

z/VM



Glossary

Version 5 Release 10

z/VM



Glossary

Version 5 Release 10

Note:

Before using this information and the product it supports, read the information in “Notices” on page 93.

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This edition applies to version 5, release 1, modification 0 of IBM z/VM (product number 5741-A05) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About This Book

This book defines terms used in the books included in the IBM® z/VM® product library. It includes definitions for both general computing terms and VM-specific terms.

Who Should Read This Book

This book is intended for all z/VM users and other persons who wish to become familiar with z/VM terms.

Where to Find More Information

You can obtain more information about z/VM from the books listed in the “Bibliography” on page 97.

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Glossary

This glossary defines technical terms used in z/VM product documentation. It is not a comprehensive resource of all IBM or z/VM computing terms.

This glossary includes IBM product terminology as well as selected terms and definitions from the following sources:

- The *American National Standard Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies may be purchased from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036. Definitions are identified by the symbol (A) after the definition.
- The ANSI/EIA Standard--440-A, *Fiber Optic Terminology*. Copies may be purchased from the Electronic Industries Association, 2001 Pennsylvania Avenue, N.W., Washington, DC 20006. Definitions are identified by the symbol (E) after the definition.
- The *Information Technology Vocabulary* developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.
- The *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.
- Internet Request for Comments: 1208, *Glossary of Networking Terms*
- Internet Request for Comments: 1392, *Internet Users' Glossary*
- The *Object-Oriented Interface Design: IBM Common User Access Guidelines*, Carmel, Indiana: Que, 1992.

The terms in this glossary are alphabetized using the letter-by-letter method. Blanks and hyphens in multiple-word terms are ignored. Slashes (/) and other special characters used in terms are alphabetized ahead of the alphabetic characters. Numerals included in terms are alphabetized after the alphabetic characters.

The following cross-references are used in this glossary:

- | | |
|----------------------|--|
| See term | This refers the reader to a synonym or preferred term, or to a term that is the expanded form of an abbreviation or acronym. |
| See also term | This refers the reader to a term with a similar meaning, such as a broader term, a narrower term, or a contrasting term. |

A

abend. See [abnormal end of task](#).

abend dump. The contents of main storage, or part of main storage, written to an external medium for debugging an error condition that resulted in the termination of a task before its regular completion.

abnormal end of task (abend). The termination of a task before its completion because of an error condition that cannot be resolved by recovery facilities while the task is executing. See also [abnormal termination](#).

abnormal termination. (1) The cessation of processing prior to planned termination. (2) A system failure or operator action that causes a job to end unsuccessfully.

absolute path name. (1) A path name that begins with the root directory. (2) See also [fully qualified path name](#) and [relative path name](#).

accept. To allow a connection to the user's virtual machine from another virtual machine or from the user's own virtual machine.

access control. In computer security, the process of ensuring that the resources of a computer system can be accessed only by authorized users in authorized ways.

access control interface (ACI). A group of CP modules that mediate between CP and an external security manager (ESM) to handle authorization checking. z/VM supplies stub modules that are replaced by the ESM when it is installed.

access list. A list of address spaces that are available to a program operating in access-register mode. See also [host access list](#).

access-list entry (ALE). See [host access-list entry](#).

access-list-entry token (ALET). A 32-bit value that is an indirect specification of an address space. When a program is operating in access-register mode, an ALET contained in an access register designates the address space containing an instruction operand.

access method services (AMS). The facility used to define and reproduce VSAM key-sequenced data sets (KSDS). In CMS, AMS is invoked through the AMSERV command.

access mode. See [file access mode](#).

access register (AR). A 32-bit register that contains an ALET identifying an address space to be used for data references when in access-register mode. See also [access-list-entry token](#) and [access-register mode](#).

access-register mode. An address translation mode in which the contents of the access registers are used to determine the address space containing a storage operand. The SET ADDRESS SPACE CONTROL and SET ADDRESS SPACE CONTROL FAST instructions can be used to change the PSW to enter and exit access-register mode. See also [primary-space mode](#).

access security. Pertaining to information that a target LU and target transaction program use to verify whether a source program is authorized to make a connection. This information consists of a user ID and possibly a password.

ACF. See [Advanced Communications Function](#).

ACF/SSP. See [System Support Programs](#).

ACF/VTAM. See [Virtual Telecommunications Access Method](#).

ACI. See [access control interface](#).

active record. A record added or appended to a file currently in use.

active window. The window that can receive input from the keyboard. It is distinguishable by the unique color of its title bar and window border.

active work unit. A work unit that has uncommitted work associated with it. A request was made on the work unit (other than an atomic request) and no commit or rollback has occurred.

ACU. See automatic calling unit.

adapter. (1) A part that electrically or physically connects a device to a computer or to another device. (2) A circuit board that adds function to a computer.

ADCON. An A-type address constant used in calculating storage addresses.

addressing-capability exception. A program exception that arises as a result of an attempt to access an address space for which access permission has been revoked by the owner of the address space.

address space. (1) A collection of bytes that are allocated, and in many ways managed, as a single entity by CP. Each byte within an address space is identified by a unique address. An address space represents an extent of storage available to a program. See also host-primary address space and virtual address space. (2) The memory locations that can be referred to by a process. (P1)

address-space-identification token (ASIT). An 8-byte token that uniquely identifies a particular address space allocated by CP. The ASIT is a unique system-wide identifier. Once an ASIT value has been assigned to an address space, that ASIT value is not used again within the scope of a z/VM system IPL.

address stop. See instruction address stop.

Advanced Communications Function (ACF). A group of IBM licensed programs, principally VTAM, TCAM, NCP, and SSP, that use the concepts of Systems Network Architecture (SNA), including distribution of function and resource sharing.

Advanced Function Printing™ (AFP™). The ability of programs to print all-points-addressable text and images.

Advanced Function Printing Data Stream (AFPDS). A method of representing image data in a file that is destined for printing on a PSF-controlled printer.

advanced program-to-program communication (APPC). (1) The general facility characterizing the LU 6.2 architecture and its various implementations in products. (2) Sometimes used to refer to the LU 6.2 architecture and its product implementations as a whole, or to an LU 6.2 product feature in particular, such as an APPC application programming interface.

Advanced Program-to-Program Communication/VM (APPC/VM). An API for communicating between two virtual machines that is mappable to the LU 6.2 APPC interface and based on IUCV functions. Along with the TASK virtual machine, AVS virtual machine, and VTAM, APPC/VM provides this communication within a single system, throughout a collection of systems, and throughout an SNA network.

