   In a drawing environment with multiple screens, the screen with the menu bar. QuickDraw maps the (0,0) origin point of the coordinate plane to the main screen's upper-left corner, and other screens are positioned adjacent to it. Compare **startup screen.**

main segment   The segment that contains the main program.

main symbol   A symbol whose use depends on the kind of fragment it is in. For applications, the main symbol refers to the fragment's main routine. See also **main routine.**

main view aspect   An aspect that provides the properties for all the views in the main portion of an information page; that is, all of the information page except for the items in a sublist. Compare **main aspect.**

major error   The amount of line layout error that a printer driver applies to the space glyph.

major glyph   On a printed page, a space glyph, to which printer drivers apply most of the line layout error. Compare **minor glyph.**

major switch   A change of the foreground process. The Process Manager switches the context of the foreground process with the context of a background process (including the A5 worlds and low-memory globals) and brings the background process to the front, sending the previous foreground process to the background. See also **context, minor switch.**

Make Changes privileges   The directory access privileges that allow other users to create, rename, delete, and write files in the specified directory.

manager   A part of the Macintosh system software.

mantissa   See **significand.**

map   See **mapping.**

map node   A node that contains an additional map record.

mapping   (1) A 3 ×3 matrix—a property of a format object that specifies scaling and orientation. (2) A 3 ×3 matrix—a property of a transform object, view port object, and view device object—that specifies the translation, rotation, or distortion to be applied to a shape when it is drawn. (3) A transformation of spatial locations (points) that can be represented by a 3 × 3 perspective matrix. Synonymous with *map* and *mapping matrix.*

mapping matrix   See **mapping.**

map record   A record in a header node or map node that indicates which nodes in a B*-tree file are used and which are not.

margins   The left, right, top, and bottom sides of the text area.

mark   See **file mark.**

mark-adjusting function   A marking callback function that unmarks objects previously marked by a call to an application's marking function.

mark count   The number of times the Apple Event Manager has called the marking function for the current mark token. Applications that support marking callback functions should associate the mark count with each Apple event object they mark.

marking callback functions   Object callback functions that allow your application to use its own marking scheme rather than tokens when identifying large groups of Apple event objects. See also **mark-adjusting function, mark token function, object callback function, object-marking function.**

mark token   A token returned by a mark token function. A mark token identifies the way an application marks Apple event objects during the current sessions while resolving a single test. A mark token does not identify a specific Apple event object; rather, it allows an application that supports marking callback functions to associate a group of objects with a marked set.

mark token function   A marking callback function that returns a mark token.

mask region   A 1-bit-deep region that defines how an image is to be displayed in the destination coordinate system. For example, during decompression the Image Compression Manager displays only those pixels in the source image that correspond to bits in the mask region that are set to 1. Mask regions must be defined in the destination coordinate system.

master clock component   A movie's clock component.

master directory block (MDB)   The part of a volume that contains information about the volume, such as the volume name and allocation block size.

Master Key password   The password of the principal user of a computer. This password unlocks the local identity and provides access to the services represented in the PowerTalk Setup catalog.

master pointer   A pointer to a relocatable block, maintained by the Memory Manager and updated whenever the block is moved, purged, or reallocated. All handles to a relocatable block refer to it by double indirection through the master pointer.

master pointer block   A nonrelocatable block of memory that contains master pointers. A master pointer block in your application heap contains 64 master pointers, and a master pointer block in the system heap contains 32 master pointers.

master pointer flag bits   The high-order 8 bits of a master pointer. In 24-bit addressing mode, some of these bits are used to store information about the relocatable block referenced by the master pointer.

math baseline   The baseline used for setting mathematical expressions; it is centered on operators such as the minus sign.

MathLib   See **PowerPC Numerics library.**

matrix   See **transformation matrix.**

matte   See **blend matte, track matte.**

maximum mode   A transfer mode type in which the source component replaces the destination component only if the source component has a larger value.

maximum source rectangle   A rectangle representing the maximum source area that a video digitizer component can grab. This rectangle usually encompasses both the vertical and horizontal blanking areas.

MB   Abbreviation for megabyte. A megabyte is 1024 kilobytes, or 1,048,576 bytes.

MDB   See **master directory block.**

MC680x0 bit-numbering   The bit-numbering scheme used by Motorola. Bit numbers are counted from right to left. (That is, the most significant bit has the highest bit number, and the least significant bit number has the lowest bit number.) Compare **reversed bit-numbering.**

media   A Movie Toolbox data structure that contains information that describes the data for a track in a movie. Note that a media does not contain its data; rather, a media contains a reference to its data, which may be stored on disk, CD-ROM disc, or any other mass storage device.

media handler   A piece of software that is responsible for mapping from the movie's time coordinate system to the media's time coordinate system. The media handler also interprets the media's data. The data handler for the media is responsible for reading and writing the media's data. See also **base media handler component, derived media handler component.**

media information   Control information about a media's data that is stored in the media structure by the appropriate **media handler.**

megahertz (MHz)   A unit of frequency, equal to one million cycles per second.

memory allocation   Specification of the starting address of the graphics client in memory.

memory block   An area of contiguous memory within a heap.

memory-block record   A data structure used by the translation parameter block to indicate the starting address and length of a given block of memory. This parameter block is defined by the `MemoryBlock` data type.

memory cushion   An application-defined threshold below which the application should refuse to honor any requests to allocate memory for nonessential operations.

memory location record   A data structure that provides information about the location of a fragment in memory. Defined by the `MemFragment` data type.

memory management unit (MMU)   Any component that performs address mapping in a Macintosh computer. In Macintosh II computers, it is either the Address Management Unit (AMU) or the Paged Memory Management Unit (PMMU). The MMU function is built into the MC68030 and MC68040 microprocessors.

Memory Manager   The part of the Operating System that dynamically allocates and releases memory space in the heap.

memory map   See **address map.**

memory reservation   The process of creating a free space at the bottom of the heap for a newly allocated block by moving unlocked relocatable blocks upward.

memory reserve   An allocated block of memory in the application heap that is held in reserve and released only for essential operations when memory in the heap is low.

memory size   The number of bytes of random access memory allocated to the QuickDraw GX graphics client. The default size is 600 KB.

menu   A user interface element you can use in your application to allow the user to view or choose an item from a list of choices and commands that your application provides. See also **hierarchical menu, pull-down menu, pop-up menu, submenu.**

menu bar   A white rectangle that is tall enough to display menu titles in the height of the system font and system font size, and with a black lower border that is one pixel tall. The menu bar extends across the top of the startup screen and contains the title of each available pull-down menu.

menu bar definition function   A function that draws the menu bar and performs most of the drawing activities related to the display of menus when the user moves the cursor between menus. This function, in conjunction with the menu definition procedure, defines the general appearance and behavior of menus.

menu bar entry   A menu color entry record that contains 0 in both the `mctID` and `mctItem` fields. A menu bar entry defines the color for an application's menu bar and defines default colors for its menu titles, menu items, and background color of menus.

menu bar resource   A resource (of type `'MBAR'`) that specifies the order and resource ID of each menu in a menu bar.

menu-blink time   The number of times a menu item blinks when the user chooses it.

menu color entry record   A data structure of type `MCEntry` that defines the colors for an application's menu bar, menus, or menu items. The first two fields of a menu color entry record, `mctID` and `mctItem`, define whether the entry is a menu bar entry, a menu title entry, or a menu item entry.

menu color information table   An array of menu color entry records, maintained by the Menu Manager, that define the standard color for the menu bar, titles of menus, text and characteristics of menu items, and background color of a displayed menu. If you do not add any entries to this table, the Menu Manager draws your menus using the default colors, black on white.

menu color information table resource   A resource (of type `'mctb'`) that specifies the colors for an application's menu bar, menus, and menu items.

menu definition procedure   A procedure that performs all the drawing of menu items within a specific menu. This procedure, in conjunction with the menu bar definition function, defines the general appearance and behavior of menus.

menu ID   A number that you assign to a menu in your application. Each menu in your application must have a unique menu ID.

menu item   In a menu, a rectangle with text and other characteristics identifying a command that the user can choose.

menu-item component   The portion of an `'hmnu'` resource in which you specify the help messages for a particular menu item.

menu item entry   A menu color entry record that contains nonzero values in both the `mctID` and `mctItem` fields. A menu item entry defines colors for the mark, text, and keyboard equivalent of items in a specific menu. It also defines the default background color of a menu.

menu list   A data structure that contains handles to the menu records of one or more menus (although a menu list can be empty). Compare **current menu list.**

Menu Manager   The collection of routines that an application can use to create, display, and manage its menus.

menu record   A data structure of type `MenuInfo` that the Menu Manager uses to maintain information about a menu.

menu resource   A resource (of type `'MENU'`) that specifies the menu title and the individual characteristics of items in a menu.

menu title   The word or icon in the menu bar or in a window that shows the location of a menu.

menu-title component   The portion of an `'hmnu'` resource in which you specify help messages for the menu title.

menu title entry   A menu color entry record that contains a nonzero value in the `mctID` field and contains 0 in the `mctItem` field. A menu title entry defines colors for the title, items, and background color of a specific menu. It also defines the default menu bar color.

message (1) The basic unit of communication defined by the Interprogram Messaging Manager. The term *message* is used as an inclusive term to refer both to letters and non-letter messages. See also **letter, non-letter message.** (2) A notice sent by one message handler to another that a certain condition has arisen or that a certain task needs to be accomplished. See also **printing message.** (3) A command sent by QuickDraw GX to accomplish printing-related tasks.

message block (1) A component of a message consisting of a sequence of any number of bytes whose format is governed by the block creator and block type. (2) A byte stream that an open application uses to send data to and receive data from another open application (which can be located on the same computer or across a network). The PPC Toolbox delivers message blocks to an application in the same sequence in which they were sent.

message chain One or more handlers that wish to receive and respond to messages. A handler at the top of a message chain always receives a message first. See also **message handler.**

message class The set of messages and methods defined at run time that are understood by message objects.

message creator A four-character sequence that indicates which application created a message; analogous to a file's creator in HFS.

message family A set of messages grouped according to similar characteristics. Messages of the same family conform to the syntax of a defined set of message block types and their associated semantics.

message handler A recipient of messages. In QuickDraw GX printing, applications, printing extensions, printer drivers, and QuickDraw GX are all message handlers, which are part of a message chain.

message header That part of a message that contains control information about the message such as the message creator and message type, the total length of the message, the time it was submitted, addressing information, and so forth.

Message Manager A part of system software, related to QuickDraw GX, that manages messages.

message mark A marker, used by the IPM Manager, that points to the current location within a message that is being created.

message object The recipient and sender of messages.

message override The response, by a message handler, of intercepting a message and taking some action. The response to a message is performed by an override function. See also **override function.**

message-passing architecture A software system driven by messages that are sent in response to certain conditions or events. The messages activate message handlers, which take action in response to the messages. QuickDraw GX printing uses a message-passing architecture.

message phase The phase in which SCSI devices exchange message information.

message queue A set of messages maintained by the IPM Manager on a recipient's disk or the disk of a message server.

message summary A set of data used by the Finder to display an incoming letter to a user.

message type A code that indicates the semantics of the message, the block types the message should contain, and the relationships among the various blocks in the message.

messaging service access module (MSAM) A foreground or background application that makes an external messaging system accessible from within an AOCE system. It translates and transfers letters, non-letter messages, or both between an AOCE system and an external messaging system. See also **personal MSAM, server MSAM.**

messaging slot A personal MSAM slot that serves to transfer non-letter messages. See also **slot.**

messaging system A combination of hardware and software that gives users or processes the ability to exchange messages.

method   See **dot type.**

MFS   See **Macintosh file system.**

MFS volume   A volume that is organized using the Macintosh file system.

MHz   See **megahertz.**

microsecond   A unit of time equal to one millionth of a second. Abbreviated µsec.

MIDI   See **Musical Instrument Digital Interface.**

MIDI Manager   The part of the Macintosh system software that controls the flow of MIDI data and commands through a MIDI interface.

MIDI note value   An integer that is defined to correspond to a frequency specified in hertz that is associated with a musical note.

migrate mode   A transfer mode type in which the destination color component is moved toward the source component by the value of the step specified in the operand component.

millisecond   A unit of time equal to one thousandth of a second. Abbreviated ms.

mini-A5 world   An area of memory created and maintained by the Process Manager for a native PowerPC application. A native application's mini-A5 world contains a pointer to the application's QuickDraw global variables. See also **A5 world.**

mini icons   Icons of resource types `'icm#'`, `'icm4'`, and `'icm8'` that measure 12 by 16 pixels. Like the icons in an icon family, the three resource types for mini icons identify the icon list, 4-bit color icons, and 8-bit color icons, respectively. Compare **small icon resource.**

minimum evaluation format   The narrowest format in which a floating-point operation can be performed. Each implementation of PowerPC Numerics defines its own minimum evaluation format.

minimum mode   A transfer mode type in which the source component replaces the destination component only if the source component has a smaller value.

minimum partition size   The actual partition size limit below which an application cannot run.

minor error   The amount of line layout error that a printer driver applies to nonspace glyphs.

minor glyph   On a printed page, a nonspace glyph, to which printer drivers apply the line layout error that remains after applying most of the error to **major glyphs.**

minor slot space   An Apple-specific term that describes the first megabyte of the 16 MB standard slot space.

minor switch   A change in the context of a process. The Process Manager switches the context of a process to give time to a background process without bringing the background process to the front. See also **context, major switch.**

missing character glyph   The glyph in a font that is drawn when no glyph is defined for a character code in a font.

missing-items component   The portion of a help resource in which you specify help messages for any items missing from or unspecified in the rest of the resource.

miter   The length a sharp join can reach before being truncated.

mixed-directional text   The combination of writing systems with left-to-right and right-to-left directions—within a single line of text.

mixed environment   A process execution environment that supports applications and other software written in more than one instruction set.

Mixed Mode Manager   The part of the Macintosh system software that manages the mixed-mode architecture of PowerPC-based computers running 680x0-based code (including system software, applications, and stand-alone code modules).

MMU   See **memory management unit.**

modal dialog box   A dialog box that puts the user in the state or "mode" of being able to work only inside the dialog box. A modal dialog box resembles an alert box. The user cannot move a modal dialog box and can dismiss it only by clicking its buttons. See also **modeless dialog box, movable modal dialog box.**

modal dialog filter function   An application-defined function that filters events passed from the Event Manager to your application when one of its modal dialog boxes is being displayed.

modeless dialog box   A dialog box that looks like a document window without a size box or scroll bars. The user can move a modeless dialog box, make it inactive and active again, and close it like any document window. See also **modal dialog box, movable modal dialog box.**

modes   See **access modes, deny modes.**

mode switch   The process of switching the execution context between the CPU's native context and an emulator (for example, the 68LC040 Emulator). See also **switch frame.**

modifier key   Any of the following keys on a Macintosh keyboard: Option, Caps Lock, Shift, Command, Control.

modulation of speech   See **pitch modulation.**

monitors extension   An extension to the Monitors control panel that a video card manufacturer can develop and provide to give users a simple way to control features of the video card. A monitors extension is limited to the video card; it cannot be used to control the settings of systemwide features. A user can open an extension only through the Monitors control panel.

monitors extension file   A file of type `'cdev'` that contains required and optional resources that implement an extension to the Monitors control panel for a specific video card. One of the required resources is a code resource containing a monitors extension function.

monitors extension function   A function that interacts and communicates with the Monitors control panel, responding to requests from the Monitors control panel to handle events and perform actions. Every implementation of an extension to the Monitors control panel must contain a monitors extension function in the monitors code (`'mntr'`) resource.

monophonic sound. Sound consisting of a single channel. Compare **stereo sound.**

monospaced font   See **fixed-width font.**

monostyled edit record   A TextEdit record used to contain text that is set in a single font, size, and face.

most significant bit   The bit contributing the greatest value in a string of bits. For example, in the MC680x0 numbering scheme bit number 7 in a byte contributes a value of 2^7, or 128. Same as **high-order bit.** Compare **least significant bit.**

mount   To make a volume available on the local machine.

mounted volume   A volume that has had its descriptive information read by the File Manager and placed into a volume control block in memory.

mouse-down event   An event indicating that the user pressed the mouse button.

mouse-down region   The region between the caret position and the middle of an adjacent character that maps unambiguously to a single character offset.

mouse location   The location of the cursor at the time an event occurred.

mouse-moved event   An event indicating that the cursor is outside of a specified region.

mouse scaling   A feature that causes the cursor to move twice as far during a mouse stroke as it would have otherwise, provided the change in the cursor's position exceeds the mouse-scaling threshold within one tick after the mouse is moved.

mouse-scaling threshold   A number of pixels that, if exceeded by the sum of the horizontal and vertical changes in the cursor's position during one tick of mouse movement, causes mouse scaling to occur (if that feature is turned on); normally six pixels.

mouse-up event   An event indicating that the user released the mouse button.

movable modal dialog box   A modal dialog box that has a title bar (with no close box) by which the user can drag the dialog box. See also **dialog box, modal dialog box, modeless dialog box.**

movie   A set of time-based data that is managed by the Movie Toolbox. A QuickTime movie may contain sound, video, animation, laboratory results, financial data, or a combination of any of these types of time-based data. A QuickTime movie contains one or more tracks; each track represents a single data stream in the movie.

movie boundary region   A region that describes the area occupied by a movie in the movie coordinate system, before the movie has been clipped by the movie clipping region. A movie's boundary region is built up from the track movie boundary regions for each of the movie's tracks.

movie box   A rectangle that completely encloses the movie display boundary region. The movie box is defined in the display coordinate system.

movie clipping region   The clipping region of a movie in the movie's coordinate system. The Movie Toolbox applies the movie's clipping region to the movie boundary region to obtain a clipped movie boundary region. Only that portion of the movie that lies in the clipped movie boundary region is then transformed into an image in the display coordinate system.

movie controller component   A component that manages movie controllers, which present a user interface for playing and editing movies.

movie data exchange component   A component that allows applications to move various types of data into and out of a QuickTime movie. The two types of data exchange components, which provide data conversion services to and from standard QuickTime movie data formats, are the movie import component and the movie export component.

movie data export component   A component that converts QuickTime movie data into other formats.

movie data import component   A component that converts other data formats into QuickTime movie data format.

movie display boundary region   A region that describes the display area occupied by a movie in the display coordinate system, before the movie has been clipped by the movie display clipping region.

movie display clipping region   The clipping region of a movie in the display coordinate system. Only that portion of the movie that lies in the clipping region is visible to the user. The Movie Toolbox applies the movie's display clipping region to the movie display boundary region to obtain the visible image.

movie file   A QuickTime file that stores all information about the movie in a Macintosh resource, and stores all the associated data for the movie separately. The resource is stored in the resource fork, and the data in the data fork. Most QuickTime movies are stored in files with double forks. Compare **single-fork movie file.**

movie poster   A single visual image representing a QuickTime movie. You specify a poster as a point in time in the movie and specify the tracks that are to be used to constitute the poster image.

movie preview   A short dynamic representation of a QuickTime movie. Movie previews typically last no more than 3 to 5 seconds, and they should give the user some idea of what the movie contains. You define a movie preview by specifying its start time, duration, and its tracks.

movie resource   One of several data structures that provide the medium of exchange for movie data between applications on a Macintosh computer and between computers, even computers of different types.

moving caret   See **single caret.**

MPW   See **Macintosh Programmer's Workshop.**

MSAM   See **messaging service access module.**

multicast address   A hardware address that is shared by a subset of nodes on a particular data link—an Ethernet network, a token ring network, or an FDDI network. A multicast address is used to send directed broadcasts to this group of nodes rather than to all nodes on the data link.

multichannel sound   See **stereo sound.**

multinode   A node ID that an application or process can acquire that is in addition to the standard user-node ID that is assigned to a system when it connects to an AppleTalk network. Multinodes are used by special-purpose applications that receive and process AppleTalk packets in a custom manner instead of passing them directly on to a higher-level AppleTalk protocol for processing.

multinode application   An application that uses a multinode to receive DDP packets from and send them to another multinode or socket on an AppleTalk network. A multinode application typically implements custom processing of an AppleTalk packet. A multinode application cannot pass a packet on to a higher-level AppleTalk protocol for processing because a multinode is not connected to the AppleTalk protocol stack above the data-link layer. Multinode applications must include a receive routine to read in a packet's contents.

multinode architecture   A part of the AppleTalk protocol stack that implements a feature that allows an application or process to acquire multinode IDs. Multinodes allow a single system to appear and act as multiple nodes on an AppleTalk network. The multinode architecture is not connected to the AppleTalk protocol stack above the data-link level, and applications that use it cannot access the higher-level AppleTalk protocols, such as ADSP, from a multinode.

multiply-add instruction   A type of instruction unique to the PowerPC architecture. Multiply-add instructions perform a multiply plus an addition or subtraction operation with at most a single roundoff error.

multistyled edit record   A TextEdit record that contains text with style information that can vary from character to character. A multistyled edit record contains a number of additional subsidiary data structures that support the text styling information.

multitasking environment   An environment in which several independent applications or other processes can be open at once. See also **cooperative multitasking environment.**

multivendor architecture   An AppleTalk feature that allows for multiple brands of Ethernet, token ring, and FDDI network interface controllers to be installed and used on a single node at the same time.

Musical Instrument Digital Interface (MIDI)   A standard protocol for sending audio data and commands to digital devices.

mutual authentication   Authentication of both ends of a communication link accomplished by exchanging a series of encrypted challenges and replies.

Name-Binding Protocol (NBP)   An AppleTalk protocol that provides a way to map user-friendly names associated with applications and processes to their machine-readable addresses. Users can choose an application based on its NBP name, and applications and processes can contact another application or process based on its address.

names table   A table that NBP builds on each node; the table contains the name and internet address of each entity in that node that is registered with NBP.

NaN (Not-a-Number)   A special bit pattern produced when a floating-point operation cannot produce a meaningful result (for example, $0/0$ produces a NaN). NaNs propagate through arithmetic operations.

nanokernel   The lowest-level part of the system software for PowerPC processor-based Macintosh computers.

National Television System Committee (NTSC)   Refers to the color-encoding method adopted by the committee in 1953. This standard was the first monochrome-compatible, simultaneous color transmission system used for public broadcasting. This method is used widely in the United States.

native   Characters in a character set that belong to the character set traditionally defined for the writing system of that font. For example, a Hebrew font can display both Hebrew characters and Roman characters. The Hebrew characters are native to the font and the script system; the Roman characters are not.

native application   An application whose executable code is in the instruction set architecture of the CPU. See also **PowerPC application.**

NBP   See **Name-Binding Protocol.**

NBP names directory The collection of NBP names tables on all the nodes in an internet.

