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10,000
ENTRIES

Microsoft

Computer Dictionary

Fifth Edition

- Fully updated with the latest technologies, terms, and acronyms
- Easy to read, expertly illustrated
- Definitive coverage of hardware, software, the Internet, and more!



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Introduction

The *Microsoft Computer Dictionary, Fifth Edition* is designed to be a comprehensive and authoritative source of definitions for computer-related terms and abbreviations. The dictionary includes terms drawn from a wide variety of topics relevant to computer users, including software, hardware, networking, data storage, graphics, games, information processing, the Internet and the World Wide Web, gaming, history, jargon and slang, organizations, programming, and standards.

Although this book covers nearly every aspect of computing, it does not include entries on most companies or on most makes and models of computers, nor does it contain entries on most application software products. The few exceptions to this rule of thumb are key companies and products that have a historical or universal importance within the computing industry.

This dictionary emphasizes terminology that the average computer user will encounter in documentation, online help, computer manuals, marketing and sales materials, the popular media, and the computer trade press. Because most computer users operate personal computers and desktop systems at home, work, or both, the majority of the entries in this dictionary cover the terminology used in describing and working with these systems. However, some specialized or highly technical language is included that pertains to areas of industry, academia, software and hardware development, and research. These terms have been included because they have a bearing on more common computer terminology or because they are of historical significance.

Changes in the Fifth Edition

The fifth edition of the *Microsoft Computer Dictionary* has been revised and expanded to include over 10,000 entries, reflecting the many advances in the computer field and

including several areas that have come into prominence in the public eye, such as networking, Web authoring, and new technologies, such as .NET. The content from the Year 2000 appendix has been integrated into the body of the dictionary and a new appendix on emoticons and instant messaging symbols has been added.

Order of Presentation

Entries are alphabetized by letter. Spaces are ignored, as are characters such as hyphens and slashes; for example, *Baud-dot code* falls between *baud* and *baud rate*, and *machine-independent* falls between *machine identification* and *machine instruction*. Numbers and symbols are located at the beginning of the book and are listed in ascending ASCII order. If an entry begins with a letter or letters but contains a number, it is listed alphabetically, according to the initial letter(s), and then according to ASCII order. Thus, V20 precedes V.2x, and both precede VAB.

Entries

Entries are of two types: main entries, which contain full definitions, and synonymous cross-references, which contain *See* references to the appropriate main entries. Synonymous cross-references are generally secondary or less common ways of referring to a main entry. The definition at the main entry can be substituted as a definition for the synonymous cross-reference.

Format

Information in each main entry is presented in a consistent format: entry name in boldface, spelling variants (if any), part of speech, definition, illustration or table reference (if any), acronym (if any), alternative names (if any), and cross-references (if any).

Main Entries

Entries that are acronyms or abbreviations for one or more words or concatenations of two or more words have those words spelled out at the beginning of the definition. The letters in these words or phrases that make up the acronym, abbreviation, or concatenation are in boldface.

When a main entry is spelled exactly the same as another main entry, the two entries are differentiated by the use of a superscript numeral after each term. These entries are called homographs, and they are generally different parts of speech. For example,

e-mail¹ (*noun*)

e-mail² (*verb*)

Spelling Variants

When a main entry has one or more variations in the way it is spelled, each spelling variant follows the main entry, after the word *or*.

Parts of Speech

Entries are broken down into four parts of speech, in addition to prefixes, abbreviated as follows:

n. noun

vb. verb

adj. adjective

adv. adverb

Definitions

Each of the more than 10,000 entries is written in clear, standard English. Many go beyond a simple definition to provide additional detail and to put the term in context for a typical computer user. When an entry has more than one sense or definition, the definitions are presented in a numbered list, to make it easier to distinguish the particular, sometimes subtle, variations in meaning.

Illustration and Table References

Some entries have affiliated illustrations or tables that aid in defining the entry. In most cases, illustrations and tables appear on the same page as the entries to which they apply.

In some instances, however, page layout requirements have forced them to a subsequent page. Entries with illustrations or tables usually have references at the end of the definition for an entry, in the following formats:

See the illustration.

See the table.