AFP. See Advanced Function Printing.

AFPDS. See Advanced Function Printing Data Stream.

agent. (1) In systems management, a user that, for a particular interaction, has assumed an agent role. (2) An entity that represents one or more managed objects by (a) emitting notifications regarding the objects and (b) handling requests from managers for management operations to modify or query the objects. (3) A system that assumes an agent role. (4) Software that acts on behalf of a user as it performs tasks within an application program. An agent may run on both the client and the server. (5) In CRR sync point processing, the role of the CRR sync point manager (SPM) when sync point requests are received from an initiator that is a partner in a protected conversation. (6) A task for a file pool server. The SFS file pool server and the CRR recovery server provide support for multitasking several agents.

agent role. In systems management, a role assumed by a user in which the user is capable of performing management operations on managed objects and of emitting notifications on behalf of managed objects.

AL. ANSI-labeled tape without user-label processing.

ALE. See host access-list entry.

ALET. See access-list-entry token.

alias. (1) A pointer to a file pool base file. An alias refers to the data in the base file; creating an alias does not move or duplicate data. An alias does not need to be in the same directory as the base file, but there must always be a base file for the alias to point to in the same file pool. See also base file, erased alias, revoked alias, and unresolved

alias. (2) In an internet, a name assigned to a server that makes the server independent of the name of its host machine. The alias must be defined in the domain name server.

allocation tree. A conceptual structure showing the nodes that are allocating protected conversations within a CRR coordinated transaction.

alphanumeric. A character set that contains letters, digits, and usually other characters, such as punctuation marks.

alternate console. A console assigned as a backup unit to the system console.

alternate path support. The selection of a path to a device from any of the available paths, even though the primary path is busy. The selection is made in response to an I/O request for a device.

American National Standards Institute (ANSI). An organization consisting of producers, consumers, and general interest groups, that establishes the procedures by which accredited organizations create and maintain voluntary industry standards in the United States. (A)

AMS. See access method services.

anchor block. An area in user storage that contains space for 16 anchor slots. It also includes space for the register save area used by the CMS Anchor facility. The anchor block storage persists after an abend occurs.

anchor identifier. A 3-character identifier that uniquely identifies the application program when using the ANCHOR macro to set, query, or clear an anchor word. The anchor identifier must be assigned by IBM.

anchor slot. The area in the anchor block in which an anchor identifier and anchor word are saved.

anchor word. An area of storage in which an application program with critical performance needs can save the address of its data. This avoids the overhead of obtaining dynamic storage each time the program is invoked. The anchor word persists between calls to the program and persists after an abend occurs.

ANSI. See American National Standards Institute.

APAR. See authorized program analysis report.

APAR number. The number that IBM assigns to an APAR and to the change resulting from it.

API. See application programming interface.

APPC. See advanced program-to-program communication.

APPC/VM. See Advanced Program-to-Program Communication/VM.

APPC/VM VTAM Support (AVS). A component of z/VM that lets application programs using APPC/VM or CPI Communications communicate with programs anywhere in an SNA network. AVS transforms APPC/VM into APPC/VTAM protocol.

APPC link. A logical TSAF link that is physically controlled by VTAM and is established using the TSAF VTAM line driver.

application program. (1) A program written for or by a user that applies to the user's work, such as a program that does inventory control or payroll. (2) A program used to connect and communicate with stations in a network, enabling users to perform application-oriented activities.

application programming interface (API). A software interface that enables applications to communicate with each other. An API is the set of programming language constructs or statements that can be coded in an application program to obtain the specific functions and services provided by an underlying operating system or service program.

APPLIED. (1) A status condition for a product listed in the system-level apply status table, which indicates that the product has passed requisite checking and that the auxiliary control file structure has been created. See also system-level apply status table. (2) A status condition for a PTF listed in the service-level apply status table for a product, which indicates that the PTF has passed requisite checking and that the auxiliary control file structure has been created. See also service-level apply status table.

apply. In the installation or service of a product, to generate an auxiliary control file structure from a PTF. Also known as *apply processing*.

apply disk. In VMSES/E, a minidisk or file pool directory containing the files that describe the maintenance levels: apply status table, auxiliary control files, version vector tables, select data file, and build status table.

apply ID. A 1-character to 8-character alphanumeric identifier that is used to name the software inventory files created during apply processing. The user can change this value to define different maintenance levels.

apply list. A file listing PTFs applied to a product or component.

apply message log. The file in which the VMFAPPLY command writes status and error messages during apply processing.

apply status table. A software inventory table that indicates the apply status of all products on the system (system-level apply status table) or all PTFs for a product (service-level apply status table). See also system-level apply status table and service-level apply status table.

apply string. In VMSES/E, the set of apply disks.

AR. See access register.

architected segment. A 1MB portion of real storage defined by ESA/390, ESA/XC, and z/Architecture.

area. A term acceptable for DASD space when there is no need to differentiate between space on CKD devices and FBA devices. See DASD space.

AR mode. See access-register mode.

ASCII (American National Standard Code for Information Interchange). The standard code, using a coded character set consisting of 7-bit coded characters (8 bits including parity check), that is used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters. (A)

ASIT. See address-space-identification token.

assembler language. A source language that includes symbolic machine language statements in which there is a one-to-one correspondence with instruction formats and data formats of the computer.

asynchronous communication. A method of communication in a conversation that lets a program issue functions on other conversations while waiting for a particular function to complete. See also synchronous communication.

atomic request. A file pool command or program function (CSL routine) that completes execution immediately and does not affect work in other resources (such as other file pools) on the work unit. Any file pool updates caused by an atomic request are committed (or rolled back) when the file pool server finishes processing the request. Atomic requests cannot be issued to a file pool that has uncommitted work for the specified (or default) work unit.

attachment interface. The logical interconnection and interaction between or to software programs that enable the programs to function together.

attention interruption. An I/O interruption caused by a terminal user pressing the attention key (or equivalent). See also signaling attention.

attention key. A function key on terminals that, when pressed, causes an I/O interruption in the processing unit.

attention symbol. On printing terminals under CP, the character that indicates each time the attention key is pressed. This is always the exclamation point (!) character.

ATTN key. See attention key.

A-type address constant. In assembler language, an address constant used for branching within a module or for getting data.