NCEG   Numerical C Extensions Group. See **ANSI X3J11.1.**

neighborhood base font   The font with the lowest font family ID for a particular script system.

nested letter   A complete letter included whole within another letter.

nested message   Any type of message included whole within another message.

nesting level   An indication of how many messages are nested within a given message. For example, a letter that contains one nested letter has a nesting level of 1, and a letter that contains no nested letters has a nesting level of 0.

network architecture   The design or assemblage of the various components of a network into a unified structure.

network number   A 16-bit number used to indicate the AppleTalk network that a node is connected to.

network number range   For an extended network, the range of network numbers that are valid for use by nodes on a particular AppleTalk network.

network-visible entity   A network entity that is registered with NBP. After the entity is registered, it is made visible and is available to other entities throughout the network.

neutral type   A glyph directionality in which the glyph direction is always that of the surrounding glyphs. Compare **strong type, weak type.**

newline character   Any character, but usually the Return character (ASCII code $0D), that indicates the end of a sequence of bytes.

newline mode   A mode of reading data in which the end of the data is indicated by a newline character (and not by a specific byte count).

nextafter functions   Functions that return the next value after the input value that is representable in one of the floating-point data formats. For example, `nextafterd`(0, +) returns the value that comes immediately after 0 in the direction of + in double format.

node   (1) A data-link addressable entity on an AppleTalk network. All physical devices on an AppleTalk network, such as personal computer workstations, printers, and Macintosh computers acting as file servers, print servers, and routers, are nodes. (2) A part of a B*-tree.

node descriptor   The first part of a B*-tree node; it contains information about the node, as well as forward and backward links to other nodes.

node ID   An 8-bit number assigned to a node on an AppleTalk network that is used to identify that node in conjunction with the network number. A node ID is part of the addressing information used to deliver packets across a network or internet.

no-match character   The character produced when the keystroke that follows a dead key is a space character or is not a valid completer key. The no-match character is usually a stand-alone accent form; for example, the no-match character for the dead-key combination Option-E is ´.

noncompressed sound data   Sampled-sound data that has not been subjected to audio compression or that has been decompressed.

non-debugging environment   The QuickDraw GX end-user environment consisting of the non-debugging version, errors and warnings, and application-defined message handlers. See also **error, warning, message handler.**

non-debugging version   The version of QuickDraw GX that provides a limited set of errors and warnings. This version is intended for use with a debugged application. See also **debugging version, error, warning.**

non-delivery indication   Information within a report that indicates unsuccessful attempts to deliver a specific message to a specific recipient.

nonextended network   An AppleTalk network that is assigned only one network number and supports only one zone. LocalTalk is an example of a nonextended network.

non-letter message   A message sent from one application or process to another, not intended to be read by people. Compare **letter.**

nonrelocatable block   A block whose location in the heap is fixed. This block can't be moved during heap compaction or other memory operations.

nonvolatile register   A register whose contents must be preserved across subroutine calls. If a routine changes the value of a nonvolatile register, it must save the old value on the stack before changing the register and restore that value before returning. See also **saved registers area, volatile register.**

normalize   To divide a mapping matrix by the absolute value of matrix element w. A mapping is considered normalized whenever the matrix element w has the value 1.

normalized number   A binary floating-point number in which all significand bits are significant: that is, the leading bit of the significand is 1. Compare **denormalized number.**

note   See **frequency, MIDI note value.**

note alert   An alert box that informs users of a minor mistake that won't have any disastrous consequences if left as is. Usually a note alert simply offers information, and the user responds by clicking the OK button. A note alert is identified by an icon bearing a face and a cartoonlike dialog balloon in the upper-left corner of the alert box. See also **caution alert, stop alert.**

notice   A single descriptive phrase that is posted by the debugging version of QuickDraw GX whenever an unnecessary or redundant function has been performed. Execution continues as if the notice had not been posted. Notices are posted only in the debugging version of QuickDraw GX. A notice number is a unique number in the range −25999 through −25500 assigned to each QuickDraw GX notice message. Each notice number has a unique notice name. See also **notice name.**

notice name   A multiple-word phrase that describes the QuickDraw GX notice posted. Each notice name has a unique notice number. See also **notice.**

notice number   See **notice.**

notification   An audible or visible indication that your application (or other piece of software) requires the user's attention. See also **alert notification, audible notification, polite notification.**

Notification Manager   The part of the Macintosh Operating System that allows you to inform users of significant occurrences in applications that are running in the background or in software that is largely invisible to the user.

notification queue   The Notification Manager's list of pending notification requests.

notification record   The internal representation of a notification request, through which you specify how a notification is to occur. Defined by the NMRec data type.

notification request   A request to the Notification Manager to create a notification.

notification response procedure   A procedure that the Notification Manager can execute as the final step in a notification.

NTSC   See **National Television System Committee.**

NuBus   The 32-bit wide synchronous bus used for expansion cards in the Macintosh II family of computers.

NuBus expansion interface   A 32-bit-wide synchronous, multislot expansion bus used for interfacing expansion cards to some Macintosh computers. See also **bus interface, NuBus slot.**

NuBus expansion slot   A connector attached to the NuBus in a Macintosh II computer, into which an expansion card can be installed.

NuBus slot   See **NuBus expansion slot.**

null descriptor record   A descriptor record whose descriptor type is `typeNull` and whose data handle is `NIL`.

null event   An event indicating that no events of the requested types exist in the application's event stream.

null scrap   A scrap that is created and initialized for a TextEdit multistyled edit record to store style information associated with an insertion point.

number parts table   A table in the tokens resource that contains number-formatting information.

Numbers control panel   A control panel that allows the user to specify default number and currency formats for text of the system script.

Numerical C Extensions Group (NCEG)   See **ANSI X3J11.1.**

numeric-format resource   An international resource of type `'itl0'`. The numeric-format resource defines conventions for formatting numeric strings. Each installed script system has one or more numeric-format resources.

object   (1) The field of an NBP entity name that identifies the user of the system or the system itself, in the case of a server. (2) A private QuickDraw GX data structure. An object has specific properties and is accessed through a reference.

object accessor dispatch table   A table in either the application heap or the system heap that the Apple Event Manager uses to map descriptions of objects in an object specifier record to object accessor functions that can locate those objects.

object accessor function   An application-defined function that locates an Apple event object of a specified object class in a container identified by a token of a specified descriptor type.

object callback function   An application-defined function used by the Apple Event Manager to resolve object specifier records. See also **error callback function, marking callback functions, object-comparison function, object-counting function, token disposal function.**

object class   A category for Apple event objects that share specific characteristics listed in an object class definition in the *Apple Event Registry: Standard Suites.* Among these characteristics are properties, element classes, and Apple events that can specify objects of that class. An object class is specified in an object specifier record by a keyword-specified descriptor record with the keyword `keyAEDesiredClass` whose data handle refers to either a constant or an object class ID.

object class ID   A four-character code, which can also be represented by a constant, that identifies an object class for an Apple event object. The object class ID for a primitive object class is the same as the four-character value of its descriptor type.

object class inheritance hierarchy   The hierarchy of subclasses and superclasses that determines which properties, elements, and Apple events object classes inherit from other object classes.

object-comparison function   An object callback function that compares an element to either another element or to a descriptor record and returns either `TRUE` or `FALSE`.

object-counting function   An object callback function that counts the number of elements of a specified class in a specified container, so that the Apple Event Manager can determine how many elements it must examine to find the element or elements that pass a test.

object-marking function   An object callback function called repeatedly by the Apple Event Manager to mark specific Apple event objects. See also **marking callback functions.**

object sharing   The use of the same object by several owners, such as application variables or other objects. Many QuickDraw GX objects can be shared. See also **clone, owner count.**

object specifier record   A description of one or more Apple event objects based on the Apple Event Manager and the classification system defined in the *Apple Event Registry: Standard Suites.* An object specifier record consists of a descriptor record of descriptor type `typeObjectSpecifier` that comprises four keyword-specified descriptor records: the object class ID, the container for the Apple event object (which is usually another Apple event object, specified by another object specifier record), the key form, and the key data.

off-curve control point   See **control point.**

off-curve point   An outline point between two on-curve points that determines the curve of the line between the two on-curve points. A Bézier curve is defined by all three points.

offline volume   A volume that has been mounted but made temporarily unavailable (for example, because it was ejected).

offscreen bitmap   A bitmap that exists in memory or on disk but is not associated with a physical display device.

offscreen drawing   The process of drawing into an offscreen buffer in preparation for later transfer of the drawn image to the screen.

offscreen graphics world   A sophisticated environment for preparing complex color or black-and-white images before displaying them on the screen. An offscreen graphics world is defined in a private data structure referred to by a pointer of type `GWorldPtr`.

offset-binary encoding   A method of digitally encoding sound that represents the range of amplitude values as an unsigned number, with the midpoint of the range representing silence. For example, an 8-bit sound stored in offset-binary format would contain sample values ranging from 0 to 255, with a value of 128 specifying silence (no amplitude). Samples in Macintosh sound resources are stored in offset-binary form. See also **two's complement encoding.**

offset point   The point in a region whose horizontal and vertical offsets from the upper-left corner of the region's enclosing rectangle are the same as the offsets of a specified point. The `DrayGrayRgn` function uses an offset point to limit the motion of a region and to calculate the distance a region has moved.

offspring   For a given directory, the set of files and directories the given directory contains.

omit byte   A means of assigning different data compressions to type constants and object properties that immediately follow this byte.

omit byte mask   With the omit byte shift, this is a means of interpreting the meaning of each of the bits in an omit byte.

omit byte shift   With the omit byte mask, this is a means of interpreting the meaning of each of the bits in an omit byte.

on-curve point   One of the outline points that determines the shape of a Bézier curve. Two on-curve points and one off-curve point are required to define the curve.

online mode   A mode of operation available only to personal MSAMs in which the MSAM actively manages letters in a user's AOCE mailbox and in the user's accounts on external messaging systems, reflecting changes in one to the other, keeping both ends synchronized to the degree possible.

online volume   A volume that has been mounted and is currently available for File Manager operations.

onscreen view group   The view group, created by QuickDraw GX, that includes all view devices for physical display devices.

opcode (1) A value passed to a routine, such as the `DrawPicture` or `PrGeneral` procedure, that determines how the routine should operate. (2) See **operation code.**

open application An application that is loaded into memory.

Open Application event An Apple event that asks an application to perform the tasks—such as displaying untitled windows—associated with opening itself; one of the four required Apple events.

open connection An association or connection set up between two sockets in which both ends have been established so that data can flow between them.

Open Documents event An Apple event that asks an application to open one or more documents specified in a list; one of the four required Apple events.

open file A file with an access path. You can read from and write to open files only.

open-frame fill A shape fill that connects the points of the geometry from start point to end point (but not back to the start point again). Same as *framed fill.*

open permission Information about a file that indicates whether the file can be read from, written to, or both.

open resource A resource of type `'open'` that declares which file types your application can open as documents.

open routine A device driver routine that allocates memory and initializes the driver's data structures. It may also initialize a hardware device or perform any other tasks necessary to make the driver operational. All drivers must implement an open routine.

Open Scripting Architecture (OSA) A mechanism based on the Apple Event Manager and the *Apple Event Registry: Standard Suites* that allows users to control multiple applications by means of scripts. The scripts can be written in any scripting language that supports the OSA.

operand A numerical value used with some transfer mode types (such as blend mode) to affect the outcome of the transfer-mode operation.

Operating System See **Macintosh Operating System.**

operating-system event An event returned by the Event Manager to communicate information about changes in the operating status of applications (suspend and resume events) and to report that the user has moved the mouse outside of an area specified by the application (mouse-moved events). Compare **low-level events, high-level events.**

Operating System Event Manager The collection of low-level routines that manage the Operating System event queue.

Operating System event queue A queue that the Operating System Event Manager creates and maintains. The Operating System Event Manager detects and reports low-level hardware-related events such as mouse clicks, keypresses, and disk insertions and places these events in the Operating System event queue.

operating-system queue A queue used by the Macintosh Operating System.

Operating System trap An exception that is caused by an A-line instruction that executes an Operating System routine.

Operating System trap dispatch table A table in RAM containing addresses of Operating System routines.

operation code The part of a machine instruction that encodes the operation to be performed. Often shortened to **opcode.**

optional parameter   A supplemental parameter in an Apple event used to specify data that the server application can use in addition to the data specified in the direct parameter. Source applications list the keywords for parameters that they consider optional in the attribute identified by the `keyOptionalKeywordAttr` keyword. Target applications use this attribute to identify any parameters that they are required to understand. If a parameter's keyword is not listed in this attribute, the target application must understand that parameter to handle the event successfully. See also **Apple event attribute, Apple event parameter.**

original application heap zone   See **application heap zone.**

original recipient   Any of four specific types of recipient that can be specified by the sender of a message: To, From, cc, or bcc. An original recipient may be a group address. A non-letter message can include only From and To recipients. See also **resolved recipient.**

OR mode   A transfer mode type in which the bits of the source color component and destination color component are combined using an OR operation.

OSA   See **Open Scripting Architecture.**

outgoing message   A message that is leaving an AOCE system to go to an external messaging system.

outgoing queue   A queue from which an MSAM reads messages that it must deliver to an external messaging system.

outline font   A font made up of outline glyphs in a particular typeface and style, with no size restriction. The Font Manager can generate thousands of point sizes from the same outline font.

outline highlighting   The highlighting of a selection range by drawing an outline around the selected characters. Typically used to show a selection range in an inactive window.

outline point   A point used by the Font Manager to calculate the lines and curves that constitute an outline glyph. See also **on-curve point, off-curve point.**

out of gamut   Said of a color that cannot be represented on a given device.

output printer   The printer to which a document is sent to be printed. If the document's formatting printer is different than the output printer, the print file reflects the output printer's formatting; however, the document itself retains its original format. See also **formatting printer.**

oval   A circular or elliptical shape defined by the bounding rectangle that encloses it. The oval is completely enclosed within the infinitely thin lines of its bounding rectangle, and never includes any pixels lying outside the bounding rectangle. If the bounding rectangle is square (that is, has equal width and height), then the oval is a circle.

overflow exception   A floating-point exception that occurs when the magnitude of a floating-point result is greater than the largest finite number that the destination data format can represent.

overflow notice   A QuickDraw GX notice indicating that a notice could not be added to the ignore notice stack because the implementation limit had been exceeded. See also **implementation limit.**

overflow warning   A QuickDraw GX warning indicating that a warning could not be added to the ignore warning stack because the implementation limit had been exceeded. See also **implementation limit.**

over mode   A transfer mode type in which the source color is copied to the destination, and the source transparency controls where the destination color shows through.

override   (n.) See **message override, override function.** (v.) To intercept a message and take action on it.

override function   The code, defined in a message handler, that responds to a message. See also **message override.**

overriding ink object   An optional part of a picture item. If a picture item has an overriding ink object, QuickDraw GX uses the information in the overriding ink when drawing the item, rather than the information in the original ink object.

overriding style object   An optional part of a picture item. If a picture item has an overriding style object, QuickDraw GX uses the information in the overriding style when drawing the item, rather than the information in the original style object.

overriding transform object   An optional part of a picture item. If a picture item has an overriding transform object, QuickDraw GX uses the information in the overriding transform when drawing the item, rather than the information in the original transform object.

owner   (1) A variable, structure, or QuickDraw GX object that references an object. Many objects can be referenced by more than one variable and can thus have multiple owners. (2) See **certificate owner.**

owner count   A property of some QuickDraw GX objects that indicates the number of current references to the object.

package   A collection of system software routines that's stored as a resource and brought into memory only when needed. See also **manager.**

Package Manager   A set of routines that loads the packages into memory.

packet   (1) A unit of compressed sampled-sound data. One or more packets make up a sample frame of compressed sampled-sound data. See also **sample point.** (2) A unit of data that is sent as a unit within a frame from one node to another across a network or internet. A packet includes a header portion that contains addressing and control information and a data portion that contains the message text. The terms *packet* and *datagram* are synonymous.

packet-oriented network   See **connectionless network.**

packing   The process of compacting or "flattening" a complex data structure into a sequence of bytes. Compare **unpacking.**

pad byte   The extra byte added to make 2 bytes, when you declare a variable of type `Byte`.

page   The basic unit of memory used in virtual memory.

paged memory management unit (PMMU)   The Motorola MC68851 chip, used in the Macintosh II computer to perform logical-to-physical address translation and paged memory management.

page fault   A special kind of bus error caused by an attempt to access data in a page of memory that is not currently resident in RAM. See also **double page fault.**

page rectangle   The rectangle marking the boundaries of the printable area on a page. The upper-left corner of the page rectangle always has the coordinates (0,0). The coordinates of the lower-right corner give the maximum page height and width attainable on the given printer; these coordinates are specified by the units used to express the resolution of the printing graphics port. For example, the lower-right corner of a page rectangle used by the PostScript LaserWriter printer driver for an 8.5-by-11-inch U.S. letter page is (730,552) at 72 dpi.

paging   The process of moving data between physical memory and a paging file.

paging device   A volume that contains the backing-store file or a paging file.

paging file   A file used to store unneeded pages of memory. See also **backing-store file.**

paint   To draw the outline of a shape and its interior with the pattern of the graphics pen, using the pattern mode of the graphics pen.

PAL   See **Phase Alternation Line.**

Palette Manager   A set of system software routines that allows your application to specify the colors that it needs on a window-by-window basis. The Palette Manager makes the colors available (within application-determined ranges) in a graceful manner.

palindrome looping   Running a movie in a circular fashion from beginning to end and end to beginning, alternating forward and backward. Looping must also be enabled in order for palindrome looping to take effect.

panel   (1) A subset of a dialog box used to display and collect related pieces of information. An expanded dialog box may contain one or more panels, each of which is named and associated with an icon. A panel is defined by a panel resource. (2) The area managed by a control panel extension. A panel contains controls and other dialog items related to the features managed by control panel extensions.

paper rectangle   The rectangle that describes the size of a piece of paper on which a page is printed. This rectangle is defined in the same coordinate system as the page rectangle. Thus, the upper-left coordinates of the paper rectangle are typically negative and its lower-right coordinates are greater than those of the page rectangle.

paper-type collection   A collection of items that are relevant to a kind of paper but are not required to define a paper type. See also **collection object.**

paper-type object   A paper-type object represents the paper for which a page is formatted. It specifies the name of the paper, the size, and the printable area. See also **format object.**

parameter RAM   Battery-powered RAM (random-access memory) contained in the clock chip, which preserves settings such as those made with the control panels. Parameter RAM takes up 256 bytes of battery-powered RAM: 20 bytes are commonly accessible by applications, and 236 bytes are reserved by the system software. See also **clock chip.**

parameter area   The area in a PowerPC stack frame that holds the parameters for any routines called by a given routine. See also **linkage area.**

parameter out of range warning   A QuickDraw GX warning indicating that a function parameter is out of the valid range.

parent directory   The directory in which a file or directory is located.

parent directory ID   The directory ID of the directory containing a file or directory.

parent view port   A property of a view port object. A view port's parent is that view port immediately above it in the view port hierarchy.

parse function   A CSAM-defined function that responds to requests for AOCE parse services from clients of the Catalog Manager.

part code   An integer between 1 and 253 that stands for a particular part of a control. The `FindControl` and `TrackControl` functions return a part code to indicate the location of the cursor when the user presses the mouse button.

partial override   An implementation of a printing message override that forwards the message to other message handlers. You typically forward the message at the beginning or end of your override function.

partial pathname   (1) A pathname that begins in some directory other than the root directory. (2) In an AOCE catalog, a value that uniquely identifies a catalog by specifying a dNode number and continuing with the name of each dNode under that one to the dNode in question.

partition   (1) A contiguous block of memory reserved for use by the Operating System or by an application. See also **application partition, system partition.** (2) A part of a disk that has been allocated to a particular operating system, file system, or device driver.

partition map   A block of information that describes the organization of partitions on a disk.

Pascal string   An array of characters, consisting of a length byte followed by up to 255 bytes of data. Compare **text string.**

password   (1) A string of characters that a user or application must provide to gain access to a networked file server or to a local machine that requires user authentication. Passwords are frequently encrypted prior to transmission over a network to ensure network security. (2) In digital signatures, a set of characters used as a key to encrypt and decrypt a certificate owner's private key.

password encryption   See **DES encryption.**

patch   (v) To replace a piece of ROM code with other RAM-based code (by storing a new entry into the trap dispatch table). (n) Any code used to repair or augment an existing piece of code. In the context of Macintosh system software, a patch repairs or augments a system software routine. See also **come-from patch, head patch, tail patch.**

path contour   A connected series of straight lines and curves.

pathname   (1) A series of concatenated directory names and filenames that identifies a given file or directory. See also **full pathname, partial pathname.** (2) In an AOCE catalog, a string that uniquely identifies a catalog node by specifying the name of each catalog node in the catalog starting from the first node under the root node and including each intervening node to the node in question. See also **dNode number.**

path reference number   See **file reference number.**

path shape   A type of QuickDraw GX shape. The geometry of a path shape is made up of zero, one, or more path contours (each of which is a set of contiguous line segments that can be curved or straight).

pattern   (1) An image that can be repeated indefinitely to form a repeating design when drawing lines and shapes or when filling areas on the screen. See also **bit pattern, pixel pattern.** (2) See **pattern property.**

pattern grid   A pair of vectors that determine the placement of a pattern shape over the area of another shape.

pattern mode   A specification of which Boolean operation QuickDraw should perform when drawing patterns into bitmaps or pixel maps. See also **source mode.**

pattern property   A property of a style object that specifies how the area of a shape is to be filled.

pattern shape   A shape copied over the area of another shape at positions specified by a pattern grid.

PC   See **program counter.**

PC-relative   A form of instruction addressing in which the destination instruction is some number of instructions before or after the current instruction.

PDD   See **portable digital document.**

PDS   See **processor-direct slot.**

peer-to-peer communication   A connection in which both ends have equal control over the exchange of data and either end can begin or end the session.

peer-to-peer session   See **symmetrical session.**

PEF   See **Preferred Executable Format.**

pen   See **graphics pen.**

pen position   The screen position where QuickDraw begins to draw a character, as specified by the `penLoc` field of the active graphics port.

pen width   A style object property. It is the width of the pen used to draw the shape.

perceptual matching   A color-matching method in which all colors produced on the source device are shifted to fit the gamut of the destination device, even those already within the gamut of the destination device. Compare **colorimetric matching, saturation matching.**

per-context instantiation   The method of allocating an import library's static data in which one copy of that data is created for each separate application using the library. Using this method, a single application may have only one copy of the static data. See also **global instantiation, per-load instantiation.**

period   The time elapsed during one complete cycle. See also **frequency.**

per-load instantiation   The method of allocating an extension's static data in which one copy of that data is created for each separate connection to the extension. Using this method, a single client may have multiple copies of the static data. See also **global instantiation, per-context instantiation.**

permissions   See **file permissions.**

persistence attribute   An attribute that causes an item to be included when the Collection Manager flattens a collection. See also **flatten.**

persistent VBL task   A VBL task that is executed as scheduled, even when the application that installed it is switched out and is no longer in control of the CPU.

personal catalog   An AOCE catalog created and managed by the Catalog Manager. A personal catalog is an HFS file located on a user's local disk. A personal catalog can store any records that can be kept in a PowerShare catalog and is often used to store frequently used information from such a catalog.

personal MSAM (PMSAM)   An MSAM that transfers messages between the user's Macintosh and specific user accounts on an external messaging system. A personal MSAM runs on a user's Macintosh. Compare **server MSAM.**

perspective   The altering of a two-dimensional image to give the impression of a third dimension. A mapping can be used to alter the perspective of a shape.