Acronyms

Some terminology in the computer field, particularly computer standards and Internet slang, can be shortened to form acronyms. Sometimes the acronym is the more common way to refer to the concept or object; in these cases, the acronym is the main entry. In other cases, the acronym is not as commonly used as the words or phrase for which it stands. In these cases, the words or phrase constitute the main entry. The acronym is given after the definition for these entries in the following format:

Acronym:

Alternative Names

Some items or concepts in the computer field can be referred to by more than one name. Generally, though, one way is preferred. The preferred terminology is the main entry. Alternative names are listed after any acronyms; otherwise they are listed after the definition in the following format:

Also called:

Cross-References

Cross-references are of three types: *See*, *See also*, and *Compare*. A *See* reference is used in an entry that is a synonymous cross-reference and simply points to another entry that contains the information sought. A *See also* reference points to one or more entries that contain additional or supplemental information about a topic and follows any acronyms or alternative names after the definition. A *Compare* reference points to an entry or entries that offer contrast and follows any *See also* references; otherwise it follows any acronyms or alternative names after the definition.

inverted list *n.* A method for creating alternative locators for sets of information. For example, in a file containing data about cars, records 3, 7, 19, 24, and 32 might contain the value “Red” in the field COLOR. An inverted list (or index) on the field COLOR would contain a record for “Red” followed by the locator numbers 3, 7, 19, 24, and 32. *See also* field, record. *Compare* linked list.

inverted-list database *n.* A database similar to a relational database but with several differences that make it much more difficult for the database management system to ensure data consistency, integrity, and security than with a relational system. The rows (records or tuples) of an inverted-list table are ordered in a specific physical sequence, independent of any orderings that may be imposed by means of indexes. The total database can also be ordered, with specified logical merge criteria being imposed between tables. Any number of search keys, either simple or composite, can be defined. Unlike the keys of a relational system, these search keys are arbitrary fields or combinations of fields. No integrity or uniqueness constraints are enforced; neither the indexes nor the tables are transparent to the user. *Compare* relational database.

inverted structure *n.* A file structure in which record keys are stored and manipulated separately from the records themselves.

inverter *n.* **1.** A logic circuit that inverts (reverses) the signal input to it—for example, inverting a high input to a low output. **2.** A device that converts direct current (DC) to alternating current (AC).

invoke *vb.* To call or activate; used in reference to commands and subroutines.

I/O *n.* *See* input/output.

I/O-bound *adj.* *See* input/output-bound.

I/O controller *n.* *See* input/output controller.

I/O device *n.* *See* input/output device.

ion-deposition printer *n.* A page printer in which the image is formed in electrostatic charges on a drum that picks up toner and transfers it to the paper, as in a laser, LED, or LCD printer, but the drum is charged using a beam of ions rather than light. These printers, used mainly in high-volume data-processing environments, typically operate at speeds from 30 to 90 pages per minute. In ion-deposition printers, toner is typically fused to paper by a method that is fast and does not require heat but leaves the paper a little glossy, making it unsuitable for business cor-

respondence. In addition, ion-deposition printers tend to produce thick, slightly fuzzy characters; the technology is also more expensive than that of a laser printer. *See also* electrophotographic printers, nonimpact printer, page printer. *Compare* laser printer, LCD printer, LED printer.

I/O port *n.* *See* port¹ (definition 1).

I/O processor *n.* *See* input/output processor.

IO.SYS *n.* One of two hidden system files installed on an MS-DOS startup disk. IO.SYS in IBM releases of MS-DOS (called IBMBIO.COM) contains device drivers for peripherals such as the display, keyboard, floppy disk drive, hard disk drive, serial port, and real-time clock. *See also* MSDOS.SYS.

IP *n.* Acronym for **Internet Protocol**. The protocol within TCP/IP that governs the breakup of data messages into packets, the routing of the packets from sender to destination network and station, and the reassembly of the packets into the original data messages at the destination. IP runs at the internetwork layer in the TCP/IP model—equivalent to the network layer in the ISO/OSI reference model. *See also* ISO/OSI reference model, TCP/IP. *Compare* TCP.