AUL. ANSI labeled tape with user label processing.

authority. In a file pool server, the permission to access a file or directory. A user can have read authority or write authority (which includes read authority). A user can also have file pool administration authority, which is the highest level of authority in a file pool. See [authorization](#).

authorization. (1) In computer security, the right granted to a user to communicate with or make use of a computer system. (T) (2) An access right. See [authority](#). (3) The process of granting a user either complete or restricted access to an object, resource, or function.

authorized application. A GCS application, started with the OSRUN command, that operates in supervisor state and can use privileged functions. See also [ordinary application](#).

authorized program. See [privileged program](#).

authorized program analysis report (APAR). An official request to IBM to look into a suspected problem with IBM code or documentation. The APAR describes the problem, giving conditions of failure, error messages, abend codes, or other identifiers. It also contains a problem summary and resolution when applicable. See also [program temporary fix](#).

authorized user ID. In GCS, a user ID that provides access to the GCS supervisor, supervisor state, and (at times) certain restricted CP commands. This access is provided by including the user ID on a list of authorized user IDs compiled with the GCS GROUP command. The virtual machine associated with an authorized user ID is an *authorized* machine, and programs running in that machine are *authorized* applications.

authorized virtual machine. A GCS virtual machine associated with an authorized user ID.

automatic calling unit (ACU). A dialing device that permits a computer to automatically dial calls over a network.

automatic logon. A process by which a user's virtual machine is initiated by other than the user of that virtual machine. For example, the primary z/VM system operator's virtual machine is activated automatically during z/VM initialization. A privileged user can enter the AUTOLOG or XAUTOLOG command to start some other (disconnected) virtual machine.

| **automatic software re-IPL.** The process by which the control program attempts to restart the system after an
| abnormal termination. This process does not involve the hardware IPL process.

AUX file. See [auxiliary control file](#).

auxiliary control file (AUX file). A file that contains a list of the file types of source update files applied to a particular source file or to control the service level used during build. Also known as an *auxiliary file*. See also [control file](#) and [preferred auxiliary file](#).

auxiliary directory. An extension of the CMS minidisk file directory, which contains the names and locations of certain CMS modules not included in the CMS minidisk file directory.

auxiliary file. See [auxiliary control file](#).

auxiliary storage. Data storage other than main storage, usually a DASD.

AVS. See [APPC/VM VTAM Support](#).

AVS virtual machine. The virtual machine that manages a gateway that allows APPC communication between z/VM systems and an SNA network.

B

backout. The action taken by CRR for an application program to reverse the updates made to protected resources during a transaction (CRR logical unit of work). See [rollback](#).

base disk. In VMSES/E, a minidisk or file pool directory containing the original product files as shipped on the product tape.

base file. The first occurrence of a file in a file pool. It remains the base for the life of the file, even if the file has been renamed. Aliases point to base files.

base file type. In VMSES/E, the file type used for a serviceable part when there is no service. The PTF number in the file type is set to "00000". For example, EXC00000 is the base file type for an exec.

base string. In VMSES/E, the set of base disks.

basic conversation. An LU 6.2 conversation type specified by the allocating transaction program. Transaction programs using basic conversation have available to them a wider variety of LU 6.2 functions, but they are responsible for more of their own error recovery and must manage details of the data stream used on the conversation. See also mapped conversation.

basic mode. A central processor complex (CPC) mode that does not use logical partitioning. See also logically partitioned mode.

basic sequential access method (BSAM). An access method for storing or getting data blocks in a continuous sequence (using either a sequential access or direct access device).

batch. (1) An accumulation of data to be processed. (2) A group of records or data processing jobs brought together for processing or transmission. (3) Pertaining to activity involving little or no user action. See also interactive.

BFS. See byte file system.

BFS directory. A group of BFS files. BFS directories can be arranged to form a hierarchy in which one directory can contain one or more subdirectories as well as files.

BFS file. A file that resides in a byte file system. A POSIX file. See also character special file and FIFO special file.

binary synchronous communication (BSC). A form of telecommunication line control that uses a standard set of transmission control characters and control character sequences for binary synchronous transmission of binary-coded data between stations. Synchronization of characters is controlled by timing signals generated at the sending and receiving stations.

binding file. See language binding file.

bit. Either of the digits 0 or 1 when used in the binary numeration system. (T)

bits per inch (bpi). A measurement of data density, for example on a tape.

Blat. A denial-of-service attack in which the TCP/IP stack is flooded with SYN packets that have spoofed source IP addresses and port numbers that match the destination IP addresses and port numbers. The Blat attack also has the URG flag turned on in the TCP header and has the ability to incrementally spoof the source IP address. Blat is a version of the Land attack. See also Land.

block. (1) A unit of DASD space on FBA devices. (2) A string of data elements recorded or transmitted as a unit. The elements may be characters, words, or physical records. (T) (3) The unit of storage on a CMS minidisk. The block size is determined when the minidisk is formatted. (4) In the shared file system, a unit of storage consisting of 4K bytes. (5) In CMS Multitasking, to stop the execution of a thread until a function has been completed or a condition is satisfied.

blocked file. A file in which each data block may contain one or more records. If a file is unblocked, each data block contains only one record.

block extent. A continuous space on a direct access storage volume that does not have to be stored contiguously with a block (4096) of pages.

blocking. A way of requesting a service over an interface so that if the request cannot be completed immediately, the requesting process is suspended until the request is completed. See also nonblocking.

block multiplexer channel. A multiplexer channel that interleaves blocks of data. See also byte multiplexer channel and selector channel.

bootstrap program. A technique or device that brings itself into a desired state by its own action. For example, a machine routine whose first few instructions are sufficient to bring the rest of itself into the computer from an input device.

border. In CMS, the boundary around a window. The corners of the border are indicated by the plus (+) sign. The user can enter 1-letter border commands in the border corners to control the window's movement and characteristics.

box. In CP, to shut off all communication with an I/O device because CP has identified a serious problem with the device, for example, exceeding the hot I/O rate.

bpi. See bits per inch.

Bpi. See bytes per inch.

breakpoint. A place in a program, specified by a command or a condition, where the system halts execution and gives control to the workstation user or to a specified user. See also instruction address stop.

break tree processing. In CRR, the process of breaking off other parts of a sync point tree to ensure that a unique LUWID is used by each sync point tree after a protected conversation abnormally ends.

broadcast. (1) Transmission of the same data to all destinations. (T) (2) Simultaneous transmission of data to more than one destination. (3) See also multicast.

broadcast message. Information that can be sent by the system operator to all terminal users that are enabled to receive messages. The three major classes of messages are: (1) log (LOGMSG) messages automatically displayed at the user's terminal when the user logs on, (2) optional lower priority log messages, and (3) informational warning messages that alert users to some imminent event or action.