Phase Alternation Line (PAL)   A color-encoding system used widely in Europe, in which one of the subcarrier phases derived from the color burst is inverted in phase from one line to the next. This technique minimizes hue errors that may result during color video transmission. Sometimes called *Phase Alternating Line.*

phase-locked loop (PLL)   A piece of hardware that synchronizes itself to an input signal—for example, a video digitizer card that synchronizes to an incoming video source. The video digitizer component's `VDSetPLLFilterType` function allows applications to specify which phase-locked loop is to be active.

phoneme   A speech sound in a language that a speaker of the language psychologically considers to be a single unit. A single phoneme may have several allophones.

phoneme callback procedure   An application-defined procedure that is executed whenever the Speech Manager is about to pronounce a phoneme.

phoneme descriptor record   A structure that contains information about all phonemes defined for the current synthesizer. Defined by the `PhonemeDescriptor` data type.

phoneme information record   A structure that contains information about a phoneme. Defined by the `PhonemeInfo` data type.

phonemic representation of speech   The representation of speech using a series of phonemes.

phonetic representation of speech   The representation of speech using a series of allophones.

physical address   An address represented by bits on a physical address bus. The physical address may be different from the logical address, in which case the memory management unit translates the logical address into a physical address.

physical block   A fixed location on a storage device that is defined by the physical characteristics of the device. See also **logical block.**

physical end-of-file   The position of 1 byte past the last allocation block of a file; equal to 1 more than the maximum number of bytes the file can contain.

physical queue   The actual data of a message queue residing on a disk. A physical queue can have any number of associated virtual queues. See also **virtual queue.**

physical size   The actual number of bytes a memory block occupies in its heap zone, including the block header and any unused bytes at the end of the block.

picture   A saved sequence of QuickDraw drawing commands (and, optionally, picture comments) that your application can play back later with the `DrawPicture` procedure; also, the image resulting from these commands.

picture comment   A command or data used for special processing by output devices, such as printer drivers. Picture comments are usually stored in the definition of a picture or are included in the code an application sends to a printer driver.

picture hierarchy   A picture shape that contains other picture shapes as items.

picture item   An element of a picture shape's geometry. Each picture item contains a reference to a shape and, optionally, a reference to an overriding style, an overriding ink, and an overriding transform.

picture opcode   A number that the `DrawPicture` procedure uses to determine what object to draw or what mode to change for subsequent drawing.

picture shape   A type of QuickDraw GX shape that represents a collection of other shapes.

Picture Utilities   A set of system software routines for extracting information—such as pixel depth and colors—in pictures and pixel maps.

Pinyin   A system for writing Chinese ideographs by using Roman letters to represent the sounds.

pitch   A listener's subjective interpretation of a sound's frequency. See also **speech pitch.**

pitch modulation   A fixed-point value defined on a scale from 0.000 to 100.000 that indicates the maximum amount by which the frequency of generated speech may deviate from that corresponding to the speech pitch in either direction. A value of 0.000 corresponds to a monotone.

pixel   Short for *picture element,* the smallest dot that QuickDraw can draw; also, the visual representation of that dot on the screen. On a black-and-white screen, each single-color phosphor dot is a pixel that represents a bit in memory—white if the bit is 0, black if it's 1. On a color screen, three phosphor dots (red, green, and blue) compose each color pixel, which represents up to 48 bits in memory. On a grayscale screen, a white phosphor dot whose intensity can vary is a pixel that usually represents 1, 2, 4, or 8 bits in memory.

pixel depth   The number of bits per pixel in a pixel image. Pixels on indexed devices can be 1, 2, 4, or 8 bits deep. (A pixel image that is 1 bit deep is equivalent to a bit image.) Pixels on direct devices can be 16 or 32 bits deep. See also **pixel size.**

pixel image   A collection of pixels in memory that forms a grid—a rectangular pattern of pixels. The pixel image is pointed to in the `baseAddr` field of a `PixMap` record. Compare **bit image.**

pixel map   A data structure of type `PixMap` that represents the positions and states of a corresponding set of color pixels. A handle to a pixel map is contained within a color graphics port. See also **bitmap.**

pixel pattern   An image that can be repeated indefinitely to form a repeating design (such as stripes) or tone (such as gray) when drawing lines and shapes or when filling areas on the screen. A pixel pattern can use color at any pixel depth and can be of any width and height that's a power of 2. See also **bit pattern.**

pixel size   The number of bits required to represent the color information for each pixel in a bitmap. Also called *pixel depth.*

pixel value   A number used by system software and a graphics device to represent a color. The translation from the color that an application specifies in an `RGBColor` record to a pixel value is performed at the time the application draws the color. The process differs for indexed and direct devices. This value can represent a color value (if the bitmap uses a color space) or an index into a color set (if the bitmap uses a color set).

playback quality   A relative measure of the fidelity of a track in a QuickTime movie. You can control the playback (or language) quality of a movie during movie playback. The Movie Toolbox chooses tracks from alternate groups that most closely correspond to the display quality you desire. In this manner you can create a single movie that can take advantage of the hardware configurations of different computer systems during playback.

play from disk The ability of the Sound Manager to play sampled sounds stored on disk (either in a sound file or a sound resource) continuously without audible gaps.

playthrough A feature of sound recording that allows the user to hear, through the speaker of a Macintosh computer, the sound being recorded.

PLL See **phase-locked loop.**

PMMU See **paged memory management unit.**

PMSAM See **personal MSAM.**

point (1) The intersection of a horizontal grid line and a vertical grid line in the coordinate plane. Defined by the `Point` data type. (2) See **control point, geometric point, grid point, point shape.**

pointer (1) A variable containing the address of a byte in memory. See also **handle.** (2) See **cursor.**

pointer record The kind of record contained in an index node in a B*-tree file. The structure of a pointer record depends on the kind of B*-tree in which it is contained.

point shape A type of QuickDraw GX shape. The geometry of a point shape specifies an *x*-coordinate and a *y*-coordinate. Point shapes appear as a single pixel (if the pen width is 0) or as a cap shape (if the pen width is greater than 0).

point size The size of a font's glyphs as measured from the baseline of one line of text to the baseline of the next line of single-spaced text. In the United States, point size is measured in typographic points.

point size factor A specific point size that you force onto a style run to create custom kerning. See also **kerning adjustments array, scaling factor.**

point-to-point translation A translation group with one source type and one destination type.

polar coordinate A coordinate system in which a point is specified by the length of the radius vector *r* from the origin to the point and the direction of the vector is specified by the polar angle *a*. A point is defined by specifying the coordinates *r* and *a* in the format (*r*, *a*). The polar origin has the coordinates (0, *a*), where *a* is any angle. Compare **Cartesian coordinate.**

polite notification A notification in which a small icon blinks in the menu bar at the location of the Apple menu icon (the Apple logo) or the Application menu icon.

polled transfer A Macintosh-specific method of transferring data between memory and the SCSI controller hardware, in which the SCSI Manager senses the state of the internal registers of the SCSI controller to determine when the controller is ready to transfer another byte. Compare **blind transfer.**

polling When the ADB Manager repeatedly sends each ADB device a Talk Register 0 command to see if it has new data to return.

polygon A graphic shape defined by any sequence of points representing the polygon's vertices, connected by straight lines from one point to the next.

polygon contour A connected series of straight lines.

polygon shape A type of QuickDraw GX shape. The geometry of a polygon shape is made up of zero, one, or more polygon contours (each of which is a set of contiguous straight-line segments).

polyphonic sound See **stereo sound.**

poor man's search path The list of directories that the File Manager searches whenever it cannot find a specified file in the specified directory.

pop-up menu A menu that appears elsewhere than the menu bar. The Control Manager provides a control definition function for applications to use when implementing pop-up menus.

port   (1) A portal through which an open application can exchange information with another open application using the PPC Toolbox. A port is designated by a port name and a location name. An application can open as many ports as it requires so long as each port name is unique within a particular computer. (2) A connection between the CPU and main memory or a device (such as a terminal) for transferring data. (3) A socket on the back panel of a computer where you plug in a cable for connection to a network or a peripheral device. (4) See **audio port.** (5) See **graphics port.**

portable digital document (PDD)   A print file that can be viewed without the application or fonts that created it. It is created by printing with the PDD Maker GX printer driver. See also **print file.**

portable Macintosh computer   Any Macintosh computer that can be battery powered.

port font   The font for drawing text in a graphics port, as specified in the `txFont` field of the graphics port record.

port name   A unique identifier for a particular application within a computer. The port name contains a name string, a type string, and a script code. An application can specify any number of port names for a single port so long as each name is unique. See also **port.**

port rectangle   An entry in the graphics port data structure. Ordinarily, the port rectangle represents the area of a graphics port available for drawing—that is, the content region of a window.

positions array   An array that contains positions for the origin of each character or glyph in the shape. These positions, stored as points, can be relative to the advance width of the previous character or glyph, or they can be absolute positions in coordinates.

post   For an error, warning, or notice, to place in an accessible location. QuickDraw GX posts an error, for example, when a function cannot complete successfully.

postcompensation action   The extra processing, such as addition of kashidas and ligature decomposition, that occurs after glyphs have been repositioned during justification.

posting   The process of generating error, warning, and notice messages by QuickDraw GX. See also **debugging version, error, non-debugging version, notice, warning.**

postmultiplied   A term that describes the order in which matrices are multiplied. Matrix [A] is postmultiplied by matrix [B] if matrix [A] is replaced by [A] $\times$ [B]. Compare **premultiplied.**

PostScript imaging system   The imaging system provided by QuickDraw GX that converts QuickDraw GX shapes into PostScript instructions and data for PostScript output devices such as the Apple LaserWriter family of printers.

PostScript printer driver   A printer driver that converts each QuickDraw drawing operation into the equivalent PostScript drawing operation. The driver sends the converted drawing operations to the printer—typically, a laser printer. The printer interprets the PostScript drawing operations and renders the image, thereby off-loading image processing from the computer.

power cycling   A method of entering the idle state in which power to the CPU is cycled on and off for increasing intervals, until some relevant system activity is detected.

Power Manager   The part of the Macintosh Operating System that controls power to the internal hardware devices of battery-powered Macintosh computers. The Power Manager also provides some service unique to portable Macintosh computers—such as reading the current CPU clock speed—that are not directly related to power control.

Power Manager IC   The 50753 microprocessor in the Macintosh Portable computer and some other portable Macintosh computers. The Power Manager IC (along with other circuits) controls power to the various subsystems of the computer. The power control functions may be handled by different hardware on other portable Macintosh computers.

PowerPC   See **PowerPC microprocessor.**

PowerPC application   An application that contains code only for a PowerPC microprocessor. See also **680x0 application, fat application.**

PowerPC compiler   Any compiler that produces code that can execute on a PowerPC. See also **680x0 compiler.**

PowerPC microprocessor   Any member of the family of PowerPC microprocessors. The MPC601 processor is the first PowerPC CPU.

PowerPC Numerics   The floating-point environment on PowerPC processor-based Macintosh computers. This environment provides floating-point data types and arithmetic operations, plus some advanced numerical functions (such as logarithmic and trigonometric functions). See also **Standard Apple Numerics Environment.**

PowerPC Numerics library   A C library that implements floating-point transcendental functions and contains type definitions and macros used for floating-point operations. It is contained in the file MathLib.

PowerPC processor-based Macintosh computer   Any computer containing a PowerPC central processing unit that runs Macintosh system software. See also **680x0-based Macintosh computer.**

PowerPC software   Any software (that is, application, extension, driver, or other executable code) that consists of code only for a PowerPC microprocessor. See also **PowerPC application.**

power-saver state   A power conservation state of portable Macintosh computers in which the processor slows from its normal clock speed to some slower clock speed. On the PowerBook 180 computer, for example, the CPU clock speed can be reduced from 33 MHz to 16 MHz in order to conserve power. See also **idle state, sleep state.**

PowerShare catalog   An AOCE server-based catalog provided by Apple Computer, Inc. See also **external catalog.**

PowerShare server   A server installed on an AppleTalk network to provide catalog services to any number of entities on that network. A PowerShare server can also identify and authenticate users to ensure that only authorized people or agents gain access to the catalog information.

PowerTalk Key Chain   The PowerTalk software that sets up and maintains a user's PowerTalk Setup catalog.

PowerTalk Setup catalog   A special personal catalog that contains information about the mail and messaging services, catalog services, and other services available to the owner of the computer. See also **local identity.**

PowerTalk system software   Apple Computer's implementation of the AOCE system software for use on Macintosh computers. The PowerTalk system software includes desktop services as well as all of the services of the AOCE system software managers.

PPC Toolbox   See **Program-to-Program Communications (PPC) Toolbox.**

precision   The number of digits required to accurately represent a number. For example, the value 3.2 requires two decimal digits of precision, and the value 3.002 requires four decimal digits. In numeric data formats, the precision is equal to the number of bits (both implicit and explicit) in the significand.

preferences file   A file, usually located in the Preferences folder, that records a user's configuration settings for an application.

Preferences folder   A directory located in the System Folder for holding files that record users' configuration settings for applications on a particular Macintosh computer.

Preferred Executable Format (PEF)   The format of executable files used for PowerPC applications and other software running on Macintosh computers. See also **Extended Common Object File Format.**

preferred interface   The AppleTalk interface standard designed to be similar to that of the Device Manager and the File Manager. Its routines use parameter blocks to pass input and output values. The interface glue code converts the parameter block values into a Device Manager control call to the appropriate AppleTalk device driver.

preferred partition size   The partition size at which an application can run most effectively. The Operating System attempts to secure this partition size upon launch of the application.

preferred rate   The default playback rate for a QuickTime movie.

preferred volume   The default sound volume for a QuickTime movie.

premultiplied   A term that describes the order in which matrices are multiplied. Matrix [A] is premultiplied by matrix [B] if matrix [A] is replaced by [B] ×[A]. Compare **postmultiplied.**

prepare   To resolve imports in a fragment to exports in some import library.

preroll   A technique for improving movie playback performance. This technique is used when prerolling a movie. The Movie Toolbox informs the movie's media handlers that the movie is about to be played. The media handlers can then load the appropriate movie data. In this manner, the movie can play smoothly from the start.

preview   A short, potentially dynamic, visual representation of the contents of a file. The Standard File Package can use file previews in file dialog boxes to give the user a visual cue about a file's contents.

preview component   A component used by the Movie Toolbox's standard file preview functions to display and create visual previews for files. Previews usually consist of a single image, but they may contain many kinds of data, including sound. In QuickTime, the Movie Toolbox is the primary client of preview components. Rarely, if ever, do applications call preview components directly.

primary caret   The high caret that is displayed at the primary caret position; part of a dual caret.

primary caret position   When a dual caret appears, the screen location that marks the insertion point for text whose line direction matches the **primary line direction.**

primary line direction   The dominant line direction (right-to-left or left-to-right) of the current text. The primary line direction is typically specified by the value of the system direction global variable, `SysDirection`.

prime   To activate a Time Manager task that is already installed in the Time Manager queue.

prime routine   A device driver routine that implements the input and output functions of the driver. This routine is optional and need not be implemented.

primitive form   Having stylistic variations incorporated into the shape type, geometry, and shape fill.

primitive object class   An object class defined in the *Apple Event Registry: Standard Suites* for Apple event objects that contain a single value; for example, the `cBoolean`, `cLongInteger`, and `cAlias` object classes are all primitive object classes. An Apple event object that belongs to a primitive object class has no properties and contains only one element—the value of the data.

primitive shape   A shape whose shape type, geometry, and shape fill have had stylistic information incorporated into them.

print dialog box   A dialog box provided by QuickDraw GX that is both movable and modal. Most print dialog boxes have both a normal and an expanded version. The application can customize print dialog boxes by adding panels. See also **panel.**

Print Documents event   An Apple event that requests that an application print a list of documents; one of the four required Apple events.

printer   See **desktop printer, formatting printer, output printer.**

printer driver   A software module that controls how the contents of a document are spooled, rendered, and sent to a specific output device.

printer object   An object that represents the characteristics of a printer, such as its color space and resolution. The output printer and formatting printer are represented by printer objects.

printer resource file   A file containing all the resources needed to run the Printing Manager with a particular printer.

print file   The spooled version of a QuickDraw GX shape or set of shapes that is the intermediate stage in printing. A print file consists of a stream of flattened QuickDraw GX objects. See also **portable digital document.**

print file object   A representation of a print file, which allows an application to access the contents of the file.

print imaging system   See **imaging system.**

printing alert box   An alert box used by QuickDraw GX printing to display information to the user that must be responded to. The alert box is like a dialog box in that it can contain control items. The user must explicitly dismiss an alert box to remove it from the screen.

printing extension   An add-on software module that allows you to extend printing functionality provided by applications and printer drivers.

printing graphics port   The printing environment defined by a `TPrPort` record, which contains a QuickDraw graphics port (either a `GrafPort` or `CGrafPort` record) plus additional information used by the printer driver and system software. An application prints text and graphics by drawing into a printing graphics port using QuickDraw drawing routines, just as if drawing on the screen.

printing loop   Application-supplied code that handles printing needs, such as presenting the job dialog box and determining the range of pages to be printed.

Printing Manager   A collection of system software routines that your application can use to print from the Macintosh computer to any type of connected printer.

printing message   A notice that QuickDraw GX sends to the message handlers in a message chain that a certain printing-related condition has arisen or that a certain printing-related task needs to be accomplished. See also **message chain, message handler.**

printing message override   See **message override**.

printing objects   QuickDraw GX objects used for printing. Printing objects include the job object, format object, paper-type object, and others.

print job   See **job object.**

PrintMonitor Documents folder   A directory located in the System Folder for storing spooled documents waiting to be printed.

priority justification override   A style object property used only by layout shapes. It is a structure that redefines the justification priorities and behaviors for whole classes of glyphs.

priority justification override array   An array that alters the standard justification behavior for all glyphs of a given justification priority.

private key   A number that is derived from a password and used by an encryption algorithm. The ASDSP initiator and recipient each have a private key, which is used in the authentication process. The private key is also called a *user key* or *client key.*

private resource   Any executable resource whose behavior is defined by your application (or other kind of software) alone. Compare **accelerated resource.**

private scrap   A scrap used exclusively by TextEdit.

privilege model   A set of conventions for controlling access to stored files and directories.

privileges   See **directory access privileges.**

procedure information   A long word that encodes information about a routine's calling conventions, the sizes and locations of the routine's parameters, and the size and location of the routine's result. Defined by the `ProcInfoType` data type.

procedure pointer   A reference generated by a compiler when taking the address of a routine. On 680x0-based Macintosh computers, a procedure pointer is the address of the routine's executable code (and is defined by the `ProcPtr` data type). On PowerPC processor-based Macintosh computers, a procedure pointer is the address of the routine's transition vector.

process   An open application, or, in some cases, an open desk accessory. (Only desk accessories that are not opened in the context of another application are considered processes.)

Process Manager   The part of the Macintosh Operating System that provides a cooperative multitasking environment by controlling access to shared resources and managing the scheduling, execution, and termination of applications.

processor cache   See **data cache, instruction cache.**

processor-direct slot (PDS)   An Apple-specific expansion interface architecture included in some Macintosh computers. It uses a single connector that allows an expansion card direct access to all of the microprocessor signals.

processor priority   Bits in the status register of the CPU that indicate which interrupts are to be processed and which are to be ignored.

process serial number   A number assigned by the Process Manager that identifies a particular instance of an application; this number is unique during a single boot of the local machine. Defined by the `ProcessSerialNumber` data type.

ProcInfoType   See **procedure information.**

ProcPtr   See **procedure pointer.**

profile chromaticities   A set of color values in a color profile, giving the device-independent colors representing the full intensities of the primary colors on the device.

profile data   A property of a color profile object; it consists of a ColorSync color profile structure.

profile response curves   A set of curves in a color profile representing the color response of a device as the color intensity ranges from zero to maximum.

program counter (PC)   A register in the CPU that contains a pointer to the memory location of the next instruction to be executed.