IP address *n.* Short for **Internet Protocol address**. A 32-bit (4-byte) binary number that uniquely identifies a host (computer) connected to the Internet to other Internet hosts, for the purposes of communication through the transfer of packets. An IP address is expressed in “dotted quad” format, consisting of the decimal values of its 4 bytes, separated with periods; for example, 127.0.0.1. The first 1, 2, or 3 bytes of the IP address identify the network the host is connected to; the remaining bits identify the host itself. The 32 bits of all 4 bytes together can signify almost 2^{32} , or roughly 4 billion, hosts. (A few small ranges within that set of numbers are not used.) *Also called:* Internet Protocol number, IP number. *See also* host, IANA, ICANN, InterNIC, IP, IP address classes, packet (definition 2). *Compare* domain name.

IP address classes *n.* Short for **Internet Protocol address classes**. The classes into which IP addresses were divided to accommodate different network sizes. Each class is associated with a range of possible IP addresses and is limited to a specific number of networks per class and hosts per network. *See the table.* *See also* Class A IP address, Class B IP address, Class C IP address, IP address.

<i>Address Class</i>	<i>Range of IP Addresses</i>	<i>Networks per Class</i>	<i>Hosts per Network (maximum number)</i>
Class A (/8)	1.x.x.x to 126.x.x.x	126	16,777,214
Class B (/16)	128.0.x.x to 191.255.x.x	16,384	65,534
Class C (/24)	192.0.0.x to 223.255.255.x	2,097,152	254

IP address classes. Each *x* represents the host-number field assigned by the network administrator.

IP aliasing *n.* See NAT.

IPC *n.* See interprocess communication.

ipchains *n.* See iptables.

IP Filter *n.* Short for **Internet Protocol Filter**. A TCP/IP packet filter for UNIX, particularly BSD. Similar in functionality to netfilter and iptables in Linux, IP Filter can be used to provide network address translation (NAT) or firewall services. *See also* firewall. *Compare* netfilter, iptables.

IPL *n.* See initial program load.

IP masquerading *n.* See NAT.

IP multicasting *n.* Short for **Internet Protocol multicasting**. The extension of local area network multicasting technology to a TCP/IP network. Hosts send and receive multicast datagrams, the destination fields of which specify IP host group addresses rather than individual IP addresses. A host indicates that it is a member of a group by means of the Internet Group Management Protocol. *See also* datagram, Internet Group Membership Protocol, IP, MBONE, multicasting.

IPng *n.* Acronym for **Internet Protocol next generation**. A revised version of the Internet Protocol (IP) designed primarily to address growth on the Internet. IPng is compatible with, but an evolutionary successor to, the current version of IP, IPv4 (IP version 4), and was approved as a draft standard in 1998 by the IETF (Internet Engineering Task Force). It offers several improvements over IPv4 including a quadrupled IP address size (from 32 bits to 128 bits), expanded routing capabilities, simplified header formats, improved support for options, and support for quality of service, authentication, and privacy. *Also called:* IPv6. *See also* IETF, IP, IP address.

IP number *n.* See IP address.

IPP *n.* See Internet Printing Protocol.

IPSec *n.* Short for **Internet Protocol Security**. A security mechanism under development by the IETF (Internet Engineering Task Force) designed to ensure secure packet exchanges at the IP (Internet Protocol) layer. IPSec is based on two levels of security: AH (Authentication Header), which authenticates the sender and assures the recipient that the information has not been altered during transmission, and ESP (Encapsulating Security Protocol), which provides data encryption in addition to authentication and integrity assurance. IPSec protects all protocols in the TCP/IP protocol suite and Internet communications by using Layer Two Tunneling Protocol (L2TP) and is expected to ensure secure transmissions over virtual private networks (VPNs). *See also* anti-replay, communications protocol, Diffie-Hellman, ESP, IETF, IP, IPv6, Layer L2TP, TCP/IP, packet, virtual private network.

IP Security *n.* See IPSec.

IP/SoC Conference and Exhibition *n.* Acronym for **Intellectual Property/System on a Chip Conference and Exhibition**. Leading conference and exhibition for executives, architects, and engineers using intellectual property in the design and production of system-on-a-chip semiconductors. The event features product exhibits and forums for the exchange of information.