BSAM. See basic sequential access method.

BSC. See binary synchronous communication.

buffer. (1) A routine or storage used to compensate for a difference in rate of flow of data, or time of occurrence of events, when transferring data from one device to another. (A) (2) To allocate and schedule the use of buffers. (A) (3) A portion of storage used to hold input or output data temporarily. (4) See also forms control buffer, spool file block, and terminal input buffer.

build. In the installation and service of a product, to do the necessary steps to produce executable code or systems. Also known as the *build process*.

BUILDALL. A status condition for an object listed in the service-level build status table for a product, which indicates the user requested the object to be built with the ALL option on the VMFBLD command, and the object still needs to be built. See also service-level build status table.

build disk. In VMSES/E, a minidisk or file pool directory where executable versions of objects serviced are built.

build ID. A 1-character to 8-character alphanumeric identifier that is used to name the software inventory files created during build processing. The user can change this value to define different maintenance levels.

build list. An exec that names the serviceable parts included in an object being built, and parameters and options used to build the object.

build message log. The file in which the VMFBLD command writes status and error messages during build processing.

build requisites. An object that is needed to build another object. For example, when one object is built using another object, the latter is a build requisite of the former. Also, if an object's build requisite is serviced, the object must be rebuilt after its build requisite is built.

build status table. A software inventory table that indicates the build status of all products on the system (system-level build status table) or all objects that have been serviced for a product (service-level build status table). See also system-level build status table and service-level build status table.

build string. In VMSES/E, the set of build disks.

build-time requisites. One or more products that must be installed before a certain product can run correctly.

BUILT. (1) A status condition for a product listed in the system-level build status table, which indicates that the usable or executable form of the product has been created. See also system-level build status table. (2) A status condition for an object listed in the service-level build status table for a product, which indicates that the usable or executable form of the object has been created. See also service-level build status table.

built-in function. A specialized function, invoked by a keyword, that has been built into the system program code because it is commonly required by many users.

built-in stage. A stage supplied by CMS Pipelines. See also user-written stage.

button. (1) A mechanism on a pointing device, such as a mouse, used to request or initiate an action or a process. (2) A graphical device that identifies a choice. (3) A graphical mechanism that, when selected, performs a visible action. For example, when a user clicks on a list button, a list of choices appears. (4) See also push button and radio button.

byte. A unit of storage, consisting of eight adjacent binary digits (0 or 1) that are operated on as a unit and constitute the smallest addressable unit in the system.

byte file system (BFS). A file system in which a file consists of an ordered sequence of bytes rather than records. BFS files can be organized into hierarchical directories. Byte file systems are enrolled as file spaces in CMS file pools.

byte multiplexer channel. A multiplexer channel that interleaves bytes of data. See also block multiplexer channel and selector channel.

bytes per inch (Bpi). A measurement of data density, for example on a tape.

C

cache. (1) A special-purpose buffer storage, smaller and faster than main storage, used to hold a copy of instructions and data obtained from main storage and likely to be needed next by the processor. (T) (2) A buffer storage that contains frequently accessed instructions and data; it is used to reduce access time. (3) An optional part of the directory database in network nodes where frequently used directory information may be stored to speed directory searches. (4) To place, hide, or store in a cache.

cache fast-write. A DASD function where data is written directly to cache without using nonvolatile storage and the data is available for later destaging. This function should be used for data of a temporary nature, or data that is readily repeated.

callable services library (CSL). A package of CMS routines that can be stored as an entity and made available to a high-level language, REXX, or an assembler program.

card. (1) An electronic circuit board that is plugged into a slot in a system unit. (2) A plug-in circuit assembly. (3) See also adapter.

cascaded agent. In CRR, an agent whose initiator is an agent of another initiator. In this role, an agent is responsible for responding to sync point requests from its cascaded initiator.

cascaded initiator. In CRR, an agent that has protected conversations with cascaded agents. The cascaded initiator takes the role of initiator in relation to its agents and is responsible for propagating sync point requests to its cascaded agents.

cascading. The connecting of network controllers to each other in a succession of levels, to concentrate many more lines than a single level permits.

catalog storage group. The storage group in a file pool that contains information about the objects (such as files and directories) and authorizations that exist in the file pool. See also file pool catalog and storage group.

CAW. See channel address word.

CC. See condition code.

CCS. See console communication services.

CCW. See channel command word.

central processing unit (CPU). The part of a computer that includes the circuits that control the interpretation and execution of instructions. A CPU is the circuitry and storage that executes instructions. Traditionally, the complete processing unit was often regarded as the CPU, whereas today the CPU is often a microchip. In either case, the centrality of a processor or processing unit depends on the configuration of the system or network in which it is used.

central processor. The part of the computer that contains the sequencing and processing facilities for instruction execution, initial program loading, and other machine operations.

central processor complex (CPC). The boundaries of a system, exclusive of I/O control units and devices, that can be controlled by a single operating system. A CPC consists of main storage, one or more central processing units, time-of-day clocks, and channels, which are or can be placed in a single configuration. A CPC also includes channel subsystems, service processors, and expanded storage (where installed).

central storage. Storage that is an integral part of the processor and includes both main storage and the hardware system area.

CETI. See Continuously Executing Transfer Interface.