Program-to-Program Communications (PPC) Toolbox   The part of the Macintosh system software that allows applications to exchange blocks of data with each other by reading and writing low-level message blocks.

progress function   An application-defined function that is invoked by the Movie Toolbox or the Image Compression Manager. You can use these functions to track the progress of time-consuming activities, and thereby keep the user informed about that progress.

prolog   A standard piece of code at the beginning of a routine that sets up the routine's stack frame and saves any nonvolatile registers used by the routine. See also **epilog.**

pronunciation dictionary   A list of words and their pronunciations, installed in a speech channel to override default speech synthesizer pronunciations of words.

pronunciation dictionary resource   A pronunciation dictionary stored in a resource of type `'dict'`.

property   (1) An item or set of data in a QuickDraw GX object. A property of an object is analogous to a field of a data structure; however, a field is accessed through its name, whereas a property is accessed through a function. (2) An Apple event object that defines some characteristic of another Apple event object, such as its font or point size, that can be uniquely identified by a constant. The definition of each object class in the *Apple Event Registry: Standard Suites* lists the constants and class IDs for properties of Apple event objects belonging to that object class. For example, the constants `pName` and `pBounds` identify the name and boundary properties of Apple event objects that belong to the object class `cWindow`. The `pName` property of a specific window is defined by an Apple event object of object class `cProperty`,

such as the word "MyWindow," which defines the name of the window. An Apple event object can contain only one of each of its properties, whereas it can contain many elements of the same element class. See also **Apple event object, container, element classes.** (3) An individual, self-contained piece of information, such as a number or a string. A property is defined in an aspect template and stored in an aspect in memory.

property command   Any command handled by your AOCE template code resource's `kDETcmdPropertyCommand` routine. The CE calls your code resource with the `kDETcmdPropertyCommand` routine selector when the user clicks a button or checkbox in your information page, when the user selects an item in a pop-up menu in your information page, and in a few other circumstances.

property ID   A four-character code, which can also be represented by a constant, that identifies a property.

property number   A reference number assigned to a property by an aspect template. The property number uniquely identifies that property within that aspect.

property type   A constant associated with a property that specifies the nature of the data in the property value. For example, a property type can be a number, a string, or a custom type defined by a developer.

property value   The data associated with a property.

proportional font   Any font in which different characters have different widths; thus, the space taken up by words having the same number of letters can vary.

prosody   The rhythm, modulation, and stress patterns of speech.

protected block   A block of memory that should not be moved or purged by a grow-zone function.

protocol   (1) A standard set of rules for coordinating transmission between a sender and receiver. (2) A formalized set of rules that networked computers use to communicate. Network software developers implement these rules in programs that carry out the functions specified by the protocol. AppleTalk consists of a number of protocols, many of which are implemented in drivers.

protocol discriminators   A series of hierarchical type fields in a packet header that incrementally distinguish for which protocol handler a packet is intended. The value of a higher field can affect the possible values of a field that follows it.

protocol handler   A piece of assembly-language code that controls the reception of packets of a given protocol type that are delivered to a node. A protocol handler receives packets for a specific protocol type much like a socket listener receives packets for a specific socket. The data link determines the type of the packet and passes it on to the appropriate protocol handler.

prototype   See **function prototype.**

proxy   A privilege provided by a user or service to an intermediary. The proxy allows the intermediary to be authenticated as the user or service for a limited period of time.

pseudo-Boolean transfer modes   Transfer mode types in which the result color is achieved by normalizing the source and destination values and performing simple arithmetic operations whose results are analogous to 1-bit Boolean operations.

pseudo-item   A constant that does not represent any actual item in the dialog list of one of the dialog boxes displayed by the Standard File Package.

pseudonym   An alternative name for a record in a Catalog Manager routine.

pseudo-persistent attribute creation ID   A number that uniquely identifies an attribute value within a record. It persists from the time the CSAM is opened at system startup until system shutdown. See also **attribute creation ID.**

pseudo-random number generator   An algorithm that is designed to return a value that is as random as possible.

public key   One of a pair of keys needed for public-key cryptography. Every user has a public key, which can be distributed to other users.

public-key certificate   A document that contains, among other information, the name and public key of a user. The user is the owner of the certificate. See also **signed certificate, certificate set.**

public-key cryptography   A system of cryptography in which every user has two keys to encrypt and decrypt data: a public key and a private key. Data encrypted with a user's public key can be decrypted only with that same user's private key. Likewise, data encrypted with a user's private key can be decrypted only with that user's public key.

public validation   The process of checking the validity of the parameters passed by an application. See **validation.**

publish   To make data available to other documents and applications through a publisher. When a user creates or edits the data in the publisher and then saves it, the current version of the data is stored in an edition. See also **edition, publisher, subscriber.**

publisher   A portion of a document that makes its data available to other documents or applications. A publisher stores its data in an edition whenever a user creates or edits the data in the publisher and then saves it. See also **edition, section, subscriber.**

pull-down menu   A menu that is identified by a menu title (a word or an icon) in the menu bar.

purge   To remove a relocatable block from the heap, leaving its master pointer allocated but set to NIL.

purgeable block   A relocatable block that can be purged from the heap.

purge-warning procedure   A procedure associated with a particular heap zone. The Memory Manager calls this procedure whenever a block is about to be purged from the zone.

quasi-batch mode   A mode of operation available only to personal MSAMs in which the MSAM complies with the minimum requirements of online mode. See also **online mode.**

query   A string of commands and data sent to a database or other data source. A query does not necessarily extract data from a data source; it might only send data or commands to a database or other application.

query definition function   A function contained in a query document that prompts the user for information and modifies the query before the Data Access Manager sends it to the data server.

query document   A file of file type 'qery' containing commands and data in a format appropriate for a database or other data source. An application uses high-level Data Access Manager routines to open a query document.

query record   A data structure in memory containing information provided by a 'qrsc' resource. The query record includes a pointer to a query.

queue   A list of identically structured entries linked together by pointers.

queue context   A grouping of virtual message queues. When you close a queue context, you simultaneously close all of the queues associated with that context. See also **virtual queue.**

queue element   A data structure that contains a pointer to the next queue element in the queue, a value indicating the queue type, and a variable data field.

queue header   A data structure that contains flags specific to the queue, a pointer to the first element in the queue, and a pointer to the last element in the queue.

Queue Utilities   The collection of routines for directly adding a queue element to a queue or directly removing a queue element from a queue.

QuickDraw   A collection of system software routines that performs graphics operations on the user's screen. See also **basic QuickDraw, Color QuickDraw.**

QuickDraw global variables A set of variables stored in a 680x0 application's A5 world that contain information used by QuickDraw.

QuickDraw GX A collection of graphics, typography, and printing routines that provide provides applications with sophisticated color publishing capabilities. QuickDraw GX augments the capabilities of QuickDraw.

QuickDraw GX cache Temporary memory that is managed by QuickDraw GX. Each object has a pointer to one or more caches. Each cache is related to only one object. See also **dead cache, live cache.**

QuickDraw GX Font Feature Registry An official document maintained by Apple Computer, Inc., in which feature types and feature selectors are defined and named.

QuickDraw GX memory The parts of computer memory used by QuickDraw GX, including the graphics client heap. Compare **application heap.**

QuickDraw printer driver A printer driver that renders images on the Macintosh computer and then sends the rendered images in the form of bitmaps or pixel maps to the printer, which might be a dot-matrix printer, an ink jet printer, a laser printer, or a plotter.

QuickTime A collection of managers and other system software components that allow your application to control time-based data.

quiet NaN A NaN that propagates through arithmetic operations without signaling an exception.

Quit Application event An Apple event that requests that an application perform the tasks—such as releasing memory, asking the user to save documents, and so on—associated with quitting; one of the four required Apple events. The Finder sends this event to an application immediately after sending it a Print Documents event or if the user chooses Restart or Shut Down from the Finder's Special menu.

radio button A control that appears onscreen as a small circle. A radio button displays one of two settings: on (indicated by a black dot inside the circle) or off. A radio button is always a part of a group of related radio buttons in which only one button can be on at a time. When the user clicks an unmarked radio button, the application turns that button on and turns the other buttons in its group off.

RAM See **random-access memory.**

RAM disk A portion of the available RAM reserved for use as a temporary storage device. A user can configure a RAM disk or disable it altogether using controls in the Memory control panel.

ramp-AND mode A transfer mode type in which the source and destination color components are normalized, and their product (source × destination) is the result.

ramp-OR mode A transfer mode type in which the source and destination color components are normalized, and the result of (source + destination – source × destination) is the result.

ramp-XOR mode A transfer mode type in which the source and destination color components are normalized, and the result of (source + destination – 2 × source × destination) is the result.

random-access memory (RAM) Memory whose contents can be changed. The RAM in a Macintosh computer contains exception vectors, buffers used by hardware devices, the system and application heaps, the stack, and other information used by applications.

range descriptor record A coerced AE record of type `typeRangeDescriptor` that identifies two Apple event objects marking the beginning and end of a range of elements. See also **boundary objects.**

range locking Locking a range of bytes in a file so that other users can't read from or write to that range, but allowing the rest of the file to be accessed.

raster imaging system   The imaging system provided by QuickDraw GX that converts QuickDraw GX shapes into data and control sequences for raster output devices such as the Apple ImageWriter family of printers.

rate   A value that specifies the pace at which time passes for a time base. A time base's rate is multiplied by the time scale to obtain the number of time units that pass per second. For example, consider a time base that operates in a time coordinate system that has a time scale of 60. If that time base has a rate of 1, 60 time units are processed per second. If the rate is set to 1/2, 30 time units pass per second. If the rate is 2, 120 time units pass per second. See also **sample rate, speech rate**.

raw data   In a dictionary, any information related to the key entry. The information can be the explanation of the key in a general dictionary, or perhaps all the Han characters with the pronunciation of the key entry in an East Asian dictionary.

raw key code   A key code generated by a keyboard prior to any processing by the `'KMAP'` resource. See also **virtual key code.**

raw text   Characters in an active input area or floating input window that have not yet been converted to ideographic or other final form. Compare **convert, confirm.**

read-only memory (ROM)   Memory whose contents are permanent. The ROM in a Macintosh computer contains routines for the Toolbox and the Operating System, and the various system traps.

read privileges   See **See Files privileges.**

read/write permission   Information associated with an access path that indicates whether the file can be read from, written to, or both.

reallocate   To allocate new space in the heap for a purged block and to update the block's master pointer to point to its new location.

read-header area (RHA)   A buffer that is internal to the .MPP driver. When the .MPP driver receives a frame containing a DDP packet, the .MPP driver's interrupt handler moves the frame's first 3 bytes (the frame header) into the read-header area (RHA). Eight bytes of the RHA are then available for the application's use.

real-time expansion   Audio expansion of a sound that occurs while the sound is playing. Compare **buffered expansion.**

receive queue   An ADSP buffer in which the local connection end receives and stores bytes of data from the remote connection end until the local connection end's client application reads them.

receive routine   A software process that a multinode application must include in order to read in the contents of packets delivered to that multinode. Because the .MPP driver passes values in registers to a multinode application's receive routine when the .MPP driver calls the routine, receive routines must be written in assembly language.

recipient   (1) The ASDSP client application of the connection end that receives the request and the information from the server. (2) The end of a communications link that receives credentials and a challenge from the initiator. The recipient must respond correctly to establish an authenticated connection. (3) An addressee on an AOCE message. See also **original recipient, resolved recipient.**

record   The fundamental container for data storage in an AOCE catalog; analogous to a file in the HFS hierarchy. A record can contain any number of attributes.

recordable application   An application that uses Apple events to report user actions to the Apple Event Manager for recording purposes. When a user turns on recording (for example, by pressing the Record button in the Script Editor application), a scripting component translates the Apple events generated by the user's subsequent actions into statements in a scripting language and records them in a compiled script. See also **scriptable application.**

recordable event   Any Apple event that any recordable application sends to itself while recording is turned on for the local computer, with the exception of events that are sent with the `kAEDontRecord` flag set in the `sendMode` parameter of the `AESend` function.

record alias   A record that enables you to store information about another record. For example, an alias could store in its attribute value the record location information for the original record.

record creation ID   A number that uniquely identifies a record within a catalog. Not all catalogs support record creation IDs.

record ID   The identity of a record, comprising the record name, record type, record creation ID, and record location information. See also **record creation ID, record type.**

recording   The process of creating an analog or digital representation of a sound. See also **sampling.**

recording process   Any process (for example, a script editor) that can turn Apple event recording on and off and receive and record recordable Apple events.

record reference   An attribute that identifies a specific catalog record.

record type   A value that indicates the type of entity represented by a record—for example, LaserWriter, User, or Group.

recoverable error   A nonfatal QuickDraw GX error indicating fragmented memory, a problem with the backing store, or a problem with the unflattening process.

rectangle   (1) A mathematical entity defined either by its four boundaries (upper, left, lower, and right) or by two points (the upper-left and lower-right corners). Rectangles are used to define active areas on the screen, to assign coordinate systems to graphical entities, and to specify the locations and sizes for various graphical operations. (2) A rectangular shape drawn onscreen with a QuickDraw procedure such as `FrameRect` or `PaintRect`.

rectangle shape   A type of QuickDraw GX shape. The geometry of a rectangle shape contains points representing two opposing corners of a rectangle.

reduce   To remove unnecessary geometric points from a geometry.

reduced instruction set computer (RISC)   A microprocessor in which all machine instructions are uniformly formatted and are processed through the same steps. See also **PowerPC microprocessor.**

Red Zone   The area of memory immediately above the address pointed to by the stack pointer. The Red Zone is reserved for temporary use by a function's prolog and as an area to store a leaf routine's nonvolatile registers.

reentrant device driver   A device driver that is capable of handling multiple requests simultaneously.

reentrant driver   A driver that can be interrupted while servicing a request, service the new request, and then complete the original request.

reentrant exception handler   An exception handler that can be interrupted while servicing an exception, then service a new exception, and then complete servicing the original exception.

reference   A longword value, neither a pointer nor a handle, through which an application accesses a QuickDraw GX object. References are created by QuickDraw GX and passed to applications.

reference white point   See **white point.**

reflection   The symmetrical movement of a mapping with respect to the Cartesian coordinate axes. The movement can be about the *x*- or *y*- or both axes.

region   (1) An arbitrary area or set of areas on the QuickDraw coordinate plane. The outline of a region should be one or more closed loops. (2) For the Macintosh script management system, a particular subset of a language. A region can represent a linguistic or cultural entity, not necessarily corresponding to a nation, whose language is different enough from other versions of the same language that it merits a specific localized version of Macintosh system software. For example, U.S. and British are two regional variations that are subsets of the English language.

region code   A number indicating the Macintosh version of the written language of a particular region. Constants are defined for each of the region codes recognized by the Macintosh script management system.

register-based routine   A routine that receives its parameters and returns its results, if any, in registers. See also **stack-based routine.**

regular enclosure   Any message enclosure that is not a content enclosure. See also **content enclosure, enclosure.**

relative handle   A pointer to a block's master pointer, expressed as an offset relative to the start of the heap zone rather than as an absolute memory address. A block's relative handle is contained in its block header.

relative path   A path to the target from another file or directory on the same volume.

relative position   A position for the origin of each character or glyph in the glyph shape given in coordinates relative to the preceding character or glyph. Compare **absolute position.**

relative search   A search that starts in a specified directory and searches for the target of an alias record by ascending the file system hierarchy to a predetermined common parent of the target and the starting directory, and then descending the hierarchy from that common parent.

release   (1) To free an allocated area of memory, making it available for reuse. (2) To allow a previously held range of pages to be movable in physical memory.

reliable delivery of data   The services a protocol provides that include error checking and recovery from error or packet loss.

relocatable block   A block that can be moved within the heap during compaction.

remote memory   Memory, such as that on an accelerator card, that is not directly addressable. Compare **direct memory**.

rendering   In QuickDraw GX printing, the process during the imaging phase of printing during which each despooled page is converted into image data that can be printed by the output device. See also **imaging phase.**

report   A message with a defined set of message blocks used to send delivery and non-delivery indications to the sender of the message.

requester   An ATP application that transmits a request for some action to be performed to an ATP responder application that carries out the action and transmits a response reporting the outcome.

required Apple event   One of the four Apple events in the Required suite that the Finder sends to applications: Open Documents, Open Application, Print Documents, or Quit Application.

required parameter   An Apple event parameter that must be included in an Apple event. For example, a list of documents to open is a required parameter for the Open Documents event. Direct parameters are often required, and other additional parameters may be required. Optional parameters are never required.

Rescued Items from *volume name* folder   A directory located in the Trash directory and created by the Finder at system startup, restart, or shutdown only when it finds items in the Temporary Items folder, usually after a system crash. The Rescued Items from *volume name* folder is named for the volume on which the Temporary Items folder exists. When a user empties the Trash, all Rescued Items folders disappear.

reselection phase   An optional phase in which a SCSI target device reconnects to the initiator.

reservation   See **memory reservation.**

reserve   See **memory reserve.**

reserved attributes   The attributes of a collection item's 32 attributes that are reserved and cannot be set.

resolution   The degree of detail at which a device such as a printer or a screen can display an image. Resolution is usually specified in dots per inch, or dpi, in the x and y directions. The higher the value, the finer the detail of the image.

resolve   (1) To find the target of an alias record. (2) To locate the Apple event object described by an object specifier record.

resolved recipient   A recipient to which an MSAM must deliver a message. See also **original recipient.**

resource   Any data stored according to a defined structure in a resource fork of a file; the data in a resource is interpreted according to its resource type.

resource attributes   Flags in the resource map that tell the Resource Manager how to handle the corresponding resource.

resource file   The resource fork of a file.

resource fork   The part of a file that contains the files' resources, which contain data accessed using the Resource Manager. This data usually corresponds to data—such as menu, icon, and control definitions—created by the developer, but it may also include data created by the user while the application is running. A resource fork consists of a resource map and resources. Compare **data fork.**

resource ID   An integer that identifies a specific resource of a given type.

resource map   In a resource file, data that is read into memory when the file is opened and that, given a resource specification, leads to the corresponding resource data.

resource name   A string that, together with the resource type, identifies a resource in a resource file. A resource may or may not have a name.

resource specification   A resource type and either a resource ID or a resource name.

resource type   A sequence of four characters that uniquely identifies a specific type of resource.

responder   An ATP application that carries out a request sent to it from an ATP requester application, and then transmits a response to the requester returning the resulting data or reporting the outcome.

response message   A message comprising up to eight packets that the responder client application can send to the requester client application. ATP maintains and manages the correct sequence of these packets.

restricted access error   A QuickDraw GX error indicating that the object data requested is private and not available.

rest state   See **idle state.**

result color   The color of the destination after drawing has occurred. Compare **destination color, source color.**

result color limits   In a transfer mode, limits on the permissible values for result color to achieve in transfer-mode calculations. Compare **destination color limits, source color limits.**

result handler   A routine that the Data Access Manager calls to convert a data item to a character string.

result matrix   A 5×4 matrix, part of the transfer mode structure, that allows you to manipulate the components of the result color after it is calculated.

result out of range warning   An application execution warning detected and posted by QuickDraw GX indicating that the function result was out of the valid range.

results record   A structure that the Data Access Manager uses to store the data retrieved by the DBGetQueryResults function. This data is returned by a data source in response to a query.

resume dispatch function   An application-defined function called by OSADoEvent or OSAExecuteEvent to dispatch an Apple event directly to an application's default handler for that event.

resume event   An event indicating that an application has been switched back into the foreground and can resume interacting with the user. See also **suspend event.**

resume procedure   A procedure within an application that allows the application to recover from system errors.

return receipt   A high-level event that indicates whether the other application accepted the high-level event sent to it by your application.

reversed bit-numbering   A bit-numbering scheme opposite that of the MC680x0 numbering scheme. Bit numbers are counted from left to right instead of right to left. For example, using the reversed bit-numbering scheme on a byte, the first bit is bit number 0 and the last bit is bit number 7. (That is, the most significant bit has the lowest bit number, and the least significant bit number highest bit number.) Compare **MC680x0 bit-numbering.**

RGBColor record   A data structure of type `RGBColor` used to specify a color by its red, green, and blue components, with each component defined as a 16-bit integer. Color QuickDraw compares such a 48-bit value with the colors actually available on a screen's video device at execution time and chooses the closest match.

RGB color space   A color space whose three components measure the intensity of red, green, and blue. Used mostly for color video.

RGB color value   A value that indicates the red, green, and blue components of a color. An RGB color value is specified in an `RGBColor` record.

RHA   See **read-header area.**

right-side bearing   The white space on the right side of the glyph; this value may or may not be equal to the value of the left-side bearing.

right-to-left caret   A type of caret that, at direction boundaries, appears at the proper caret position for inserting right-to-left text. Compare **dual caret, left-to-right caret.**

RISC   See **reduced instruction set computer.**

ROM   See **read-only memory.**

Roman baseline   The baseline used in most Roman scripts and in Arabic and Hebrew.

Roman character set   A set of characters used for the Roman writing system. Roman character sets include the Standard Roman character set, Macintosh character set, and ASCII character set.

Roman writing system   The visual representation of words and letters based on the Roman alphabet (a, b, c, and so forth). Developed during the Roman empire, Roman is the most widely used writing system in the world today. For example, Roman is used in most countries of Europe, the Americas, Africa, Oceania, and some Asian nations.

ROM registry   A list of the import libraries that are stored in the ROM of a Macintosh computer. See also **file and directory registry.**

root directory   The directory at the base of a volume.

root node   The first index node in a B*-tree.

rotate   To turn about a point. A mapping can be used to rotate a shape about a fixed origin.

rounded rectangle   A rectangle with rounded corners. The figure is defined by a bounding rectangle and the width and height of the ovals forming the corners. The corner width and corner height are limited to the width and height of the bounding rectangle itself; if they are set larger, the rounded rectangle becomes an oval.

rounding   An action performed when a result of an arithmetic operation cannot be represented exactly in a numeric data format. With rounding, the computer changes the result to a close value that can be represented exactly.

rounding direction modes   Modes that specify the direction a computer will round when the result of an arithmetic operation cannot be represented exactly in a numeric data format. Under PowerPC Numerics, the computer resolves rounding decisions in one of the four directions chosen by the user: to nearest (the default), upward, downward, and toward zero.

roundoff error   The difference between the exact result of an IEEE arithmetic operation and the result as it is represented in the numeric data format if the result has been rounded.

router   Software that interconnects AppleTalk networks to create a single, large, dispersed AppleTalk internet.

routine descriptor   A data structure used by the Mixed Mode Manager to execute a routine. A routine descriptor contains one or more routine records. Defined by the `RoutineDescriptor` data type.

routine record   A data structure that contains information about a particular routine. A routine record specifies, among other things, a routine's instruction set architecture, the number and size of its parameters, its calling conventions, and its location in memory. Defined by the `RoutineRecord` data type.

Routing Table Maintenance Protocol (RTMP)   An AppleTalk protocol that provides routers with a means of managing routing tables used to determine how to forward a packet from one socket to another across an internet based on the packet's destination network number.

RSA   RSA Data Security, Inc., a prime issuing organization for public-key certificates.

RTMP   See **Routing Table Maintenance Protocol.**

RTOC   See **Table of Contents Register.**

run   A sequence of characters that are contiguous in memory and share a set of common attributes. See, for example, **direction run, font run, script run, style run.**

run controls   A style object property used only by layout shapes. It is a set of values and flags that control various aspects of how the text in a style run is displayed.

run controls structure   An array that is a property of every style object but is used only by layout shapes. This structure controls various features associated with text in a style run.

run features   See **font features.**

run features array   A style object property used only by layout shapes. It is an array specifying the set of font features—typographic capabilities as defined by the font—to apply to the text of a style run.

run-time environment   The execution environment provided by the Process Manager and other system software services. The run-time environment dictates how executable code is loaded into memory, where data is stored, and how functions call other functions and system software routines.

run-time library   See **implementation version.**

SAM   See **service access module.**

sample   See **sample point.**

sampled sound   Any sound defined using sampled-sound data.

sampled-sound data   Any set of values that represent the sample points of a sampled sound. The values can be in either offset-binary format or two's complement format.

sampled sound header   A sound header that can describe monophonic, noncompressed sampled-sound data. Defined by the `SoundHeader` data type. See also **compressed sound header, extended sound header.**

sample frame   An interleaved set of sample points (for noncompressed sampled-sound data) or packets (for compressed sampled-sound data).

sample number   A number that identifies the sample with data for a specified time.

sample point   (1) A value representing the amplitude of sampled-sound data at a particular instant. One or more sample points make up a sample frame of noncompressed sampled-sound data. See also **packet.** (2) A single element of a sequence of time-ordered data.

sample rate   The rate at which samples are recorded. Sample rates are usually measured in kilohertz or megahertz.

sampling   The process of representing a sound by measuring its amplitude at discrete points in time. See also **recording.**

SANE   See **Standard Apple Numerics Environment.**

saturation value   A setting that controls color intensity. For example, at high saturation levels, red appears to be red; at low saturation, red appears pink. Valid saturation values range from 0 to 65,535, where 0 is the minimum saturation value and 65,535 specifies maximum saturation. Saturation value is set with the video digitizer component's `VDSetSaturation` function.

saturation matching   A color-matching method in which colors from the source device are shifted to fit the gamut of the destination device in such a way that their saturation (vividness) is preserved. Compare **colorimetric matching, perceptual matching.**

saved registers area   The area in a PowerPC stack frame that holds the saved values of the nonvolatile general-purpose and floating-point registers.

scale   To proportionally enlarge or shrink. A mapping can be used to scale the geometry of a shape, about a fixed origin, either horizontally or vertically.

scaling   The adjustment in size or shape of the glyphs of a font. The Font Manager performs both implicit scaling and explicit scaling, at the request of QuickDraw.

scaling factor   A specific scale that you force onto a style run to create custom kerning. See also **kerning adjustments array, point size factor.**

scatter/gather list   A SCSI Manager 4.3 data type consisting of one or more elements, each of which describes the location and size of one data buffer.