IP splicing *n.* See IP spoofing.

IP spoofing *n.* The act of inserting a false sender IP address into an Internet transmission in order to gain unauthorized access to a computer system. *Also called:* IP splicing. *See also* IP address, spoofing.

IP switching *n.* A technology developed by Ipsilon Networks (Sunnyvale, Calif.) that enables a sequence of IP packets with a common destination to be transmitted over a high-speed, high-bandwidth Asynchronous Transfer Mode (ATM) connection.

iptables *n.* A utility used to configure firewall settings and rules in Linux. Part of the netfilter framework in the Linux kernel, iptables replaces ipchains, a previous implementation. *See also* netfilter. *Compare* IP Filter.

IP telephony *n.* Telephone service including voice and fax, provided through an Internet or network connection. IP telephony requires two steps: conversion of analog voice to digital format by a coding/uncoding device

while moving to different locations. Mobile IP tracks a moving host by registering the presence of the host with a foreign agent; the home agent then forwards packets to the remote network. *See also* IP.

mobile telephone switching office *n.* Computer that controls wireless phone calls. The mobile telephone switching office controls the operation of wireless cell sites, tracks calls, and transfers signals between wireless networks and traditional wired telephone systems. *Acronym:* MTSO.

mode *n.* The operational state of a computer or a program. For example, edit mode is the state in which a program accepts changes to a file. *See also* address mode, compatibility mode, safe mode, video mode, virtual real mode.

modem *n.* In telecommunications, a device that generates analog modem signals digitally. The term *modem* is a combination of the terms *modem* and *codec*. *See also* codec (definition 1), modem (definition 2).

model *n.* A mathematical or graphical representation of a real-world situation or object—for example, a mathematical model of the distribution of matter in the universe, a spreadsheet (numeric) model of business operations, or a graphical model of a molecule. Models can generally be changed or manipulated so that their creators can see how the real version might be affected by modifications or varying conditions. *See also* modeling, simulation.

modeling *n.* **1.** The use of computers to describe the behavior of a system. Spreadsheet programs, for example, can be used to manipulate financial data representing the health and activity of a company, to develop business plans and projections, or to evaluate the impact of proposed changes on the company's operations and financial status. *See also* simulation, spreadsheet program. **2.** The use of computers to describe physical objects and the spatial relationships among them mathematically. CAD programs, for example, are used to create on-screen representations of such physical objects as tools, office buildings, complex molecules, and automobiles. These models use equations to create lines, curves, and other shapes and to place those shapes accurately in relation to each other and to the two-dimensional or three-dimensional space in which they are drawn. *See also* CAD, rendering, solid model, surface modeling, three-dimensional model, two-dimensional model, wire-frame model.

modem *n.* **1.** Short for **modulator/demodulator**. A communications device that converts between digital data from a computer or terminal and analog audio signals that can pass through a standard telephone line. Because the telephone system was designed to handle voice and other audio signals and a computer processes signals as discrete units of digital information, a modem is necessary at both ends of the telephone line to exchange data between computers. At the transmit end, the modem converts from digital to analog audio; at the receiving end, a second modem converts the analog audio back to its original digital form. In order to move a high volume of data, high-speed modems rely on sophisticated methods for "loading" information onto the audio carrier—for example, they may combine frequency shift keying, phase modulation, and amplitude modulation to enable a single change in the carrier's state to represent multiple bits of data. In addition to the basic modulation and demodulation functions, most modems also include firmware that allows them to originate and answer telephone calls. International standards for modems are specified by the International Telecommunications Union, or ITU. Despite their capabilities, modems do require communications software in order to function. *See also* amplitude modulation, frequency modulation, quadrature amplitude modulation. **Compare** digital modem. **2.** Any communications device that acts as an interface between a computer or terminal and a communications channel. Although such a device may not actually modulate or demodulate analog signals, it may be described as a modem because a modem is perceived by many users to be a black box that connects a computer to a communications line (such as a high-speed network or a cable TV system). *See also* digital modem.