CF. See coupling facility.

chain link record. In CMS, a record that contains pointers to the physical blocks currently assigned to a CMS file.

changes. In installation and service, a general term for information supplied by IBM to customers so they can change an IBM program product. See also circumventive service, corrective service, preventive service, and program temporary fix.

channel (CHN). (1) A path along which signals can be sent, for example an input/output channel. (2) The system element that controls one channel path, whose mode of operation depends on the type of hardware to which it is attached.

channel address word (CAW). An area in storage that specifies the location in main storage at which a channel program begins.

channel-attached. (1) Pertaining to the attachment of devices directly by input/output channels to a host processor. (2) Pertaining to devices attached to a controlling unit by cables, rather than by telecommunication lines. See also link-attached.

channel command word (CCW). A doubleword at the location in main storage specified by the channel address word. One or more CCWs make up the channel program that directs data channel operations.

channel path (CHP). A single interface between a central processor and one or more control units along which signals and data can be sent to perform I/O requests.

channel path identifier (CHPID). In a channel subsystem, a value assigned to each installed channel path of the system that uniquely identifies that path to the system.

channel program. One or more channel command words (CCWs) that direct the operation of a data channel.

channel status word (CSW). An area in storage that provides information about the termination of I/O operations.

channel subsystem (CSS). A collection of subchannels that directs the flow of information between I/O devices and main storage, relieves the processor of communication tasks, and performs path management functions.

channel-to-channel (CTC). Refers to the communication (transfer of data) between programs on opposite sides of a channel-to-channel adapter (CTCA).

channel-to-channel adapter (CTCA). An input/output device that is used by a program in one system to communicate with a program in another system.

character delete symbol. See logical character delete symbol.

character special file. A special BFS file that provides access to an input or output device. The only character special file supported by OpenExtensions™ is the terminal device file.

check box. A square box with associated text that represents a choice. When a user selects the choice, an "X" or checkmark appears in the check box to indicate that the choice is selected. The user can clear the check box by selecting the choice again, thereby canceling the selection.

checkpoint. An internal file pool server operation during which the changes recorded on the log minidisks are permanently made to the file pool.

checkpoint (CKPT) start. A z/VM system restart that attempts to recover information about closed spool files previously stored on the checkpoint cylinders. The spool file chains are reconstructed, but the original sequence of spool files is lost. Unlike warm start, CP accounting and system message information are also lost. See also [clean start](#), [cold start](#), [force start](#), and [warm start](#).

CHN. See [channel](#).

choice. Text or graphics that a user can select. Examples of choices are push buttons, radio buttons, and menu items.

CHP. See [channel path](#).

CHPID. See [channel path identifier](#).

ciphertext. Text that has been encrypted and therefore is unintelligible.

circumventive service. Information that IBM supplies over the telephone or on a tape to circumvent a problem by disabling a failing function until a PTF is available as a corrective service fix. See also [patch](#) and [zap](#).

CKD. See [count-key-data](#).

CKPT start. See [checkpoint start](#).

class. (1) A common definition from which a group of objects can be created. All objects in a given class share common characteristics, operations, and behavior. The class also defines what pieces of data its objects can hold. (2) See also [privilege class](#).

class A. The IBM-defined CP privilege class that corresponds to a system operator. See also [privilege class](#) and [system operator](#).

class Any. The IBM-defined CP privilege class that identifies commands available to any user, regardless of the user's privilege class. These commands are primarily those used to gain access to, or relinquish access from, the z/VM system. See also [privilege class](#).

class authority. See [privilege class](#).

class B. The IBM-defined CP privilege class that corresponds to a system resource operator. See also [privilege class](#) and [system resource operator](#).

class C. The IBM-defined CP privilege class that corresponds to a system programmer. See also [privilege class](#) and [system programmer](#).

class D. The IBM-defined CP privilege class that corresponds to a spooling operator. See also [privilege class](#) and [spooling operator](#).

class E. The IBM-defined CP privilege class that corresponds to a system analyst. See also [privilege class](#) and [system analyst](#).

class F. The IBM-defined CP privilege class that corresponds to an IBM service representative. See also [privilege class](#) and [service representative](#).

class G. The IBM-defined CP privilege class that corresponds to a general user. See also [general user](#) and [privilege class](#).

class hierarchy. A collection of classes organized to indicate the other classes from which they have inherited various attributes.

class override file. A file containing control statements that define changes in the privilege classes of CP functions. The override program uses this file to establish a new CP class structure under user class restructure (UCR).

clean start. A z/VM system restart in which CP purges all spool files, system data files, accounting records, error recording records, symptom records, and the system log message. See also [checkpoint start](#), [cold start](#), [force start](#), and [warm start](#).

CLI. See [command line interface](#).

click. To press and release a button on a pointing device without moving the pointer from the object or choice.

client. A computer system or process that requests a service of another computer system or process that is typically referred to as a server. Multiple clients can share access to a common server. See also [server](#).

client/server. In communications, the model of interaction in distributed data processing in which a program at one site sends a request to a program at another site and awaits a response. The requesting program is called a client; the answering program is called a server.

clipboard. An area of storage provided by the system to hold data temporarily.

clock comparator. A hardware feature (required by z/VM) that causes an interruption when the time-of-day (TOD) clock has equaled or exceeded the value specified by a program or virtual machine.

CLP. See [current line pointer](#).

CMR. See [conversation management routine](#).

CMS. See [Conversational Monitor System](#).

CMS/DOS. A CMS environment that simulates many Disk Operating System/Virtual Storage Extended (DOS/VSE) functions, allowing users to use the interactive facilities of CMS to develop and test VSE programs. The CMS/DOS environment is activated by entering the CMS command SET DOS ON. See also [Virtual Storage Extended](#).

CMS/DOS phase library. See [DOSLIB library](#).

CMS batch facility. A facility that allows a user to run time-consuming or noninteractive CMS jobs in another CMS virtual machine dedicated to that purpose, which frees the user's own terminal and virtual machine for other work.

CMSDOS. The standard name of the CMS/DOS saved segment, which contains DOS simulation code used by VSE application programs. See also [CMS minidisk](#).

CMS editor. A CMS facility that allows a user to create, change, insert, delete, or rearrange lines of data in a CMS file. See also [edit mode](#), [input mode](#), and [XEDIT](#).

CMS exec. A CMS file with a file type of EXEC that contains a procedure consisting of one or more executable statements. The statements can be CMS or CP commands or execution control statements, such as REXX statements. The procedure is invoked by entering a command, which is the file name of the file.

CMS EXEC language. A general-purpose high-level programming language, particularly suitable for CMS execs and EDIT macros.

CMS EXEC processor. The CMS facility that interprets and executes CMS execs and EDIT macros written in the CMS EXEC language.

CMS file. A fixed-block formatted file used by the CMS file system. Each CMS file has an identifier consisting of a file name, a file type, and a directory name or file mode.

CMS file system. The architecture, organization, and processing of files in CMS. CMS files are unique to the CMS system and cannot be read or written using other operating systems. CMS files are stored in file pool directories or on minidisks. VSAM and OS data sets and DOS files are not compatible with the CMS file format and cannot be manipulated using CMS file system commands.

CMS-formatted disk. See [CMS minidisk](#).