SCB   See **session control block.**

scrap   A storage area (either in memory or on disk) that is available to applications to hold the last data cut or copied by the user.

Scrap Manager   A collection of routines that your application can use to support copy-and-paste operations.

scrap translation list   A list of source and destination scrap types among which a scrap translation system can translate. Defined by the `ScrapTranslationList` data type.

scrap translation system   A translation system that can recognize and translate scraps from one format to another.

scrap type specification   A way of specifying information about translating a scrap. Defined by the `ScrapTypeSpec` data type.

script   (1) Any collection of data that, when executed by the appropriate program, causes a corresponding action or series of actions. When a scripting component that supports the OSA executes a script, it sends Apple events as necessary to trigger actions in server applications. (2) See **script system.** (3) A method for depicting words visually.

scriptable application   An application that can respond as a server application to Apple events sent to it by scripting components. To be scriptable, an application must respond to the appropriate standard Apple events, and it must provide an `'aete'` resource that describes the nature of that support. See also **Apple event user terminology resources.**

script application   A script file with the file type `'APPL'` that contains the script data as a resource of type `'scpt'`. If a script application has the creator signature `'aplt'`, a user can double-click its icon to trigger the script. If a script application has the creator signature `'dplt'`, a user can drag the icon for another file or a folder over the script application's icon to trigger its script. By default, when a user triggers the script in a script application, a splash screen appears that allows the user either to quit or to run the script. Users can also save a script application in a form that bypasses the splash screen, running the script immediately after the user double-clicks its icon.

script application component   A component registered with the Component Manager at system startup. When a user opens a script application, the script application component loads the script and passes the resulting script ID to the appropriate scripting component for execution.

script-aware   Said of a routine or system-software manager that takes the current script system into account when manipulating or displaying text.

script code   A number indicating a particular script system on the Macintosh. Constants are defined for each of the script codes recognized by the Macintosh script management system.

script comment   A description, in a script editor window, of what the script displayed in that window does.

script context   A form of script that maintains context information for the execution of other scripts. A script context can also be used to handle Apple events. Like a compiled script, a script context can be decompiled as source data. In the AppleScript scripting language, a script context is called a *script object*.

script data   A compiled script, script value, script context, or any other representation of a script in memory used internally by a scripting component. See also **compiled script, script context, script value.**

script-defaulted result flag   A Script Manager variable that indicates whether the system script has replaced the font script due to the unavailability of the font script.

script editor   An application that allows users to record, edit, save, and execute scripts; for example, the Script Editor application provided with AppleScript.

script extension   A part of the Macintosh script management system that allows for convenient and efficient creation of new script systems. Each script system provides tables in its international resources that specify the proper text-manipulation and formatting behavior; the script extension interprets those tables when an application makes a text-related call. There are two script extensions: WorldScript I, the universal 1-byte script system extension, and WorldScript II, the universal 2-byte script system extension.

script file   A file in which a script is stored. A script file can be a compiled script file, a script application file, or a script text file.

script-forced result flag   A Script Manager variable that indicates whether the system script has replaced the font script due to font forcing.

script ID   A data structure of type OSAID—that is, a long integer—used by scripting components to keep track of script data.

scripting   Writing and executing scripts to control the behavior of multiple applications.

scripting component   A component that responds appropriately to calls made to the standard scripting component routines. Most scripting components implement scripting languages; for example, the AppleScript component implements the AppleScript scripting language.

script-language record   A record that defines a script and language supported by a text service component.

script-language support record   An array of script-language records that defines all the scripts and languages supported by a text service component.

Script Manager   The part of the Macintosh system software that manages script systems.

script object   AppleScript term for script context. See also **script context.**

script record   A private data structure, maintained by the script management system, that defines each enabled script system, and through which calls to that script system are dispatched.

script run   A sequence of text that is contiguous in memory and belongs to a single script system.

script-sorting resource   An international resource, of type 'itlm'. The script-sorting resource lists all defined script codes, language codes, and region codes, in proper sorting order. It also maps each region to its parent language, and each language to its parent script. An application uses the script-sorting resource to sort multiple-language lists. There is only one script-sorting resource for each version of the Macintosh system software.

script system   A collection of software facilities that provides for the representation of a specific writing system. It consists of a set of keyboard resources, a set of international resources, one or more fonts, and possibly a script system extension (1-byte or 2-byte). Script systems include Roman, Japanese, Arabic, Traditional Chinese, Simplified Chinese, Hebrew, Greek, Thai, and Korean. Types of script systems include 1-byte simple, 1-byte complex, and 2-byte.

script text file   Uncompiled statements in a scripting language saved by a script editor as a text file. A user must open a script text file in a script editor and successfully compile it before it will execute. See also **script editor.**

script utility   The low-level equivalent to one of a large group of script-aware Script Manager, Text Utilities, or QuickDraw text routines. Some script utilities are handled by the script management system; others are passed on to script systems. Script utilities all use the `_ScriptUtil` trap.

script value   An integer, a string, a Boolean value, a constant, a `'PICT'`, or any other fixed data that a scripting component returns or uses in the course of executing a script.

scroll arrow   An arrow at either end of a scroll bar. When the user clicks a scroll arrow, the application moves a document or list one line (or some similar measure) in the direction of the arrow. When the user holds the mouse button down while the cursor is over a scroll arrow, the application moves the document or list continuously in the direction of the arrow.

scroll bar   A control with which the user can change the portion of a document displayed within a window. A scroll bar is a light gray rectangle with scroll arrows at each end. Windows can have a horizontal scroll bar, a vertical scroll bar, or both. A vertical scroll bar lies along the right side of a window. A horizontal scroll bar runs along the bottom of a window. Inside the scroll bar is a rectangle called the *scroll box.* The rest of the scroll bar is called the *gray area.* The user can move through a document by manipulating the parts of the scroll bar.

scroll box   A box that slides up and down or back and forth across a scroll bar. The position of the scroll box in a scroll bar indicates the position of the window contents relative to the entire document. When the user drags the scroll box, the application displays a different portion of the document.

SCSI   See **Small Computer System Interface.**

SCSI bus   A bus that conforms to the physical and electrical specifications of the SCSI standard.

SCSI command   An instruction from an initiator to a target to conduct an operation, such as reading or writing a block of data. See also **command descriptor block, command phase**.

SCSI device   A device connected to the SCSI bus, either a peripheral device or a computer.

SCSI ID   An integer value from 0 to 7 that uniquely identifies a device during SCSI transactions.

SCSI interface module (SIM)   A software module between the transport (XPT) and the host bus adapter (HBA) in SCSI Manager 4.3. The SIM processes and executes SCSI requests, and provides a hardware-independent interface to the HBA.

SCSI Manager   The part of the Macintosh Operating System that controls the exchange of information between a Macintosh computer and peripheral devices connected through the Small Computer System Interface (SCSI).

SCSI message   Information exchanged by the target and initiator at the completion of a SCSI transaction. See also **message phase.**

search key   A piece of data that the File Manager uses when searching through a B*-tree to locate the information it needs.

search privileges   See **See Folders privileges.**

SECAM   See **Système Electronique Couleur avec Mémoire.**

secondary caret   The low caret that is displayed at the secondary caret position; part of a dual caret.

secondary caret position   The screen location (denoted by the secondary caret) associated with the character that has an opposing direction from the primary line direction.

secondary script   See **auxiliary script.**

secret-key cryptography   A system of cryptography in which a single key is used to both encrypt and decrypt data. All who wish to share information must share the same key and keep it secret from all others.

section   (1) A region of memory occupied by part of a loaded fragment. When a fragment is loaded, it is divided into a code section and one or more copies of the data section. See also **code section, data section.** (2) A document or portion of a document that shares its contents with other documents. The Edition Manager supports two types of sections: publishers and subscribers. A publisher makes its data available to share and a subscriber subscribes to available data. See also **publisher, subscriber.**

secure session   An ADSP session that uses ASDSP to perform an authentication process in which the identities of the users at both ends of the connection are verified. Users can exchange data over a secure session, and direct ASDSP to encrypt the data before transmitting it and decrypt the data before delivering to the recipient.

seed   An initialization value used by a random number generator to produce a sequence of values.

See Files privileges   The directory access privileges that allow users to read files in the specified directory.

See Folders privileges   The directory access privileges that allow users to see other directories in the specified directory.

segment   One of several logical divisions of the code of a 680x0 application. Not all segments need to be in memory at the same time.

segment header   A 4-byte area at the beginning of a segment that contains the offset of the first routine's entry from the beginning of the jump table (2 bytes) and the number of entries for the segment (2 bytes).

segment location record   A data structure that provides information about the location of a fragment in the resource fork of a file on disk. Defined by the `SegmentedFragment` data type.

Segment Manager   The part of the Macintosh Operating System that loads and unloads the code segments of a 680x0 application into and out of memory.

selection duration   A time value that specifies the duration of the current selection of a movie.

selection phase   The phase in which a SCSI initiator selects the target device for a transaction.

selection range   The series of characters in memory where the next editing operation is to occur. The onscreen glyphs of those characters are commonly highlighted. The characters in a selection range are always contiguous in memory, but their glyphs are not necessarily so on screen.

selection time   A time value that specifies the starting point of the current selection of a movie.

selector   (1) An integer value that controls the function of a multipurpose routine. For example, the Script Manager uses selectors to figure out which variable you want to read when calling `GetScriptManagerVariable`. (2) See **selector code.**

selector-based trap   A system software routine that is called by passing a selector code to a single trap macro.

selector code   A parameter to the `Gestalt` function that specifies what information about the operating environment the caller requires. See **environmental selector, informational selector.**

selector function   A function that is executed when an application calls `Gestalt` and passes the associated **selector code.**

semantic type   The widest type of the operands of an expression.

send function   A function called by a scripting component whenever it sends an Apple event during script execution. You can provide an alternative send function if you want your application to perform some action instead of or in addition to sending Apple events. If you don't provide an alternative send function, scripting components call the standard Apple Event Manager function `AESend` with default parameters.

send queue   A buffer in which ADSP stores the bytes of data being sent until the remote connection end acknowledges their receipt.

SendReset   An ADB command that instructs all ADB devices to reset themselves to their startup states. See also **Flush, Listen, Talk.**

sequence   A series of images that may be compressed as a sequence. To do this, the images must share an image description structure. In other words, each image or frame in the sequence must have the same compressor type, pixel depth, color lookup table, and boundary dimensions.

sequence grabber channel component   A component that manipulates captured data for sequence grabber components.

sequence grabber component   A component that allows applications to obtain digitized data from sources that are external to a Macintosh computer. For example, you can use a sequence grabber component to record video data from a video digitizer component. Your application can then request that the sequence grabber store the captured video data in a QuickTime movie. In this manner you can acquire movie data from various sources that can augment the movie data you create by other means, such as computer animation. You can also use sequence grabber components to obtain and display data from external sources, without saving the captured data in a movie.

sequence grabber panel component   A component that allows sequence grabber components to obtain configuration information from the user for a particular sequence grabber channel component. An application never calls a sequence grabber panel component directly; application developers use panel components only by calling the sequence grabber component.

Serial Driver   The part of the Macintosh Operating System that provides low-level support for asynchronous, interrupt-driven serial data transfers through the modem and printer ports.

serif   The fine lines stemming from and at an angle to the upper and lower ends of the main strokes of a letter—for example, the little "feet" on the bottom of the vertical strokes in the uppercase letter M in Times Roman typeface.

server   A program or process that provides some service to other processes on a network.

server application   An application that responds to Apple events requesting a service or information sent by client applications or scripting components (for example, by printing a list of files, checking the spelling of a list of words, or performing a numeric calculation). Apple event servers and clients can reside on the same local computer or on remote computers connected to a network.

server MSAM (SMSAM)   An MSAM that transfers messages for multiple users on the AppleTalk network to which it is connected. It transfers messages between a PowerShare mail server and an external messaging system. A server MSAM must run on the same Macintosh as a PowerShare mail server. Compare **personal MSAM.**

server node ID   A node ID that falls within the numeric range of 128–254 ($80–$FE). An application or process must explicitly request a node ID within the server range by making an extended `Open` call and setting to 1 the high bit (bit 31) of the extension `ioMix` field.

service   To handle an interrupt by executing its interrupt handler.

service access module (SAM)   A software component that provides a PowerTalk user with access to external mail and messaging services or catalog services.

service request signal (SRQ)   A signal sent by an ADB device to inform the ADB Manager that it has data to send.

session   (1) A logical (as opposed to physical) connection between two entities (such as a Macintosh program and a database server) that facilitates the transmission of information between the two entities. (2) In the PPC Toolbox, an exchange of information between one open application with a port and another open application with a port. Sessions can occur between applications that are located on the same computer or across a network. An application has the option to accept or reject a session request. Authentication of the requesting user may be required before a session can commence. See also **authentication, message block, port.**

session control block (SCB)   A block of memory that an ASP workstation client application must allocate for the .XPP driver to use internally to manage a session.

session establishment   The process of setting up a connection over which a dialog between two applications or processes can occur. Session-oriented protocols provide this service.

session ID   A number that uniquely identifies a session.

session key   A unique key that the AOCE authentication server generates and returns to the ASDSP initiator in a secure manner. The authentication server generates the session key exclusively for use by the authentication process for the session that the initiator attempts to open. The session key is valid for a limited time only.

session listening socket (SLS)   A socket that the ASP server uses to listen for incoming session requests.

session reference number   A unique session identifier that ASP assigns to a session that it opens successfully. The ASP server uses this number to distinguish between communication from various concurrent sessions.

Setup catalog   See **PowerTalk Setup catalog.**

Setup record   A record in the PowerTalk Setup catalog containing record references to all records in the PowerTalk Setup catalog that represent slots, catalogs, and other items.

setup template   A set of AOCE templates that allow a user to install and configure a service access module.

shadow sync sample   A self-contained sample that is an alternate for an already existing frame difference sample. During certain random access operations, a shadow sync sample is used instead of a normal key frame, which may be very far away from the desired frame. See also **frame differencing.**

shape   (1) A graphic or typographic item (such as a geometric shape, a bitmap, or a line of text) created and drawn with QuickDraw GX. (2) A set of QuickDraw GX objects that, taken together, describe the type and characteristics of such a graphic or typographic item. A shape consists of a shape object, a style object, an ink object, and a transform object.

shape attributes   A group of flags that modify the behavior of a shape object.

shape cache   A cache created and maintained by QuickDraw GX for storing the results of intermediate calculations made prior to drawing a shape.

shape fill   A property of a shape object. The shape fill specifies whether and how QuickDraw GX fills in the outlines of a shape that it draws.

shape object   A QuickDraw GX object that, along with several other objects, describes a QuickDraw GX shape. A shape object specifies the fundamental type and contents of a shape.

shape part   A designation of a part of a shape or its geometry (such as bounding rectangle or corner point) that can be considered in hit-testing. See also **tolerance.**

shape-parts mask   For hit-testing, the list of shape parts to be tested against the hit point. See also **tolerance.**

shape type   A property of a shape object. The shape type specifies the classification (such as point, line, bitmap, or text) of a particular shape.

shared access   The file access permissions that allow other users both read and write access to a file.

shared environment   Any operating environment that supports multiple users and multiple access to data or applications.

shared library   A fragment that exports functions and global variables to other fragments. A shared library is used to resolve imports during linking and also during the loading and preparation of some other fragment. A shared library can be stored in a file of type `'shlb'`. See also **import library.**

share point   A volume or directory made available for sharing on the network.

sharing   See **object sharing.**

sharp join   A join attribute specifying that a shape should be drawn with sharp corners.

short number   A 16-bit signed integer with 16 bits to the left and 0-bits to the right of the binary decimal point. A fixed point number with a bias of 0. The short number for 1.0 is 0x0001.

shrink limit   The maximum amount by which glyphs of a given priority may be compressed during justification, before processing passes to glyphs of lower priority. Compare **grow limit.**

Shutdown Manager   The part of the Macintosh Operating System that manages the final stages of shutting down or restarting a Macintosh computer.

shutdown procedure   An custom procedure installed by calling the `ShutDwnInstall` procedure and executed by the Shutdown Manager before the computer restarts or shuts down.

sifter   See **sound component.**

sign   As used by the Digital Signature Manager: To create a digital signature and affix it to a document or other piece of data. By signing, the signer authorizes the content of the data, protects it from alteration, and asserts his or her identity as the signer.

signaling NaN   A NaN that signals an invalid exception when the NaN is an operand of an arithmetic operation. If no halt occurs, a quiet NaN is produced for the result. No PowerPC Numerics operation creates signaling NaNs.

signature   (1) A resource whose type is defined by a four-character sequence that uniquely identifies an application to the Finder. A signature is located in an application's resource fork. (2) See **digital signature.**

signature resource   A resource in an AOCE template that specifies the type of the template and the base ID number for the template. Other standard template resources have ID numbers equal to the signature resource's ID number plus some offset value.

sign bit   The bit of a single, double, or double-double number that indicates the number's sign: 0 indicates a positive number; 1, a negative number.

signed certificate   A public-key certificate that has been digitally signed by its issuer. Like any digital signature, the signature on a certificate ensures the integrity of the certificate (including its public key) and proves the identity of the signer (the issuer of the certificate).

signed digest   See **encrypted digest.**

signer   The individual or organization that signs a document or other piece of data. To create a signature, a signer must be the owner of a public-key certificate.

signer file   A file used by a signer to create a digital signature. It consists of the signer's encrypted private key and the signer's certificate set.

significand   The part of a binary floating-point number that indicates where the number falls between two successive powers of 2. The wider the significand field in a numeric format, the more precision the format has.

SIM   See **SCSI interface module.**

simple expression   An expression containing one floating-point operation.

Simple Mail Transfer Protocol (SMTP)   A protocol for the exchange of electronic mail. Computers connected to the Internet often use this protocol.

simple script system   See **1-byte simple script system.**

simplify   To remove crossed and overlapping contours from a geometry.

single caret   In unidirectional text, the standard text-insertion caret. In mixed-directional text, one caret that appears at the place where the user will insert the next character, given the current keyboard script. At a boundary between two direction runs, the single caret can correspond to either the primary line direction or the secondary line direction. Because changing the keyboard script in that situation changes the caret location, the single caret is also called a *moving caret* or *jumping caret.* Compare **dual caret.**

single-fork movie file   A QuickTime movie file that stores both the movie data and the movie resource in the data fork of the movie file. You can use single-fork movie files to ease the exchange of QuickTime movie data between Macintosh computers and other computer systems. Compare **movie file.**

single format   A 32-bit application data format for storing floating-point values that have a precision of up to seven or eight decimal digits. It is used by engineering applications, among others.

single-writer access   The file access permissions that deny other users write access to a file but allow them to read it.

size box   A box in the lower-right corner of windows that can be resized. Dragging the size box resizes the window.

size correction   The number of unused bytes at the end of the block, beyond the end of the block's contents.

size region   The area occupied by a window's size box. See **size box.**

size resource   A resource (of type `'SIZE'`) that specifies the operating characteristics, minimum partition size, and preferred partition size of an application.

skew   To progressively distort in a shearing manner. A mapping can be used to skew a shape, about a fixed origin, either horizontally or vertically.

sleep demand   A message from the Power Manager that informs a sleep procedure that the Power Manager is about to put the computer into the sleep state.

sleep procedure   A procedure that the Power Manager calls before it puts a portable Macintosh computer into the sleep state or returns it to the operating state. Sleep procedures are maintained in the sleep queue.

sleep procedure selector code   An integer passed (in register D0) to a sleep procedure that specifies whether the procedure is being called with a sleep request, a sleep demand, a wakeup demand, or a sleep-request revocation.

sleep queue   An operating-system queue that contains pointers to all currently installed sleep procedures.

sleep queue record   A data structure that contains information about a sleep procedure. Defined by the `SleepQRec` data type.

sleep request   A message from the Power Manager that informs a sleep procedure that the Power Manager would like to put the computer into the sleep state. The sleep procedure has the option of denying this request.

sleep-request revocation   A message from the Power Manager that informs a sleep procedure that the Power Manager has canceled a sleep request. The procedure can then reverse any changes it made in response to the sleep request.

sleep state   A power conservation state of portable Macintosh computers in which the Power Manager and the various device drivers shut off power or remove clocks from the computer's various subsystems, including the CPU, RAM, ROM, and I/O ports. See also **idle state, power-saver state.**

slider   A control, such as a scroll bar, that graphically represent the ranges of values that a user can set or that simply displays the value, magnitude, or position of something, typically in some pseudo-analog form.

slop   In justified text, the amount of space (in pixels) that must be added to a line of text to make it exactly fit the desired line length. The slop value for a line is to be distributed among the style runs, words, and characters on the line.

slot   (1) A connector attached to the processor bus or the NuBus expansion interface. (2) A region in address space allocated to a physical slot. (3) A collection of information about one account on an external messaging system. The information includes whatever is necessary to allow an MSAM to access the account and retrieve and send messages. See also **mail slot, messaging slot.**

slot-based VBL task   A VBL task that is linked to an external video monitor.

slot-card interrupt   An interrupt sent by a slot device.

slot ID   The hexadecimal digit corresponding to each card slot. For Macintosh computers with the NuBus expansion interface, each slot ID number is established by the main logic board of the computer and communicated to the card through the /IDx signals.

slot information record   A Slot Manager data structure containing information about a slot. If a card is installed, the slot information record contains the card's initialization status, a pointer to the sResource directory, and other information.