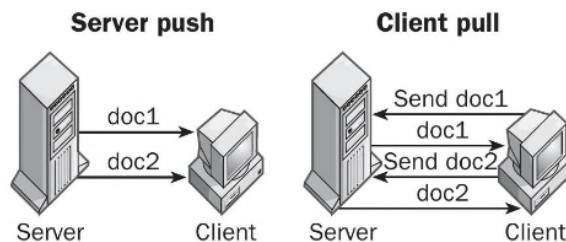
modem bank *n.* A collection of modems connected to a server maintained by an ISP or the operator of a BBS or remote-access LAN. Most modem banks are configured to allow a remote user to dial a single phone number that routes calls to an available phone number on the bank. *See also* BBS (definition 1), ISP, LAN.

modem eliminator *n.* A device that enables two computers to communicate without modems. *See also* null modem.

modem port *n.* A serial port used for connecting an external modem to a personal computer. *See also* modem (definition 1), serial port.

modem ready *n.* *See* MR.

server push-pull *n.* A combination of Web client/server techniques individually called “server push” and “client pull.” In server push, the server loads data to the client, but the data connection stays open. This allows the server to continue sending data to the browser as necessary. In client pull, the server loads data to the client, but the data connection does not stay open. The server sends an HTML directive to the browser telling it to reopen the connection after a certain interval to get more data or possibly to open a new URL. See the illustration. *See also* HTML, server (definition 2), URL.



Server push-pull.

server-side include *n.* A mechanism for including dynamic text in World Wide Web documents. Server-side includes are special command codes that are recognized and interpreted by the server; their output is placed in the document body before the document is sent to the browser. Server-side includes can be used, for example, to include the date/time stamp in the text of the file. *Acronym:* SSI. *See also* server (definition 2).

service *n.* **1.** A customer-based or user-oriented function, such as technical support or network provision. **2.** In reference to programming and software, a program or routine that provides support to other programs, particularly at a low (close to the hardware) level. **3.** In networking, specialized, software-based functionality provided by network servers—for example, directory services that provide the network equivalent of “phone books” needed for locating users and resources. *See also* utility.

Service Advertising Protocol *n.* A method used by a service-providing node in a network (such as a file server or application server) to notify other nodes on the network that it is available for access. When a server boots, it uses the protocol to advertise its service; when the same server goes off line, it uses the protocol to announce that it is no longer available. *Acronym:* SAP. *See also* server (definition 1).

service bureau *n.* **1.** A company that provides various services related to publishing, such as prepress production, desktop publishing, typesetting, imagesetting, and optical scanning of graphics. **2.** An organization that provides data processing services and access to software packages for a fee.

service provider *n.* *See* ISP.

servlet or **servelet** *n.* A small Java program that runs on a server. The term is a companion to applet, a Java program that usually runs on the client. Servlets perform lightweight Web services, such as redirecting a Web user from an outdated address to the correct page—tasks traditionally handled by CGI (Common Gateway Interface) applications. Because servlets are automatically threaded and highly responsive, they execute quickly, thereby reducing system overhead. *Also called:* serverlet. *See also* applet, CGI.

servlet container *n.* In Sun Microsystems’s J2EE network platform, a container that decodes requests, formats responses, and provides the network services over which requests and responses are sent. All servlet containers must support HTTP as a protocol for requests and responses, but they may also support additional request-response protocols such as HTTPS. *See also* container, HTTP, HTTPS, J2EE.

servo *n.* The part of a servomechanism, controlled by the servomechanism’s feedback circuit, that produces the final mechanical output. *Also called:* servomotor. *See also* servomechanism.

servomechanism *n.* A control system in which the final output is mechanical movement. A servomechanism uses feedback to control the position, velocity, or acceleration of a mechanical component. *Also called:* servo system.

servomotor *n.* *See* servo.

servo system *n.* *See* servomechanism.

session *n.* **1.** The time during which a program is running. In most interactive programs, a session is the time during which the program accepts input and processes information. **2.** In communications, the time during which two computers maintain a connection. **3.** A specific protocol layer in the ISO/OSI reference model that manages communication between remote users or processes. *See also* ISO/OSI reference model, session layer.

session bean *n.* In the Java programming language and J2EE network platform, an enterprise bean that is created

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