CMS loader work file. The CMS file loaded into storage by the LOAD command.

CMS minidisk. A minidisk formatted specifically for use with the CMS file system. It does not contain a volume table of contents (VTOC) and is incompatible with OS-formatted and DOS-formatted disks. OS and DOS access methods cannot be directly used with CMS-formatted disks.

CMS minidisk file directory. A directory on each CMS minidisk that contains data such as the name, format, size, and location of each CMS file on that disk. When a minidisk is accessed, its directory is read into virtual storage and identified with a file mode letter (A through Z). See also [auxiliary directory](#) and [file status table](#).

CMS nucleus. The portion of CMS that is resident in a user's virtual storage whenever CMS is executing. Each CMS user receives a copy of the CMS nucleus when the user initially loads (IPLs) CMS. See also named saved system and shared segment.

CMS Pipelines. The CMS facility that provides functions for creating and processing pipelines.

CMS program. See CMS exec.

CMS search order. The order of file modes that CMS searches when looking for a file. The order of search (when all file modes are being searched) is alphabetic, A through Z.

CMS system disk. The minidisk that contains the CMS nucleus and the disk-resident CMS commands. It is located at virtual address 190 and accessed by users as file mode S. The CMS system disk can also have an extension, usually accessed as file mode Y.

CMS system file. A file residing on the CMS system disk instead of on a user's disk or in a user's file space.

CMS user disk. A minidisk containing files that can be accessed by a user. If the user has read/write access to a disk, the user can create programs and data files on the disk. Files are retained until the user deletes them. The user can also link to and access other users' disks, usually on a read-only basis.

CNTRL file. See control file.

cold start. A z/VM system restart that ignores previous data areas and accounting information in main storage, and the contents of paging and spool files on CP-owned disks. See also checkpoint start, clean start, force start, and warm start.

collection. A group of interconnected z/VM systems that use either the Inter-System Facility for Communications (ISFC) or the Transparent Services Access Facility (TSAF) to communicate with each other. See also Communication Services collection and TSAF collection.

command. A request from a user to z/VM to perform a particular operation. A CMS command can also be the name of a CMS file with a file type of EXEC or MODULE, in which a sequence of operations are defined. See also subcommand and user-written CMS command.

command abbreviation. A valid short form of the command name, operand, or option that is not a truncation of the word. For example, MSG is an abbreviation for the MESSAGE command, and RDR is an abbreviation for the READER operand. See also truncation.

command line. The line on a display panel where a user can enter commands or panel selections. It is prefixed by an arrow (====>).

command line interface. A type of computer interface in which the input command is a string of text characters. See also graphical user interface.

command privilege class. See privilege class.

command scan. In CMS, a routine that scans the command line entered and converts it to a standard CMS parameter list. See also parameter list.

commit. (1) In a CMS file pool, to permanently change a resource, such as a file. (2) In CRR, to make permanent changes to protected resources during a transaction (CRR logical unit of work). CRR commits changes made by an application program or transaction program.

commit level. In CMS Pipelines, an indication of the progress of a stage. The commit level determines when a stage is dispatched relative to other stages and is used to report to other stages that an error has been detected.

COMMITTED. A status condition for a PTF listed in the service-level receive status table for a product, which indicates that the PTF contains obsolete parts that may be discarded (not received by the VMFREC command from a future tape). See also service-level receive status table.

common dump receiver. In a virtual machine group, one user ID that is appointed to receive other group members' storage dumps. Unless the user specifies otherwise, all dumped information automatically goes to this user ID (identified with the GCS GROUP command). It should be a user ID authorized to receive fetch-protected data and storage with a key other than 14. See also virtual machine group.

common lock. A doubleword in storage, controlled by the GCS LOCKWD macro. When a program is using common storage, it can turn the common lock ON. Other programs that examine the lock and find it ON cannot gain access to common storage.

Common Programming Interface (CPI). Provides languages, commands, and calls that allow the development of applications that are more easily integrated and moved across environments supported by Systems Application Architecture (SAA). z/VM supports the communications and resource recovery elements of the CPI. See also Common Programming Interface for Communications and SAA Resource Recovery Interface.

Common Programming Interface for Communications (CPI-C). An evolving application programming interface (API), embracing functions to meet the growing demands from different application environments and to achieve openness as an industry standard for communications programming. CPI-C provides access to interprogram services such as (a) sending and receiving data, (b) synchronizing processing between programs, and (c) notifying a partner of errors in the communication.

Common Programming Interface for Resource Recovery. See *SAA Resource Recovery Interface*.

common storage. A shared segment of reentrant code that contains free storage space, the GCS supervisor, control blocks, and data that all members of a virtual machine group share. See also high common storage.

Common User Access[®] (CUA[®]) architecture. IBM guidelines for the dialog between a human and a workstation or terminal.

communication adapter. (1) A circuit card with associated software that enables a processor, controller, or other device to be connected to a network. (2) A mechanism that enables communication facilities to be attached to host processors. (3) A program or a part of a program that handles communication with other programs. See also SFS communication adapter.

communication controller. A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit. It manages the details of line control and the routing of data through a network.

communication link. See data link.

communication scanner. A communication controller that provides the connection between lines and the central control unit. The communication scanner monitors telecommunication lines and data links for service requests.

communications directory. A CMS facility that allows APPC/VM applications to connect to a resource using symbolic destination names and special NAMES files.

communication server. A virtual machine that provides APPC/VM services between systems within a TSAF collection and allows for communication between an APPC/VM environment and an SNA-defined network. TSAF and AVS are communication servers. See also intermediate communication server.