Slot Manager   The set of Macintosh Operating System routines that communicate with an expansion card's declaration ROM and allow applications to access expansion cards.

slot resource   See **sResource.**

slot resource table (SRT)   A private Slot Manager data structure that lists all of the sResource data structures currently available to the system. Applications and device drivers use Slot Manager routines to get information from the slot resource table.

slot space   The address space assigned to expansion cards in Macintosh computers. See also **standard slot space, super slot space.**

SLS   See **session listening socket.**

small character set   A character set with no more than 256 characters. Roman, Hebrew, and Arabic have small character sets. The script system for such a writing system needs only 1-byte character codes, and is therefore called a *1-byte script system.*

Small Computer System Interface (SCSI)   An industry standard parallel data bus that provides a consistent method of connecting computers and peripheral devices.

small icon resource   A resource of type `'SICN'` that describes 12-by-16 pixel icons, even though the icons are stored in the resource as 16-by-16 pixel bitmaps. An `'SICN'` resource consists of a list of 16-by-16 pixel bitmaps for black-and-white icons; by convention, the list includes only two bitmaps, and the second bitmap is considered a mask. You can use resources of type `'SICN'` in menus. Note that the Finder does *not* use or display any resources that you create of type `'SICN'`. To create an icon for display by the Finder, create one or more of the icons in an icon family. See also **color icon resource**, **icon family, icon resource.** Compare **mini icons.**

smart swash   A variation of an existing glyph (often ornamental) that is contextual. Compare **swash.**

smearing   See **byte smearing.**

SMSAM   See **server MSAM.**

SMTP   See **Simple Mail Transfer Protocol.**

SNAP   See **subnetwork access protocol.**

snapshot format   See **image block.**

socket   A piece of software that serves as an addressable entity on a node. Applications and processes send and receive data through sockets. See also **statically assigned socket, dynamically assigned socket.**

socket client   An application or process that is associated with a socket and that sends and receives data through the socket.

socket listener   A piece of assembly-language code that a socket client application provides that receives datagrams that are addressed to that socket.

socket number   An 8-bit number that identifies a socket. A socket number is one of the three parts that together constitute an AppleTalk internet address.

socket table   A table that DDP builds and maintains that contains entries for open sockets; each entry identifies the socket number and the socket listener that are associated with it.

soft import   An imported symbol whose corresponding code or data might not be available in any import library on the host machine and which is therefore undefined at run time. Compare **hard import, import.**

solid fill   A shape fill that indicates a shape's geometry describes an area—the area surrounded by the contours of the shape's geometry. Solid fills include even-odd fill, winding fill, inverse even-odd fill, and inverse winding fill.

solid shape   A shape that describes an area—the area surrounded by the contours of the shape's geometry. The shape fill of a solid shape can be even-odd shape fill, winding-number shape fill, or one of the inverse shape fills.

sorting hook   A routine in the string-manipulation (`'itl2'`) resource that controls sorting behavior for a particular script system.

sound   Anything perceived by the organs of hearing. See also **frequency, pitch, stereo sound, timbre.**

sound channel   A path that sound data traverses from an application to the sound output device. A sound channel is associated with a queue of sound commands and with other information about the audio characteristics of the sound data. See also **sound channel record.**

sound channel record   A structure that represents a sound channel. Defined by the `SndChannel` data type.

sound channel status record   A structure whose address you pass to the `SndChannelStatus` function. Defined by the `SCStatus` data type.

sound command   An instruction to produce sound, modify sound, or otherwise assist in the overall process of sound production. See also **sound command record.**

sound command record   A structure that describes a sound command. Defined by the `SndCommand` data type.

sound component   A component that works with the Sound Manager to manipulate audio data or to communicate with a sound output device. See also **audio component, compression/decompression component, sound output device component, utility component.**

sound component chain   A chain of sound components that links a sound source to a sound output device.

sound component data record   A structure that specifies information about the data stream generated by a sound component. Defined by the `SoundComponentData` data type.

sound component information selector   A value of type `OSType` that indicates the kind of information a sound component should return or modify.

Sound control panel   A control panel that allows the user to specify basic sound-related settings and preferences. See also **Alert Sounds control panel, Sound In control panel, Sound Out control panel, Volumes control panel.**

sound data   See **sampled-sound data, sound, square-wave data, wave-table data.**

sound double buffer header record   A structure that you use to manage your own double-buffering scheme. Defined by the `SndDoubleBufferHeader` and `SndDoubleBufferHeader2` data types.

sound double buffer record   A structure that you use to manage your own double-buffering scheme. Defined by the `SndDoubleBuffer` data type.

Sound Driver   A device driver on the original Macintosh computers that provided sound generation. The Sound Driver is now obsolete; it has been replaced by the Sound Manager.

sound file   A file of file type `'AIFF'` or `'AIFC'` that can be used to store sampled-sound data and information about that data. See also **Audio Interchange File Format, Audio Interchange File Format Extension for Compression, chunk, Finder sound file, sound resource.**

sound header   A data structure (usually stored in a sound resource) that contains information about a buffer of sampled-sound data. See also **compressed sound header, extended sound header, sampled sound header.**

Sound In control panel   A subpanel of the Sound control panel that allows the user to select a sound input device. See also **Alert Sounds control panel, Sound Out control panel, Volumes control panel.**

sound information list   A structure that specifies the information associated with a sound component information selector. Defined by the `SoundInfoList` data type.

sound input device   Any hardware device (such as a microphone or audio digitizer) that records sound.

sound input device driver   A standard Macintosh device driver used by the Sound Manager to manage communication between applications and a sound input device.

sound input device information selector   A variable of type `OSType` that is used to specify the type of information that an application or the Sound Input Manager is requesting from a sound input device driver.

Sound Input Manager   The part of the Macintosh system software that controls the recording of sound from sound input devices.

sound input parameter block   A parameter block that contains information about sound recording. Defined by the `SPB` data type.

Sound Manager   The part of the Macintosh system software that manages the production and manipulation of sounds on Macintosh computers.

Sound Manager status record   A structure filled in by the `SndManagerStatus` function, which gives information on the current CPU loading caused by all open channels of sound. Defined by the `SMStatus` data type.

Sound Out control panel   A subpanel of the Sound control panel that allows the user to select a sound output device. See also **Alert Sounds control panel, Sound In control panel, Volumes control panel.**

sound output device   Any hardware device (such as a speaker or sound synthesizer) that produces sound.

sound output device component   A sound component that communicates with a sound output device. See also **compression/decompression component, utility component.**

sound parameter block   A parameter block that describes the source data to be modified or sent to a sound output device. Defined by the `SoundParamBlock` data type.

sound recording dialog box   The dialog box displayed by the Sound Input Manager when you call `SndRecord` or `SndRecordToFile`.

sound resource   A resource of resource type `'snd '` that can be use to store sound commands and sound data. See also **sound file.**

sound resource header   The portion of a sound resource that describes the format of the sound resource.

sound source   The origin of a specific channel of sound.

source   See **sound source.**

source application   The application that sends a particular Apple event to another application or to itself. Typically, an Apple event client sends an Apple event requesting a service from an Apple event server; in this case, the client is the source application for the Apple event. The Apple event server may return a different Apple event as a reply; in this case, the server is the source for the reply Apple event.

source color   The color of a shape or pixel that is to be drawn. Compare **destination color, result color.**

source color limits   In a transfer mode, limits on the permissible values for source color to use in transfer-mode calculations. Compare **destination color limits, result color limits.**

source component   The sound component that provides input for a particular component.

source data   Statements in a scripting language that constitute an uncompiled script.

source ID   A unique 4-byte identifier created by the Apple Mixer to refer to a single chain of sound components linking a sound source to the current sound output device. Defined by the `SoundSource` data type.

source mask   A value that specifies which of a script system's subscripts the `TransliterateText` function is to operate on.

source matrix   A 5×4 matrix, part of the transfer mode structure, that allows you to manipulate the components of the source color.

source mode   A specification of which Boolean operation QuickDraw should perform when copying images or text into bitmaps or pixel maps. See also **pattern mode.**

source profile   the color profile attached to a color that is to be drawn or converted. The source profile reflects the characteristics of the device on which the color was originally created. Compare **destination profile.**

source text   A stored sequence of character codes that represents a line of text. Characters in source text are stored in input order. Compare **display order, display text.** See also **input order.**

SP   See **stack pointer.**

spatial compression   Image compression that is performed within the context of a single frame. This compression technique takes advantage of redundancy in the image to reduce the amount of data required to accurately represent the image. Compare **temporal compression.**

special handler dispatch table   A table in either the application heap or the system heap that the Apple Event Manager uses to keep track of various specialized handlers.

specific identity   A number used as shorthand for the name and key of an alternate user on a computer to provide access to a specific catalog or mail service. See also **local identity.**

specific object validation   A QuickDraw GX validation level that confirms that all references to a specific object type are valid.

speech   The process or product of speaking. See also **sound, synthesized speech.**

speech amplitude   See **speech volume.**

speech attribute   A setting defined for a voice or a class of voices that affects the quality of speech generated by the Speech Manager. Speech attributes include speech pitch, speech rate, pitch modulation, speech volume.

speech channel   The data structure used by the Speech Manager to store settings related to speech generation. All speech must be generated through a speech channel. Defined by the `SpeechChannel` data type.

speech channel control flags   Constants that enable special Speech Manager features associated with speech generation.

speech command   See **embedded speech command.**

speech-done callback procedure   An application-defined procedure that is executed when the Speech Manager completes speaking a buffer of input text.

speech error information record   A structure that contains information about which Speech Manager errors occurred while processing a text buffer on a given speech channel. Defined by the `SpeechErrorInfo` data type.

speech extension data record   A structure passed to `GetSpeechInfo` or `SetSpeechInfo` to get or set synthesizer information. Defined by the `SpeechXtndData` data type.

speech information selector   A variable of type `OSType` that is used to specify the type of information that an application or the Speech Manager is requesting from a speech synthesizer.

Speech Manager   The part of the Macintosh system software that provides a standardized method for Macintosh applications to generate synthesized speech.

speech modulation   See **pitch modulation.**

speech pitch   A fixed-point value on a scale from 0.000 to 100.000 that indicates the average (or baseline) frequency a speech synthesizer should use in generating synthesized speech. A value of 60.000 corresponds to Middle C on a conventional piano keyboard. See also **pitch modulation.**

speech rate   A fixed-point value specifying the approximate number of words per minute that a speech synthesizer should use in generating speech.

speech status information record   A structure that contains information about the status of a speech channel. Defined by the `SpeechStatusInfo` data type.

speech synthesizer   The executable code that is linked to a speech channel and manages all communication between the Speech Manager and the Sound Manager.

speech version information record   A structure that contains information about the speech synthesizer currently being used. Defined by the `SpeechVersionInfo` data type.

speech volume   A fixed-point value on a scale from 0.000 to 1.000 that indicates the average amplitude a speech synthesizer should use in generating synthesized speech. A value of 0.000 corresponds to the lowest possible volume, and a value of 1.000 corresponds to the highest.

SPI   See **system programming interface.**

split caret   See **dual caret.**

split trap   A system software routine that is implemented as 680x0 code in ROM and as PowerPC code in an import library. Because the PowerPC code is contained directly in the import library, you cannot patch the PowerPC portion of a split trap. Compare **fat trap.**

spool   To flatten a QuickDraw GX shape or collection of shapes and save it to a print file in preparation for printing. Compare **despool.**

spool block   A data structure used in conjunction with a spool function for flattening and unflattening QuickDraw GX objects.

spool file   A temporary disk file used by an application to store data; generally used to save memory.

spool function   An application-supplied function that uses a spool block to accept flattened data from QuickDraw GX or prepare flattened data for unflattening into objects.

spool printing   See **deferred printing.**

spooling phase   In QuickDraw GX printing, the phase when the application sends the document pages to disk, in preparation for printing. The printer driver stores printable output in a file from which it is subsequently despooled, rendered, and sent to the output device. See also **despooling.**

square-wave data   Any set of values that represent a sound by its frequency, amplitude, and duration.

sResource   A data structure in the firmware of an expansion card's declaration ROM that defines a function or capability of the card. An sResource is also called a *slot resource*; the small *s* indicates a slot resource as opposed to the type of resource associated with the Resource Manager. There is one board sResource that identifies the card, and a functional sResource for each function a card can perform.

sResource directory   An element in a card's declaration ROM that lists all the sResources and provides an offset to each one.

sResource ID   A field in the sResource directory that identifies the type of sResource contained in or pointed to by the offset field.

SRQ   See **service request signal.**

SRT   See **slot resource table.**

stack   An area of memory in the application partition that is used for temporary storage of data during the operation of an application or other software.

stack-based routine   A routine that receives its parameters and returns its results, if any, on the stack. See also **register-based routine.**

stack frame   The area of the stack used by a routine for its parameters, return address, local variables, and temporary storage.

stack pointer (SP)   A pointer to the top of the stack. See also **frame pointer.**

stake   An edge offset in the source text that marks the point at which a line break would be most efficient in terms of layout processing.

stale data   Data in the microprocessor's data cache whose corresponding value in RAM has changed. You might need to flush the data cache to avoid using stale data.

stale instruction   An instruction in the microprocessor's instruction cache whose corresponding values in RAM have changed. You might need to flush the instruction cache to avoid using stale instructions.

stand-alone attribute   A record that contains only one attribute, extracted from another record. Although technically a record, the AOCE software treats a stand-alone attribute like an attribute in most circumstances. The record type of a stand-alone attribute begins with the value of the constant `kAttributeValueRecTypeBody`.

Standard Apple Numerics Environment (SANE) The floating-point environment on 680x0-based Macintosh computers and on Apple II computers. This environment provides floating-point data types and arithmetic operations, plus some advanced numerical functions (such as logarithmic and trigonometric functions). See also **PowerPC Numerics.**

standard cap   A type of cap. Standard caps are square caps and semicircular caps.

Standard Catalog Package   The part of the Macintosh Operating System that manages find and browse panels for AOCE catalogs.

standard content   See **standard interchange format.**

standard control definition functions   Three control definition functions, stored as `'CDEF'` resources in the System file. The `'CDEF'` resource with resource ID 0 defines the look and behavior of buttons, checkboxes, and radio buttons; the `'CDEF'` resource with resource ID 1 defines the look and behavior of scroll bars; and the `'CDEF'` resource with resource ID 63 defines the look and behavior of pop-up menus.

standard date-time value   A 32-bit long integer that represents date and time purely in seconds. The standard date-time value can track dates and times only between midnight on January 1, 1904 and 6:28:15 A.M. on February 6, 2040.

standard device driver   A device driver built into the Macintosh ROM or Operating System.

Standard File Package   The part of system software that allows you to present the standard user interface when a file is to be saved or opened.

standard image-compression dialog component   A component that provides a consistent user interface for selecting parameters that govern compression of an image or image sequence and then manages the compression operation.

standard interchange format   A set of data formats that consists of plain text, styled text, sound (AIFF), images (PICT), and QuickTime movies (`'MooV'`).

standard join   A type of join. Standard joins are sharp joins and curve joins.

Standard Mail Package   The part of the Macintosh Operating System that manages mailers and makes it easy for applications to create and send letters.

standard mode   A mode of operation available to server MSAMs and to personal MSAMs that deal with non-letter messages. An MSAM operating in standard mode hands off an incoming message to an AOCE system. It is the AOCE system, not the MSAM operating in standard mode, that is responsible for delivering the message to the ultimate destination.

Standard Roman character set The 256 characters and character codes that are supplied with the Macintosh Roman script system. The Standard Roman character set consists of the Macintosh character set plus additional defined characters with character codes between $D9 and $FF.

standard slot space The upper one-sixteenth of the total address space. These addresses are in the form $Fsxx xxxx, where *s* is a slot ID and *x* is any hexadecimal digit. This address space is geographically divided among the NuBus slots according to slot ID number. Compare **super slot space.**

standard state The size and location that an application deems the most convenient for a window.

Start Manager A collection of routines that let you get and set system startup information located in parameter RAM.

Startup Items folder A directory located in the System Folder for storing applications and desk accessories that the user wants started up every time the Finder starts up.

startup screen The screen on which the "happy Macintosh" icon appears. By default, the menu bar appears on the startup screen. Compare **main screen.**

static data The variables and other data that persist between calls to a particular function or fragment.

stationery pad A document that a user creates to serve as a template for other documents. The Finder tags a document as a stationery pad by setting the `isStationery` bit in the Finder flags field of the file's file information record. An application that is asked to open a stationery pad should copy the template's contents into a new document and open the document in an untitled window.

state dependence A condition in which a response to a request is dependent on a previous request.

statically assigned socket One of the two classes of sockets that DDP maintains. To use a statically assigned socket, an application must request a specific socket number. Statically assigned sockets have numbers in the range of 1–127. See also **dynamically assigned socket.**

static window A window that doesn't change its title or reposition any of the objects within its content area.

status phase The phase in which a SCSI target sends 1 byte of status information to the initiator.

status routine (1) A device driver routine used to return status information from a driver. The function of the status routine is driver-specific. This routine is optional and need not be implemented. (2) An application-defined routine that can update windows, check the results of the low-level calls made by the Data Access Manager `DBStartQuery` and `DBGetQueryResults` functions, and cancel execution of these functions when appropriate to do so.

stereo sound Sound that simultaneously consists of two or more channels. Also called *polyphonic sound* or *multichannel sound.* Compare **monophonic sound.**

sticky Used to describe a condition in which a bit stays set until it is explicitly cleared. Floating-point exception flags in the FPSCR are sticky, so if one instruction sets an exception flag and another instruction is performed before the flag is tested, it is impossible to tell which instruction caused the exception.

sticky error One of two error values maintained by the Movie Toolbox. The sticky error is updated only when an application directs the Movie Toolbox to do so. The other error value, the current error, is updated by every Movie Toolbox function.

stop alert An alert box that informs the user of a problem or situation so serious that the user's desired action cannot be completed. Stop alerts typically have only a single button (OK), because all the user can do is acknowledge that the action cannot be completed. A stop alert is identified by an icon of an upraised hand in the upper-left corner of the alert box. See also **caution alert, note alert.**

storage order   The order in which character codes are stored in memory. Compare **display order, input order, source text.**

storage reference   A specification of the storage type used to store a font. See **storage type.**

storage type   The method used to store a font in a font object. See **storage reference.**

storage warning   A QuickDraw GX warning indicating a data stream problem.

store-and-forward gateway   A link between different messaging systems, sometimes bridging different physical media, providing temporary data storage, and, where necessary, address translation.

store-and-forward messaging   A method of delivering messages that provides for temporary storage and forwarding of a message from one location to another, sometimes through several intermediate store-and-forward gateways or servers.

store-and-forward server   A server that provides store-and-forward messaging services. PowerShare servers are store-and-forward servers.

straight caret   A caret that is perpendicular to the baseline of the display text, regardless of the angle of the glyphs making up the text. Compare **angled caret.**

stream format   The public format available for describing flattened QuickDraw GX objects. Objects in stream format are compressed or flattened. Flattened objects are unflattened when they are converted back to object format. A flattened object may be interpreted by using QuickDraw GX unflattening functions or reconstructed by parsing with an interpreter that uses the stream format.

string-manipulation resource   An international resource of type `'itl2'`. The string-manipulation resource defines conventions for comparing text elements, including sorting order, character types, case conversion, and word breaks. Each installed script system has one or more string-manipulation resources.

strip an address   To clear the high-order byte of a 24-bit address, making it usable in 32-bit mode.

strong type   A glyph directionality that is always left to right or right to left. Compare **neutral type, weak type.**

structure region   The entire screen area occupied by a window, including both the window frame and the content region.

structure validation   A QuickDraw GX validation level that confirms that references to object types are valid and that the properties of the object are valid. Compare **all object validation, type validation.**

stub definition function   Code that dispatches to a definition function contained elsewhere. See also **definition function.**

stub definition resource   An executable resource that contains a stub definition function. See also **definition resource.**

style   (1) A visual attribute, other than size, applied as a systematic variation to the plain (unstyled) characteristics of a font's glyphs. The set of styles supported by QuickDraw consists of bold, italic, underline, outline, shadow, condense, and extend. (2) See s**tyle object.**

style attributes   A property of a style object. Style attributes are a set of flags that influence how the information in a style object affects a shape.

style code   A byte-length mask with one bit set for each QuickDraw-supported style to be applied.

style dialog box   A dialog box—usually displayed by an application in response to the user choosing the Page Setup command—allowing the user to specify printing options (such as the paper size and the printing orientation) that an application needs to format the document.

styled text   Text that is displayed in multiple styles.

style object   A QuickDraw GX object associated with a shape object. A style object contains information that affects the visual appearance of a shape when it is drawn.

style property   One of the pieces of information stored in a style object and maintained by QuickDraw GX.

style reference   A reference to a style object.

style run   A sequence of text that is contiguous in memory and in which all the characters are in the same font, size, style, color, and script system.

style scrap   A TextEdit scrap that stores style information associated with text that is cut or copied.

subclass   An object class that inherits properties, element classes, and Apple events from another object class—its superclass. A subclass can also include properties, element classes, or Apple events that are not inherited from its superclass. Every object class, with the exception of cObject, is a subclass of another object class. See also **object class, superclass.**

subdirectory   A directory that is contained in some other directory. All directories on a volume except the root directory are subdirectories.

sublist   A list of attributes that appears as a distinct subset of the items displayed in an information page window, or a list of records that appears in a dNode window.

submenu   A menu that is attached to another menu.

subnetwork access protocol (SNAP)   An 802.2 packet header field that is used to discriminate for which protocol family a packet with a DSAP of $AA is intended.

subnormal number   A denormalized number.

subroutine linkage   The mechanism by which one routine calls another, possibly passing arguments and receiving a function result.

subscribe   To obtain data that a publisher makes available in an edition. A user subscribes to a publisher by choosing Subscribe To from the Edit menu and selecting the desired edition. See also **edition, publish.**

subscriber   A portion of a document that automatically obtains current data from other documents and applications. A subscriber reads data from an edition. See also **edition, section.**

subscript   A distinguishable subset of characters included within a script—for example, Japanese Hiragana, Katakana, Kanji, and Romaji.

suite   In the A*pple Event Registry: Standard Suites,* a group of definitions for Apple events, object classes, primitive object classes, descriptor types, and constants that are all used for a set of related activities. For example, the Text suite includes definitions of Apple events, object classes, and so on that are used for text processing.

superclass   The object class from which a subclass inherits properties, elements, and Apple events. See also **object class, subclass.**

super slot space   The portion of memory in the range $9000 0000 through $EFFF FFFF. NuBus addresses of the form $sxxx xxxx address the super slot space that belongs to the card in slot *s,* where *s* is a slot ID and *x* is any hexadecimal digit. Compare **standard slot space.**

superuser   A user who is considered to be very knowledgeable. A monitors extension can define controls that it displays for superusers only.

suspend event   An event indicating that the execution of your application is about to be suspended as the result of either a major or minor switch. The application is suspended at the application's next call to WaitNextEvent or EventAvail. See also **resume event.**

s-video   A video format in which color and brightness information are encoded as separate signals. The s-video format is component video as opposed to composite video, which is the NTSC standard.

swash   A variation of an existing glyph (often ornamental) that is noncontextual. Compare **smart swash**.

switch   See **major switch, minor switch, mode switch.**

switch frame   A stack frame, created by the Mixed Mode Manager during a mode switch, that contains information about the routine to be executed, the state of various registers, and the address of the previous frame.

syllabic writing system   The glyphs that symbolize syllables in a language. Compare **alphabetic writing system, ideographic writing system.**

symbol   A name for a discrete element of code or data in a fragment.

symmetric   Used to describe a function whose graph looks the same on both sides of the *y*-axis; that is, *func*(*x*) = *func*(–*x*) for all *x*.

symmetrical session   A session in which both ends of the connection have equal control over the communication. Both ends can send and receive data at the same time and initiate or terminate the session. A symmetrical session is also referred to as a *peer-to-peer session.*

synchronization callback procedure   An application-defined procedure that is executed whenever the Speech Manager encounters an embedded synchronization speech command in a buffer of input text.

synchronous device driver   A device driver that completes each request before returning control to the Device Manager. This type of device driver has no provision for background processing.

synchronous execution   A mode of executing a routine in which the routine is executed as soon as possible and the calling program is prevented from doing any other processing until the routine completes execution.

synchronous sound play   A playing of sound by the Sound Manager that prevents other code from executing until the sound is done playing. Compare **asynchronous sound play.**

sync sample   A sample that does not rely on preceding frames for content. See also **key frame.**

synonym   A particular kind of tag object, used by QuickDraw GX to provide an alternate representation of an object for printing. The synonym specifies data, such as alternative PostScript operators, for the printer driver to use instead of the instructions that QuickDraw GX generates.

synthesized speech   The product of converting nonaural tokens (such as written or digitally-stored words or phonemes) into speech. See also **Speech Manager.**

synthesizer   See **speech synthesizer.**

synthetic font   A font created by the Font Manager from a bitmapped font resource by expanding the 1-bit font into a font that matches the current screen depth.

system alert sound   A sound resource stored in the System file that is played whenever an application or other executable code calls the `SysBeep` procedure.

system Apple event dispatch table   See **Apple event dispatch table.**

system-based VBL task   A VBL task that is not linked to an external video monitor.

system coercion dispatch table   See **coercion handler dispatch table.**

system direction   The horizontal placement of interface elements, including the default line direction (left-to-right or right-to-left) for text in the system script. System direction is specified by the global variable `SysDirection`.

Système Electronique Couleur avec Mémoire (SECAM)   Sequential Color With Memory; refers to a color-encoding system in which the red and blue color-difference information is transmitted on alternate lines, requiring a one-line memory in order to decode green information.

system environment record   A description of the operating environment filled in by the `SysEnvirons` function and defined by the `SysEnvRec` data type.

system error   An error generated by the Operating System.

system error alert box   An alert box displayed by the System Error Handler when a system error has occurred.

system error alert table resource   A resource that determines the appearance and function of system error alert boxes and system startup alert boxes.

System Error Handler   The part of the Operating System that displays an alert box when an system error occurs and manages display of the "Welcome to Macintosh" alert box at system startup time.

system error ID   An ID number that may appear in a system error alert box to identify the error.

system extension   A file (with the file type `'INIT'`) containing a code resource of type `'INIT'` and additional other resources. A system extension typically contains code that performs a system-level service and code that loads this system-level service into the system at system startup time.

System file   A file, located in the System Folder, that contains the basic system software plus some system resources, such as sound and keyboard resources.The System file behaves like a folder in this regard: although it looks like a suitcase icon, double-clicking it opens a window that reveals movable resource files (such as sounds, keyboard layouts, and script system resource collections) stored in the System file.

System Folder   A directory containing the software that Macintosh computers use to start up. The System Folder includes a set of folders for storing related files, such as preferences files that an application might need when starting up.

system font   The font used to display text in menus, dialog boxes, alert boxes, and so forth in a given script system. For example, in the Roman script system, the system font is Chicago.

system global variables   A collection of global variables stored in the system partition.

system heap   An area of memory in the system partition reserved for use by the Operating System.

system heap zone   The heap zone provided by the Memory Manager for use by the Operating System; equivalent to the system heap.

system initialization   The process when the system initialization code located in ROM is executed. Memory is tested and initialized, ROM drivers are installed, device drivers are located, and more.

system object accessor dispatch table   See **object accessor dispatch table.**

system partition   A partition of memory reserved for use by the Operating System.

system programming interface (SPI)   The programming interface to any parts of the Macintosh system software that are private to Apple Computer, Inc. Compare **application programming interface.**

system resource   A resource in the system resource file.

system result handler   A result handler that is available to all applications that use the system. Compare **application result handler.**

system script   The primary script system used by various parts of the Operating System, such as in dialog boxes and menu bars. The system script affects system defaults, such as the system font, line direction, and text-formatting rules. All other scripts are secondary to the system script. The system script is specified in the system software's configuration resource (`'itlc'`).

system startup   The process when the system startup code located in ROM is executed. Memory is tested and initialized, ROM drivers are installed, device drivers are located, and more.

system startup alert box   The alert box displayed at system startup time. It contains the startup greeting "Welcome to Macintosh."

system startup information   Certain configurable system parameters and machine-language instructions that are stored in the boot blocks of a volume and read in at system startup.

table of contents (TOC)   An area of static data in a fragment that contains a pointer to each routine or data item that is imported from some other fragment, as well as pointers to the fragment's own static data.

Table of Contents Register (RTOC)   A processor register that points to the table of contents of the fragment containing the code currently being executed. On the PowerPC processor, the general-purpose register 2 is dedicated to serve as the RTOC.

tag   See **attribute value tag.**

tag byte   The first byte of a block header.

tag list   A property of many QuickDraw GX objects. It is an array of references to tag objects associated with the object.

tag list position   The position of an item in a list of items with the same collection tag.

tag object   A QuickDraw GX object whose purpose, structure, and content are entirely controlled by the application creating it. Tag objects exist to allow custom information and behavior to be attached to standard QuickDraw GX objects. Tag objects are classified by tag type; objects reference their tag objects through a tag list.

tag type   A longword data type (equivalent to `OSType`) that can be represented by four 1-byte characters, such as `'appl'`. Tag types specify the formats of tag objects, such as synonyms.

tail patch   A patch that invokes the next patch in the patch daisy chain as a subroutine, guaranteeing that the tail patch regains control after the execution of all subsequent patches. Compare **head patch.**

Talk   An ADB command that requests a specific device to send the contents of a specific device register across the bus. See also **Flush, Listen, SendReset.**

tangents array   An array that determines the scaling and orientation of the characters or glyphs in the shape. It contains one entry for each character or glyph in the shape.

target   See **alias target.**

target address   An application signature, a process serial number, a session ID, a target ID record, or some other application-defined type that identifies the target of an Apple event.

target application   The application addressed to receive an Apple event. Typically, an Apple event client sends an Apple event requesting a service from a server application; in this case, the server is the target application of the Apple event. The server application may return a different Apple event as a reply; in this case, the client is the target of the reply Apple event.

target device   A SCSI device that responds to commands from an initiator.

target format   A value that specifies what format the `TransliterateText` function is to convert text into.

target modifier   A value that provides formatting information beyond that specified in the target format, for use by the `TransliterateText` function.

TCP/IP   See **Transmission Control Protocol/ Internet Protocol.**

tearing   The effect you obtain if you redraw the screen from the buffer while the buffer is only half updated, so that you get one half of one image and one half of another on a single raster scan.

template   See **AOCE template.**

temporal compression   Image compression that is performed between frames in a sequence. This compression technique takes advantage of redundancy between adjacent frames in a sequence to reduce the amount of data that is required to accurately represent each frame in the sequence. Sequences that have been temporally compressed typically contain key frames at regular intervals. Compare **spatial compression.**

Temporary Items folder   A directory located at the root level of a volume for storing temporary buffer files created by applications. The Temporary Items folder is invisible to the user.

temporary memory   Memory allocated outside an application partition that may be available for occasional short-term use.

termination routine   A function contained in a fragment that is executed just before the fragment is unloaded. See also **initialization routine.**

terminate   To end the execution of a process. A process can terminate by crashing, by quitting, or by being killed by some other process.

text   The written representation of language. Text is a sequence of symbols that conveys meaning to its reader. The set of symbols used, and the most basic rules for their presentation, constitute the writing system of the text. The lexical, grammatical, and semantic significance of combinations of the symbols constitute the language of the text.

text area   The space on the display device within which the text should fit.

text attributes   The set of flags that allow you to specify how QuickDraw GX alters glyph outlines or chooses the proper metrics for horizontal or vertical text.

Text control panel   A control panel, available on non-U.S. versions of system software, that allows the user to set aspects of the text behavior of any enabled script system.

text direction   The direction in which reading proceeds. Roman text has a left-to-right direction; Hebrew and Arabic have a (predominantly) right-to-left direction; Chinese and Japanese can have a vertical direction.

text-done callback procedure   An application-defined procedure that is executed when the Speech Manager has finished processing (although not necessarily speaking) a buffer of input text.

text face   (1) A style object property. It is the text face—the constructed stylistic variation from plain text—to apply when drawing the text of a shape. (2) An algorithmic way for your application to produce typestyles.

text rendering   The process of preparing characters that are stored in memory for display as glyphs.

text run   A complete unit of text, made up of character codes or glyph codes.

text segment   For text layout, the portion of a style run (it may be the entire style run) that falls on a single text line. Most text measuring and drawing routines work on a single text segment at a time.

text service   A text-entry or text-processing function provided by a text service component. Inline input is one example of a text service.

text service component   A software module that is a registered component with the Component Manager, and that is used for entry, processing, or formatting of text. Text service components use the Text Services Manager to request action from and send information to client applications.

text service component type   A specification of the function associated with a particular kind of text service component; part of its component description record. Currently, only one text service component type is defined: `'inpm'`, specifying an inline input method.

Text Services Manager   The part of the system software that manages the interactions between applications that request text services and text service components that provide them.

text shape   A type of QuickDraw GX shape. The geometry of a text shape contains a string of characters to be drawn in a single font and style. Compare **glyph shape, layout shape.** See **typographic shape.**

text size   A style object property. It is the size, in typographic points (72 per inch), to draw the text of a shape.

text string   An array of characters referenced by a pointer and a length word. A text string may contain up to 32,767 bytes of character data. Compare **Pascal string.**

text style   See **style.**

text style table   In an item color table resource, a specification for the typeface, font style, font size, and color of text in an editable text item or a static text item.

text-to-speech   See **synthesized speech.**

text width   The area between the margins; it is the length available for displaying a line of text.

thumbnail picture   A picture that can be created from an existing image that is stored as a pixel map, a picture, or a picture file. A thumbnail picture is useful for creating small representative images of a source image and in previews for files that contain image data.

TIB   See **transfer instruction block.**

TIB instructions   Commands that control the SCSI Manager data transfer routines.

TIB pseudoprogram   A sequence of TIB instructions.

tick   A unit of time equal to one sixtieth of a second.

tiled highlighting   A highlighting mechanism whereby the highlighted area corresponding to every character in a line of text is unique, without gaps or overlaps.

timbre   The tone of a sound, which can range from clear to buzzing.

time base   A set of values that define the time basis for an entity, such as a QuickTime movie. A time base consists of a time coordinate system (that is, a time scale and a duration) along with a rate value. The rate value specifies the speed with which time passes for the time base.

time coordinate system   A set of values that defines the context for a time base. A time coordinate system consists of a time scale and a duration. Together, these values define the coordinate system in which a time value or a time base has meaning.

Time Manager   The part of the Macintosh Operating System that lets you schedule the execution of a routine after a certain time has elapsed.

Time Manager queue   A list of all installed Time Manager tasks.

Time Manager task record   A data structure that contains information about a Time Manager task. Defined by the `TMTask` data type.

timeout interval   The interval of time the system waits for the startup drive to respond while the computer is booting.

time scale   The number of time units that pass per second in a time coordinate system. A time coordinate system that measures time in sixtieths of a second, for example, has a time scale of 60.

time unit   The basic unit of measure for time in a time coordinate system. The value of the time unit for a time coordinate system is represented by the formula (1/time scale) seconds. A time coordinate system that has a time scale of 60 measures time in terms of sixtieths of a second.

time value   A value that specifies a number of time units in a time coordinate system. A time value may contain information about a point in time or about a **duration.**

tint   The area ratio of dot color to background color that describes the tint color in a halftone.

tint color   The actual resultant color produced by a halftone; it is a mixture of the dot color and the background color, in proportions specified by the tint ratio.

tint space   The color space used by a halftone.

tint type   The calculation method, such as luminance tint or color mixture tint, used to determine the tint color and the tint in a halftone.

tiny   Used to describe a number whose magnitude is smaller than the smallest positive normalized number in the format of the number.

tip   At the side of a help balloon, the point that indicates what object or area is explained in the help balloon. See also **help balloon, variation code.**

title bar   The bar at the top of a window that displays the window name, contains the close and zoom boxes, and indicates whether the window is active.

TLAP   See **TokenTalk Link-Access Protocol.**

TOC   See **table of contents.**

token   (1) An abstract category of text element that stands for a name, symbol, punctuation, quoted literal, or other sequence of characters. (2) A descriptor record returned by an object accessor function that identifies a requested Apple event object in a specified container.

token block record   A parameter block used by the `IntlTokenize` function. The token block record contains, among other information, a pointer to a list of **token records.**

token disposal function   An object callback function that disposes of a token.

tokenization   A function provided by the Script Manager and individual script systems. Tokenization identifies the different lexical elements in an arbitrary string of text by using localized information from the tokens resource (`'itl4'`), and converts the string to a series of **tokens.**

token record   A data structure, used by the `IntlTokenize` function, that describes an individual token.

tokens resource   An international resource of type `'itl4'`. The tokens resource contains information needed to convert text in a particular language into a series of tokens. Each installed script system has one or more tokens resources.

TokenTalk   The data link that allows an AppleTalk network to be connected by token ring cables.

TokenTalk Link-Access Protocol (TLAP)   The AppleTalk link-access protocol used in a TokenTalk network. TLAP is built on top of the standard token ring data-link layer.

tolerance   For hit-testing, a value that specifies how close to a shape part a hit point must be for the hit-test to be considered successful.

tool   See **application extension.**

Toolbox Event Manager   See **Event Manager.**

Toolbox trap   An exception that is caused by an A-line instruction that executes a Toolbox routine.

Toolbox trap dispatch table   A table in RAM that contains addresses to Toolbox routines.

top-side bearing   The white space between the top of the glyph and the visible beginning of the glyph.

To recipient   A principal recipient of a message. See also original recipient.

total override   An implementation of a printing message override that does not forward the message to other message handlers.

`TPrint` record   A data structure of type `TPrint`. A `TPrint` record contains fields that specify the Printing Manager version, information about the printer (such as its resolution in dpi), and the dimensions of the paper rectangle.

`TPrJob` record   A data structure of type `TPrJob`. The `TPrJob` job record contains information about a particular print job; for instance, the first and last pages to be printed, the number of copies, and the printing method (either draft-quality or deferred).

track   A Movie Toolbox data structure that represents a single data stream in a QuickTime movie. A movie may contain one or more tracks. Each track is independent of other tracks in the movie and represents its own data stream. Each track has a corresponding media. The media describes the data for the track.

track boundary region   A region that describes the area occupied by a track in the track's coordinate system. The Movie Toolbox obtains this region by applying the track clipping region and the track matte to the visual image contained in the track rectangle.

track clipping region   The clipping region of a track in the track's coordinate system. The Movie Toolbox applies the track's clipping region and the track matte to the image contained in the track rectangle to obtain the track boundary region. Only that portion of the track that lies in the track boundary region is then transformed into an image in the movie coordinate system.

track height   The height, in pixels, of the **track rectangle.**

tracking   Kerning between all glyphs in the shape, not just the kerning pairs already defined by the font. You can increase or decrease interglyph spacing by using a track number. See **kerning.**

track matte   A pixel map that defines the blending of track visual data. The value of each pixel in the pixel map governs the relative intensity of the track data for the corresponding pixel in the result image. The Movie Toolbox applies the track matte, along with the track clipping region, to the image contained in the track rectangle to obtain the track boundary region.

track movie boundary region   A region that describes the area occupied by a track in the movie coordinate system, before the movie has been clipped by the movie clipping region. The movie boundary region is built up from the track movie boundary regions for each of the movie's tracks.

track offset   The blank space that represents the intervening time between the beginning of a movie and the beginning of a track's data. In an audio track, the blank space translates to silence; in a video track, the blank space generates no visual image. All of the tracks in a movie use the movie's time coordinate system. That is, the movie's time scale defines the basic time unit for each of the movie's tracks. Each track begins at the beginning of the movie, but the track's data might not begin until some time value other than 0.

track rectangle   A rectangle that completely encloses the visual representation of a track in a QuickTime movie. The width of this rectangle in pixels is referred to as the **track width;** the height, as the **track height.**

track setting   A value that specifies the relative tightness or looseness of interglyph spacing.

track width   The width, in pixels, of the track rectangle.

trailing edge   The edge of a glyph that is encountered last when reading text of that glyph's language. For glyphs of left-to-right text, the trailing edge is the right edge; for glyphs of right-to-left text, the trailing edge is the left edge. Compare **leading edge.**

trailing spaces   White space characters occurring at the end of the last style run in a line of text.

transcendental functions   Functions that can be used as building blocks in numerical functions. All of the functions contained in the PowerPC Numerics library are transcendental functions.

transaction   (1) A sequence of Apple events sent back and forth between the client and server applications, beginning with the client's initial request for a service. All Apple events that are part of one transaction must have the same transaction ID. (2) The exchange of data between two ATP client applications in which the requester application sends a request to the responder application to perform. The exchange of data is limited to the request-response interaction, and the response data is bound to the request data by a transaction ID.

transaction-based protocol   A communications protocol in which one socket client transmits a request for some action and the other socket client carries out the action and transmits a response.

transaction bitmap   The bitmap/sequence number field of the header, when the ATP packet is a request packet. The transaction bitmap identifies the number of buffers that a requester application has reserved for the response data.

transcription   The representation of sound sequences in phonetic symbols.

transfer instruction block (TIB)   A data structure used to pass instructions to the SCSI Manager data transfer routines.

transfer mode   (1) A specification, either Boolean or arithmetic, of how QuickDraw should draw or copy images into a bitmap or pixel map. In drawing text, QuickDraw uses transfer mode, along with foreground and background color, to determine how the text to be drawn (called the *source*) interacts with anything already drawn in the current graphics port, called the *destination.* See **arithmetic transfer mode, Boolean transfer mode.** (2) A QuickDraw GX data structure—also a property of an ink object—that controls the interaction between the color of a shape and the colors of the background at the location where the shape is drawn.

transfer mode type   A specification of the kind of transfer mode—such as copy mode or XOR mode—to apply when drawing a shape or pixel. In QuickDraw GX, same as *component mode.*

transform   (1) A mode you can specify with some Icon Utilities routines that draw icons. Specifying transforms with these routines alters the appearance of the icons in standard ways that are analogous to Finder states for icons. For example, you can specify the transform `ttSelected` to draw an icon so that it is highlighted as if it were selected in the Finder. (2) A QuickDraw GX object associated with a shape object. A transform object contains information that affects the visual appearance of a shape when it is drawn and specifies how the associated shape objects' geometries will be represented in a view port.

transformation matrix   A 3-by-3 matrix that defines how to map points from one coordinate space into another coordinate space.

transform concatenation   The process by which QuickDraw GX combines the clips and mappings of transform objects at different levels of a picture hierarchy when drawing a picture shape.

transition   An AppleTalk event, such as an AppleTalk driver being opened or closed, that can affect an AppleTalk application.

transition event handler routine   A developer-supplied routine that the LAP Manager calls to handle a transition event. Entries in the AppleTalk Transition Queue contain a field that holds a pointer to the transition event handler routine.

transition vector   An area of static data in a fragment that describes the entry point and TOC address of a routine. See also **procedure pointer.**

translate   To move an item. A mapping can be used to translate, or move, a shape by a given amount or to a given location.

translation extension   A component called by Macintosh Easy Open to identify and translate files or scraps. See also **application translation extension.**

translation file type   The type of a file relevant for translation purposes. See also **catalog type.**

translation group   A collection of source and destination file types; within each translation group, each source file type can be translated into any destination file type.

Translation Manager   A collection of routines that provide data conversion services (such as implicit translation) for applications on Macintosh computers. You can use the Translation Manager to implement explicit translation.

translation options   The use of one or more constants to translate QuickDraw data to QuickDraw GX shapes.

translation system   A translation extension, with or without external translators, that is able to recognize and translate files or scraps.

translation table   A data structure used by the `GetPhysical` function to indicate which physical blocks correspond to a given logical block. This parameter block is defined by the `LogicalToPhysicalTable` data type.

translator   (1) A piece of software called by translation extensions or by applications to convert documents or scraps from one format to another. (2) A set of functions that convert QuickDraw data into QuickDraw GX shapes or pictures. The translation approximates the intent of the original QuickDraw images; it does not provide a pixel-by-pixel mapping of the image.

transliteration   For the Macintosh script management system, the conversion of characters that are phonetic representations of the same sound sequence between subscripts within a script. In the Roman script system, this means case conversion. For Japanese, Chinese, and Korean, transliteration refers to the conversion, without linguistic or semantic considerations, of characters from one subscript to another subscript within a script. Examples include the transliteration of Japanese Hiragana to Katakana, and the transliteration of Korean Jamo to Hangul.

transliteration resource   An international resource of type `'trsl'`. The transliteration resource provides rules for converting text phonetically from one subscript to another within a script system. The transliteration resource is optional; it is used only by 2-byte script systems.