Communication Services (CS) collection. A group of interconnected domains made up of z/VM systems that use the Inter-System Communication Facility (ISFC) to communicate with other z/VM systems.

communications partner. The virtual machine at either end of a local APPC/VM path, not necessarily the target of the communications.

compare states. In CRR, the function of conveying the state of the CRR logical unit of work to a participating resource manager, and conveying the state of the protected resource's logical unit of work, including heuristic actions, back to the CRR recovery server.

compile. To translate all or part of a program expressed in a high-level language into a computer program expressed in an intermediate language, an assembly language, or a machine language. (T)

component. A collection of objects that together form a separate functional unit. A product may contain many components. For example, CP, CMS, and TSAF are components of z/VM.

component override. See component parameter override.

component override area. An area of the product parameter file or product parameter override file that contains one or more component parameter overrides.

component parameter override. A component parameter, defined in a component override area, that updates or replaces a component parameter defined in a component area of the product parameter file.

concurrent. A mode of operation in which work is performed on two or more activities within a short interval of time.

condition code (CC). A code that reflects the result of a previous I/O, arithmetic, or logical operation.

condition variable. In an application using CMS multitasking services, a variable whose value indicates a state of a mutex-protected shared resource. This state, or condition, is defined by the application. It can be waited on and signaled as being true.

configuration mode. A hardware state that allows you to dynamically change your I/O configuration without requiring a system outage (POR or IPL).

configuration token. A 64-byte token used to synchronize the hardware's view of the I/O configuration with the software's view of the I/O configuration.

connect. To establish a path to communicate with another virtual machine or with the user's own virtual machine.

connected. In CMS Pipelines, pertaining to a stream that is attached to a stream from another stage, so that data can flow from one stage to another. If streams are not connected, then data cannot flow from one stage to another.

connectivity program request block (CPRB). An interface control block that requesters and servers use to communicate information.

connector. In CMS Pipelines, a symbol that connects the input or output stream of a stage to the beginning or end of a pipeline specified on a CALLPIPE or ADDPIPE pipeline subcommand called by the stage. The minimal connector is an asterisk and a colon (*:).

console. A logical device used for communication between the user and the system. See also alternate console, hardware management console, integrated 3270 console, system operator console, and virtual console.

console communication services (CCS). A group of CP modules that interface with the VTAM service machine, providing full z/VM console capabilities for SNA terminal users.

console function. A subset of CP commands that simulates for a virtual machine user almost all of the functions available to an operator at a system operator console.

console spooling. See virtual console spooling.

console stack. Refers collectively to the program stack and the terminal input buffer.

contention. A situation where two LUs try to allocate a conversation over the same session at the same time.

context editing. A method of editing a file without using line numbers. To refer to or change a particular line or a group of lines, all or part of the contents of that line are specified.

Continuously Executing Transfer Interface (CETI). An interface that uses continuously executing channel programs to transfer messages between two systems, or between an application and a control unit.

control. Under Common User Access (CUA) architecture, a visual user-interface component that allows a user to interact with data. Controls are usually identified by text. For example, headings, labels in push buttons, field prompts, and titles in windows are controls.

control block. A storage area used by a computer program to hold control information.

control data. In a file pool, the data that controls the DASD space and objects within the file pool. Control data consists of the POOLDEF file, the control minidisk, and all minidisks allocated to storage group 1.

control file. (1) A CMS file that is interpreted and directs the flow of a certain process through specific steps. For example, the control file could contain installation steps, default addresses, or PTF prerequisite lists. (2) In service, a file with file type CNTRL that contains records that identify the updates to be applied and the macro libraries, if any, needed to assemble that source program. See also auxiliary control file.

controller. A device that coordinates and controls the operation of one or more input/output devices, such as workstations, and synchronizes the operation of such devices with the operation of the system as a whole.

control minidisk. In a file pool, the minidisk that tracks the physical DASD blocks allocated to the file pool.

control program. A computer program that schedules and supervises the program execution in a computer system. See also [Control Program](#).

Control Program (CP). A component of z/VM that manages the resources of a single computer so that multiple computing systems appear to exist. Each apparent system, or virtual machine, is the functional equivalent of the real computer, and CP simulates the real machine architecture in the virtual machine. See also [virtual machine](#).

control register. A register used for operating system control of relocation, priority interruption, program event recording, error recovery, and masking operations.

control section (CSECT). The part of a program specified by the programmer to be a relocatable unit, all elements of which are loaded into adjoining main storage locations.

control statement. A statement that controls or affects program execution in a data processing system.

control terminal. Any terminal currently controlling system resources and used by the system operator (privilege class A), the resource operator (privilege class B) or the spooling operator (privilege class D).

control unit (CU). A hardware unit that controls the reading, writing, or displaying of data at one or more I/O units.

control unit terminal (CUT) mode. An IBM protocol used for communication between a control unit or other appropriate interface unit and a workstation. In this protocol, a program in the workstation emulates a terminal for the user in a single logical terminal session. See also [distributed function terminal](#).

conversation. A logical connection between two transaction programs using an LU 6.2 session. Conversations are delimited by brackets to gain exclusive use of a session.

Conversational Monitor System (CMS). A component of z/VM that runs in a virtual machine and provides both the interactive z/VM end-user interface and the general z/VM application programming interface. CMS runs only under the control of the z/VM Control Program (CP).

conversation characteristics. The attributes of a conversation that determine the functions and capabilities of the programs within the conversation.

conversation correlator. A value that identifies an APPC conversation and is unique at the LU that generates it. The conversation correlator is established when the APPC conversation is established.

conversation management routine (CMR). A routine that resides in the GCS load library and controls the routing of inbound connections through AVS to available service pool virtual machines.

conversation partner. One of the two programs involved in a conversation.

conversation state. See [program state](#).

Coordinated Resource Recovery (CRR). A CMS facility that implements the LU 6.2 sync point architecture, which ensures that transactions can update multiple protected resources with integrity. This means that all updates within the transaction are either completed (committed) or not completed (rolled back or backed out). CRR consists of the coordination function (also known as *synchronization point processing*), the resynchronization function, and the logging function. The coordination function resides in the application program's virtual machine. The resynchronization and logging functions reside in the CRR recovery server. See also [synchronization point processing](#) and [resynchronization](#).

coordinated transaction. See [logical unit of work](#) and [logical unit of work identifier](#).

coordinated update. See [logical unit of work](#) and [logical unit of work identifier](#).

copy file. A file with a file type of COPY that contains nonexecutable real storage definitions that are referred to by macros and assemble files.

copy function. The function initiated by a PF key to copy the contents of a display screen onto an associated hardcopy printer. A remote display terminal copies the entire contents of the screen onto a printer attached to the same control unit. A local display terminal copies all information from the screen, except the screen status information, onto any printer attached to any local display control unit.

COR. See corrective service tape.

corequisite. A PTF that must be applied at the same time as another PTF. A corequisite change corrects a problem that requires changes to one or more elements of a product or component. No specific order is required for applying corequisite PTFs. See also hard requisite and if-requisite.

corrective service. Service that IBM supplies on tape to correct a specific problem. See also preventive service.

corrective service tape (COR). A tape, supplied by IBM at the user's request, containing a fix for a specific problem and any requisites for the fix.

count-key-data (CKD). A DASD data storage architecture in which the data is stored in variable-length records. Each record contains a count field, usually followed by a key field, followed by the actual data of the record. The count field contains the cylinder number, head number, record number, and the length of the data. The key field contains the record's key (search argument).

coupling facility (CF). A special logical partition that provides high-speed caching, list processing, and locking functions in a Parallel Sysplex.