Transmission Control Protocol/Internet Protocol (TCP/IP)   The major transport protocol and the network layer protocol typically used in communicating messages over the Internet.

transport (XPT)   The part of SCSI Manager 4.3 that accepts I/O requests and passes them to the appropriate SCSI interface module (SIM).

transport protocol   A protocol that includes services that determine how data is to be transferred across an AppleTalk internet.

trap   Any of a large set of Macintosh system software routines accessed via A-line instructions. See also **split trap.**

trap dispatcher   The exception handler that deals with the occurrence of A-line instructions, providing the subroutine linkage between the A-line instruction and Macintosh system code.

trap dispatch table   A table of entry points to Macintosh system routines that are invoked with A-line instructions. Compare **Operating System trap dispatch table, Toolbox trap dispatch table.**

Trap Manager   The part of the Macintosh Operating System that provides the subroutine linkage to most Macintosh system software routines.

trap number   The bits of a trap word (bits 0–7 for an Operating System routine, bits 0–9 for a Toolbox routine) that serve as an index into the trap dispatch tables.

trap word   See **A-line instruction.**

trap patch   See **patch.**

Trash folder   A directory at the root level of a volume for storing files that the user has moved to the Trash icon. After opening the Trash icon, the user sees the collection of all items that the user has moved to the Trash icon—that is, the union of appropriate Trash directories from all mounted volumes. A Macintosh computer set up to share files among users in a network environment maintains separate Trash subdirectories for remote users within its shared Trash directory. The Finder empties a Trash directory (or, in the case of a file server, a Trash subdirectory) only when the user of that directory chooses the Empty Trash command.

trigonometric functions   Functions that perform trigonometric operations, such as cosine, sine, and tangent.

tristimulus values   The three components of XYZ space, designed to mimic the three kinds of light response of the human retina.

`'trsl'` resource   See **transliteration resource**. See also **international resources.**

true inside   The right side of a clockwise contour or the left side of a counterclockwise contour.

truncate   To chop off the fractional part of a real number so that only the integer part remains. For example, if the real number 1.99999999999 is truncated, the truncated value is 1.

TSM-aware application   An application that makes calls to the Text Services Manager. A TSM-aware application can use a variety of text services such as inline input.

TSM document   A private data structure maintained by the Text Services Manager that relates one or more text service components to a particular application window.

tuple   The NBP name and internet socket address pair that an entity provides to register itself with NBP. NBP adds the tuple as a names table entry to its names table.

two's complement encoding   A system for digitally encoding sound that stores the amplitude values as a signed number—silence is represented by a sample with a value of 0. For example, with 8-bit sound samples, two's complement values would range from –128 to 127, with 0 meaning silence. The Audio Interchange File Format (AIFF) used by the Sound Manager stores samples in two's complement form. Compare **offset-binary encoding.**

type   (1) The field of an NBP entity name that is used to identify the type of service that the entity provides. Entities of the same type can find potential partners by looking up addresses of other entities that are registered with NBP based on the type portion of the name. (2) See **shape type.**

type conversion   The process of changing a shape from one shape type to another. Often the geometry of the shape is significantly affected during this process.

type selection   A feature that allows a user to type the name of an item in a list to select it.

typestyle   A variant version of glyphs in the same font family. Typical typestyles available on the Macintosh computer include bold, italic, underline, outline, shadow, condensed, and extended.

type validation   A QuickDraw GX validation level that confirms that references to object types are valid. Compare **all object validation, structure validation.**

typographic bounding rectangle   The smallest rectangle that encloses the full span of the glyphs from the ascent line to the descent line.

typographic point   A unit of measurement describing the size of glyphs in a font. There are 72.27 typographic points per inch, as opposed to 72 points per inch in QuickDraw GX.

typographic shape   Any QuickDraw GX shape that has one of the following shape types: text, glyph, layout.

unapproved signer file   A file created by the MacSigner application when it creates an approval request. The unapproved signer file contains a DES-encrypted number that is intended to be the user's private key.

uncompressed sound data   See **decompressed sound data, noncompressed sound data.**

undercolor removal   In CMYK color calculation, the removal of some or all of the cyan, magenta, and yellow inks where black ink is to be substituted. See also **black generation.**

underflow exception   An exception that occurs when the result of an operation is both tiny and inexact.

underflow notice   A QuickDraw GX notice indicating that a notice could not be removed from the ignore notice stack because no notice was on the stack.

underflow warning   A QuickDraw GX warning indicating that a warning could not be removed from the ignore warning stack because no warning was on the stack.

unexpected result warning   A QuickDraw GX warning indicating that a character or font substitution took place or that the geometry of an area or new device is probably incorrect.

unflatten   To convert the public, stream-based description of an object or set of objects into the private, native QuickDraw GX object-based format. Used when retrieving a print job. Compare **flatten.** See also **stream format.**

Unicode   A standard for a universal character set now under development. Unicode assigns two bytes per character code, and includes all the characters of all the world's major writing systems in one character set.

unidirectional text   A sequence of text that has a single direction. Compare **mixed-directional text.**

unique items attribute   A shape attribute that affects the way items are added to picture shapes.

unit number   The position of a device driver's entry in the unit table. It is the one's complement of the driver reference number.

unit table   A Device Manager data structure containing an array of handles to the device control entries of all installed device drivers.

universal color spaces   Color spaces whose colors are device-independent. Universal colors can be compared without the use of color profiles.

universal coordinated time (UTC)   The same as Greenwich Mean Time (GMT); the standard time as established by the Royal Observatory at Greenwich, England.

universal interface files   A set of interface files that you can use with both 680x0 compilers and PowerPC compilers.

universal procedure pointer   A 680x0 procedure pointer or the address of a routine descriptor.

universal script   A 1-byte complex script system that is compatible with WorldScript I.

unlimited gap absorption   The assignment of all justification gap to an individual glyph or priority of glyphs, regardless of the specified grow or shrink limits for that glyph or glyphs.

unload   (1) To unlock a segment. By unlocking unneeded segments, you allow them to be relocated or purged if necessary to accommodate a later memory-allocation request. (2) To move a QuickDraw GX object from memory to temporary external storage. QuickDraw GX automatically and transparently loads and unloads objects in the course of managing memory; an application need never know whether an object it accesses is currently loaded or unloaded.

unlock   (1) To allow a relocatable block to be moved during heap compaction. (2) To allow a previously locked range of pages to be paged out. (3) To free a previously locked object in the QuickDraw GX heap so that it can be moved. See also **lock.**

unmounted volume   A volume that hasn't yet been mounted, or a volume that was previously mounted but has since had its volume control block removed from the VCB queue.

unpacking   The process of reconstructing a data structure from a sequence of bytes. Compare **packing.**

unpurgeable block   A relocatable block that can't be purged from the heap.

untoken table   A table in the tokens resource that converts script-independent tokens to text of a given script system.

update event   An event indicating that the contents of a window need updating.

update region   A region maintained by the Window Manager that includes the parts of a window's content region that need updating. The Event Manager generates update events as necessary, based on the contents of the update region, telling your application to update a window.

user attributes   The lower 16 bits of an item's attributes; these bits can be defined for purposes suitable to your application.

user authentication method   A process used by a file server or workstation to confirm the user's identity.

user data   Auxiliary data that your application can store in a QuickTime movie, track, or media structure. The user data is stored in a user data list; items in the list are referred to as user data items. Examples of user data include a copyright, date of creation, name of a movie's director, and special hardware and software requirements.

user data item   A single element in a user data list.

user data list   The collection of user data for a QuickTime movie, track, or media. Each element in the user data list is referred to as a user data item.

user dictionary   Also called an *editable dictionary.* A file, complementary to the main dictionary used by input methods, in which users can add information that does not exist in the main dictionary.

user item   An item in a dialog box that is managed largely by an application, not by the Dialog Manager. A user item is designated by the constant `userItem`.

user name   A string of characters that uniquely identifies a user for login purposes.

user node ID   A node ID that falls within the numeric range of 1–127 ($01–$7F). Unless a program explicitly requests assignment of a node ID within the server range, AppleTalk dynamically assigns a user node ID to a system when an application or process on that system opens AppleTalk.

User record   A catalog record representing an entity that has an account on an AOCE messaging or catalog server. A User record contains electronic addresses and biographical information about the entity that can be read by users of the system, as well as information about the entity's access privileges and password for use by the AOCE software.

user state   The size and location that the user has established for a window.

usual arithmetic conversions   Automatic conversions performed in the C programming language. The ANSI C specification defines these conversions.

UTC   See **universal coordinated time.**

utility component   A sound component that performs some modification on sound data and does not communicate directly with any sound output device. See also **sound component, sound output device component.**

validation   A set of debugging functions that cause one or more actions to occur whenever a QuickDraw GX function is called or whenever the internal memory manager is called. See also **public validation, internal validation.**

validation error   A QuickDraw GX error detected and posted by the debugging version with validation error checking turned on. The parameters of objects are checked to ensure that the object is valid. See also **validation.**

variable resolution   Any printing resolution within a range bounded by maximum and minimum values. Compare **discrete resolution.**

variation axis   A range included in a font by the font designer that allows a font to produce different typestyles.

variation code   (1) A number that selects among variations supported by a single window definition function or control definition function. The variation code is stored in the low-order 4 bits of the window definition ID or control definition ID. See also **control definition function, control definition ID, window definition function, window definition ID.** (2) In the header component of a help resource, an integer that specifies the preferred position of a help balloon relative to its hot rectangle. The balloon definition function draws the frame of the help balloon based on its variation code. See also **balloon definition function.**

VBL   See **vertical retrace interrupt.**

VBL task   A task executed during a vertical retrace interrupt. See also **slot-based VBL task, system-based VBL task.**

VBL task record   A data structure that contains information about a VBL task. Defined by the `VBLTask` data type.

VCB   See **volume control block.**

VCB queue   See **volume control block queue.**

vector   See **transition vector.**

vector imaging system   The imaging system provided by QuickDraw GX that converts QuickDraw GX shapes into data and control sequences for vector output devices such as graphic plotters.

verb   See **selector.**

verification   See **disk verification.**

verify   To establish the authenticity of a digital signature. Verification consists of determining that the signed document has not changed since it was signed and affirming that the public key used to decrypt the signature is valid.

version record   A structure that contains version information. Defined by the `NumVersion` data type.

vertical blanking interrupt (VBL)   See **vertical retrace interrupt.**

vertical blanking rectangle   A rectangle that defines a portion of the input video signal that is devoted to vertical blanking. This rectangle occupies lines 10 through 19 of the input signal. Broadcast video sources may use this portion of the input signal for closed captioning, teletext, and other nonvideo information. Note that the blanking rectangle cannot be contained in the maximum source rectangle.

vertical retrace interrupt   An interrupt generated by the video circuitry each time the electron beam of a monitor's display tube returns from the lower-right corner of the screen to the upper-left corner. Also known as *vertical blanking interrupt.*

Vertical Retrace Manager   The part of the Operating System that schedules and executes tasks during a vertical retrace interrupt.

vertical retrace queue   A list of the tasks to be executed during a vertical retrace interrupt.

VIB   See **volume information block.**

video device   A piece of hardware, such as a plug-in video card or a built-in video interface, that controls a screen.

video digitizer component   A component that provides an interface for obtaining digitized video from an analog video source. The typical client of a video digitizer component is a sequence grabber component, which uses the services of video digitizer components to create a very simple interface for making and previewing movies. Video digitizer components can also operate independently, placing live video into a window.

view   An item or field in an information page displaying one or more property values.

view device   A QuickDraw GX object associated with a view port object. It describes the characteristics of a given physical display device such as a monitor or a printer.

view group   A QuickDraw GX object that consists of a grouping of view ports and view devices.

view list   A data structure that specifies individual views on an information page. Each item in the list includes the graphic rectangle containing the view, the number of the property that provides the information to be displayed, the type of view, and information specific to that view type.

view port   A QuickDraw GX object associated with a transform object. A view port describes the characteristics of the drawing environment for individual QuickDraw GX shapes.

view port hierarchy   An ordered arrangement of view ports that allows for such features as windows within windows, including multiple windows within a single window.

view port list   A property of a transform object. This list is an array of references to the view ports that the shapes associated with that transform can be drawn to.

view rectangle   In TextEdit, the rectangle defining the portion of the window within which text is actually displayed. Text drawn in the destination rectangle is made visible to the application user in the view rectangle.

virtual bus   The grouping of SCSI devices on different buses into a single logical bus for compatibility with software that cannot address multiple buses.

virtual ID   The SCSI ID of a device on the virtual bus.

virtual key code   The key code that an application receives in keyboard events. It is the value produced after a raw key code has been mapped through the key-map (`'KMAP'`) and key-remap (`'itlk'`) resources. Compare **character code.**

virtual memory   Addressable memory beyond the limits of the available physical RAM. The Operating System extends the logical address space by allowing unused applications and data to be stored on a secondary storage device instead of in physical RAM.

Virtual Memory Manager   The part of the Operating System that provides virtual memory.

virtual queue   A view of a physical message queue through which an application can open, close, and list messages. More than one virtual queue can be associated with a single physical queue. See also **physical queue.**

visible region   In a Macintosh window, the part of a window that can be drawn into; defined by the `visRgn` field in the graphics port record. In view ports attached to windows, QuickDraw GX restricts drawing to the window's visible region.

voice   (1) The set of parameters that specify a particular quality of synthesized speech. A voice is designed to work with a particular speech synthesizer. (2) A sampled sound played at varying rates to produce a number of different pitches or notes. See also **instrument.**

voice description record   A structure that contains information about a voice. Defined by the `VoiceDescription` data type.

voice file information record   A structure that contains information about the file in which a voice is stored and the resource ID of the voice within that file. Defined by the `VoiceFileInfo` data type.

voice specification record　A structure that provides a unique specification that you must use to obtain information about a voice. Defined by the `VoiceSpec` data type.

volatile register　A register whose contents need not be preserved across subroutine calls. See also **nonvolatile register.**

volume　(1) A portion of a storage device that is formatted to contain files. (2) See **amplitude, speech volume.**

volume bitmap　A data structure that contains a series of bits indicating which blocks on the volume are allocated. Volume bitmaps exist both on HFS volumes and in memory.

volume catalog　See **catalog file.**

volume control block (VCB)　A nonrelocatable block of memory in the system heap that contains information about a specific mounted volume, including the information from the volume's master directory block.

volume control block queue　A list of the volume control blocks for all mounted volumes.

volume index　A number identifying the position of a mounted volume listed in the volume control block queue.

volume information block (VIB)　See **master directory block.**

volume name　A sequence of up to 27 characters, excluding colons (:), that identifies a volume.

volume reference number　A unique number assigned to a volume when it's mounted; used to refer to the volume.

Volumes control panel　A subpanel of the Sound control panel that allows the user to select volumes. See also **Alert Sounds control panel, Sound In control panel, Sound Out control panel.**

VOX recording　A feature that allows sound recording only when the sound to be recorded exceeds a certain amplitude.

VOX stopping　A feature that stops sound recording when the sound falls below a certain amplitude.

wake up　To make a previously suspended process eligible to receive CPU time.

wakeup demand　A message from the Power Manager that informs a sleep procedure that it must reverse whatever steps it followed when it prepared for the sleep state.

wakeup timer　A timer that the Power Manager uses to return a portable Macintosh computer from the sleep state to the operating state at a specific time.

warning　A diagnostic message posted by QuickDraw GX whenever an application executes a function that may likely not provide the result expected. Execution continues internally, as if the warning had not been posted. A warning number is a unique number in the range –26999 through –26000 assigned to each QuickDraw GX warning message. Each warning has a unique warning name.

warning name　See **warning.**

warning number　See **warning.**

wave amplitude　The height of a sound wave at an instant of time. Compare **amplitude.**

waveform　The shape of a wave (a graph of a wave's amplitude over time).

wavelength　The extent of one complete cycle of a wave.

wave table　A sequence of wave amplitudes measured at fixed intervals.

wave-table data　Any set of values that represent a sound by a wave table.

weak import　See **soft import.**

weak type　A glyph directionality that depends on context to determine whether it is left to right or right to left. Compare **neutral type, strong type.**

wedge　A pie-shaped segment of an oval, bounded by a pair of radii joining at the oval's center.

western numerals　For the Macintosh script management system, the numerical symbols 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0. Sometimes known as *Arabic numerals,* but not to be confused with the numerals native to the Arabic writing system.

white level   The degree of whiteness in an image. It is a common video digitizer setting.

white point   A specific definition of what is considered white light, represented in terms of Yxy, and usually based on the whitest light that can be generated by a given device. Colors in some color spaces are defined in comparison to a reference white point. See also **Yxy color space.**

whose descriptor record   A coerced AE record of descriptor type `typeWhoseDescriptor`. The Apple Event Manager creates whose descriptor records when it resolves object specifier records that specify `formTest`.

whose range descriptor record   A coerced AE record of type `typeWhoseRange`. Under certain conditions, the Apple Event Manager coerces a range descriptor record to a whose range descriptor record when it resolves object specifier records that specify `formTest`.

`wide` number   A 64-bit signed integer with unspecified bias.

widest-need evaluation   An evaluation method in which the widest format of all of the operands in a complex expression is used as the format in which the expression is evaluated.

winding fill   A shape fill that follows the winding-number rule.

winding-number rule   A rule used when drawing filled shapes to determine which areas are filled. The winding-number rule fills areas that lie under overlapping contours. Compare **even-odd rule.**

window   An area on the screen that displays information, including user documents as well as communications such as alert boxes and dialog boxes. The user can open or close a window; move it around on the desktop; and sometimes change its size, scroll through it, and edit its contents.

window color table   The data structure in which the Window Manager stores the colors to be used for drawing a window's frame and for highlighting selected text.

window component   The portion of an `'hwin'` resource in which you associate an `'hrct'` or `'hdlg'` resource to a particular window.

window definition function   A function that defines the general appearance and behavior of a window. The Window Manager calls the window definition function to draw the window's frame, determine what region of the window the cursor is in, draw the window's size box, draw the window's zoom box, move and resize the window, and calculate the window's structure and content regions.

window definition ID   An integer that specifies the resource ID of a window definition function in the upper 12 bits and an optional variation code in the lower 4 bits. When creating a new window, your application supplies a window definition ID either as a field in the `'WIND'` resource or as a parameter to the `NewWindow` or `NewCWindow` function.

window list   A list maintained by the Window Manager of all windows on the desktop. The frontmost window is first in the window list, and the remaining windows appear in the order in which they are layered on the desktop.

Window Manager   The part of the Macintosh Toolbox that provides routines for creating and manipulating windows.

Window Manager port   A graphics port that represents the desktop area on the main monitor—that is, a rounded-corner rectangle that occupies all of the main monitor except for the area occupied by the title bar.

window origin   The upper-left corner of a window. Usually specified with a vertical coordinate of 0 and a horizontal coordinate of 0, the window origin is the upper-left corner of the port rectangle of a graphics port and is expressed in coordinates local to the graphics port.

window record   A data structure of type `WindowRecord` (or `CWindowRecord`) in which the Window Manager stores a window's characteristics, including the window's graphics port, title, visibility status, and control list.

window region   Special-purpose region of a window. See also **close region, content region, drag region, size region, zoom region.**

window type   A collection of characteristics—such as the shape of the window's frame and the features of its title bar—that describe a window.

with-stream kerning   The automatic movement of glyphs parallel to the line orientation of the text. Compare **cross-stream kerning.**

with-stream shift   A positional shift that applies equally to all glyphs in a style run by adding or removing space before or after each glyph in the run. Compare **cross-stream shift.**

word   A 16-bit quantity, used to store 2^{16} (or 65,536) possible values.

word boundary   The memory location that divides two words.

word callback procedure   An application-defined procedure that is executed whenever the Speech Manager is about to speak a word.

word wrap   See **line breaking.**

working directory   A temporary directory reference by which the File Manager specifies both a directory and the volume on which it resides. The File Manager assigns a reference number to each working directory.

working directory control block   A data structure that contains the directory ID of a working directory as well as the volume reference number of the volume on which the directory is located.

working directory reference number   A temporary reference number that encodes a directory ID and a volume reference number. It can be used in place of the volume reference number in most File Manager calls.

WorldScript   A group of Macintosh system software managers, extensions, and resources that facilitate multilanguage text processing.

WorldScript I   A script extension used for all 1-byte complex script systems. Code in the extension reads tables in the script system's international resources in order to provide the proper text manipulation and formatting for that script. Simple 1-byte script systems do not need to use WorldScript I.

WorldScript II   A script extension used for all 2-byte script systems. Code in the extension reads tables in the script system's international resources in order to provide the proper text manipulation and formatting for that script.

write-data structure   A data structure that contains a series of pairs of length words and pointers. Each pair indicates the length and location of a portion of the data that constitutes the packet to be sent over the network.

write privileges   See **Make Changes privileges.**

write-through cache   A cache whose information is immediately written to RAM whenever that information changes. See also **copy-back cache.**

writing system   A set of characters and the basic rules for their use in creating a visual depiction of language. Writing systems may differ in the direction in which their characters and lines run, the size of the character set used, and the context sensitivity of character selection. Writing systems include Roman, Japanese, Arabic, and Hebrew. Compare **script system.** See also **language, region.**

wrong type error   A QuickDraw GX error indicating that an invalid type has been assigned to a shape.

XCOFF   See **Extended Common Object File Format.**

x-height   The height of a lowercase *x* in a given font. It is the height, measured from the baseline, of the main portion of most lowercase letters (excluding ascenders and descenders). See also **ascent line, baseline, descent line.**

XO   See **exactly-once (XO) transaction.**

XOR mode   A transfer mode type in which the bits of the source color component and destination color component are combined using an exclusive-OR operation.

XPT   See **transport.**

XYZ color space   A universal color space whose three components (the tristimulus values X, Y, and Z) are means to reflect the fundamental response of the human eye to color.

YIQ color space A universal color space, used for color television transmission, whose components are Y, I, and Q. Y represents luminance and the other two components carry color information.

Yxy color space A universal color space whose three components (the chromaticity coordinates Y, x, and y) are derived from XYZ color space.

zeroing See **disk zeroing.**

zero-length handle See **0-length handle.**

zero-length profile A color profile object that contains no profile data. You can specify a zero-length profile in situations in which you do not want color matching to occur.

Zhuyinfuhao Chinese phonetic characters. Also called *Bopomofo.*

ZIP See **Zone Information Protocol.**

ZIP table A zone information table that contains a complete mapping of network numbers to zone names for an AppleTalk internet. Each AppleTalk internet router maintains a ZIP table.

zone (1) A logical grouping of nodes in an AppleTalk internet. A zone is typically used to identify an affiliation between a group of nodes, such as a group of nodes belonging to a particular department within an organization. (2) See **heap zone.**

zone header An area of memory at the beginning of a heap zone that contains essential information about the heap, such as the number of bytes free in the heap and the addresses of the heap's grow-zone function and purge-warning procedure.

Zone Information Protocol (ZIP) An AppleTalk protocol that maintains the mapping between zone names and network numbers and provides applications and processes with access to zone names.

zone name hint The name of the parameter stored in RAM that is the last zone to which the node belonged.

zone pointer A pointer to a zone record.

zone record A data structure representing a heap zone.

zone trailer A minimum-sized free block marking the end of a heap zone.

zoom box A box in the right side of a window's title bar that the user can click to alternate between two different window sizes (the user state and the standard state).

zoom region The area occupied by a window's zoom box. See also **zoom box.**