CP. See Control Program.

CP-accessed disk. Any CMS-formatted minidisk that is available to CP.

CPC. See central processor complex.

CP directory. See VM directory.

CPI. See Common Programming Interface.

CPI-C. See Common Programming Interface for Communications.

CPI Communications. See Common Programming Interface for Communications.

CPI Resource Recovery. See SAA Resource Recovery Interface.

CPI-RR. See SAA Resource Recovery Interface.

CP-owned disk. Any disk formatted by the CP Format/Allocate program and designated as system-owned during system generation; for example, the CP system residence volume, or any disk that contains CP paging, spooling, saved systems, or temporary disk space.

CP privilege class. See privilege class.

CPRB. See connectivity program request block.

CP read. The state that exists when CP is waiting for a response or request for work from the user. On a typewriter terminal, the keyboard is unlocked; on a display terminal, the screen status area indicates CP READ.

CP READ. On a display terminal used as a virtual console under z/VM, a screen status that indicates CP is waiting for a response or request for work from the user. See also screen status area.

CP system disks. Any disk space that CP uses, other than the CP paging, spooling, and temporary disk space; for example, minidisks.

CP trace table. A table that z/VM uses for debugging. Its size is a multiple of 4096 bytes and depends on the size of real storage or a user-specified value. This table contains the chronological occurrences of events that take place in the real machine, recorded in a wraparound fashion within the trace table.

CPU. See central processing unit.

CPU timer. A hardware feature that measures elapsed processor time and causes an interruption when a previously specified amount of time has elapsed. The CPU timer is decremented when the processor is executing instructions, is in a WAIT state, and is executing program loading instructions, but not when the processor is in a stopped state.

CPXLOAD directives. Instructions used before CPXLOAD commands or configuration file statements that dictate how CP will load customer-written CP routines.

critical section. In CMS Multitasking, a block of code that manipulates a shared resource, such as a data structure or device.

cross system extensions (CSE). A CP facility that allows users in up to four interconnected VM systems to participate in a multisystem environment, as though all participating systems were one complex.

cross system extensions exclusion list. A list of user IDs excluded from the cross system extensions environment.

cross system extensions protected volume. A cross system extensions DASD volume not participating in the cross system extensions environment.

cross system link. A cross system extensions facility that extends CP link protocols across the cross system extensions complex.

cross system spool. A cross system extensions facility that extends CP spooling capabilities across the cross system extensions complex.

CRR. Coordinated Resource Recovery.

CRR recovery server. A virtual machine that provides the CRR logging and resynchronization functions. A processor can have only one CRR recovery server.

cryptography. A method of protecting data in computer and communication systems from unauthorized disclosure and modification. It involves the process of transforming plaintext into ciphertext (encipherment) and the reverse process of transforming ciphertext into plaintext (decipherment). See also [encryption](#) and [decryption](#).

CS collection. See [Communication Services collection](#).

CSE. See [cross system extensions](#).

CSECT. See [control section](#).

CSL. See [callable services library](#).

CSL routine. An assembler program that resides in a CSL and can be invoked from a high-level language, REXX, or an assembler program to do a specific function.

CSS. See [channel subsystem](#).

CSW. See [channel status word](#).

CTC. See [channel-to-channel](#).

CTCA. See [channel-to-channel adapter](#).

CU. See [control unit](#).

CUA. See [Common User Access architecture](#).

current directory. See [working directory](#).

current line pointer (CLP). A pointer that indicates the line of a CMS file on which the CMS editor is currently working.

cursor. A visible indication of the position where user interaction with the keyboard will appear. The keyboard cursors are the selection cursor and the text cursor.

customer-written CP routine. A routine written by a customer to modify a CP function. A file containing customer-written CP routines can be loaded into CP's virtual storage using a CPXLOAD command or configuration file statement.

CUT. See control unit terminal mode.

cylinder. (1) In an assembly of magnetic disks, the set of all tracks that can be accessed by all the magnetic heads of a comb in a given position. (2) The tracks of a disk storage device that can be accessed without repositioning the access mechanism.

D

DAC. (1) See data access component. (2) See discretionary access control.

daemon. A program that runs unattended to perform a standard service. Some daemons are triggered automatically to perform their task, while others operate periodically.

DASD. See direct access storage device.

DASD Dump Restore (DDR) program. A service program that copies all or part of a minidisk onto tape, loads the contents of a tape onto a minidisk, or sends data from a DASD or from tape to the virtual printer.

DASD space. Area allocated to DASD units on CKD devices or FBA devices. DASD space is synonymous with *cylinder* when there is no need to differentiate between CKD and FBA devices. See also cylinder.

DAT. See dynamic address translation.

data access component (DAC). The part of a file pool server machine that handles the manipulation of the data in the file pool. See also single access control.

data area. A location in virtual storage used by CP and CMS for communication between components and program modules. A data area contains only data; it does not contain executable code.

data control block (DCB). A storage area that contains information that defines the characteristics of the data in a file and describes the I/O device requirements for handling the data.

datagram. See IP datagram.

data link. The equipment and rules (protocols) used for sending and receiving data. See also link.

data space. Informal term for an additional address space created by CP at the request of a program running in an XC virtual machine. This term is usually used to refer to these additional address spaces because they can contain data (operands of instructions) but instructions cannot be executed from within them.

data stream. (1) All information (data and control commands) sent over a data link, usually in a single read or write operation. (2) A continuous stream of data elements being transmitted, or intended for transmission, in character or binary-digit form, using a defined format.

DBCS. See double-byte character set.

DCB. See data control block.

DCSS. See discontiguous saved segment.

DDP. See distributed data processing.

DDR. See DASD Dump Restore program.

decipherment. In computer security, the process of transforming ciphertext into plaintext. See also decryption.

decryption. In computer security, the process of transforming encoded text or ciphertext into plaintext.

dedicated channel. A channel attached to a virtual machine, for its sole use, so that CP can bypass translating the addresses of virtual devices.

dedicated device. An I/O device or line that is not being shared among users, but has been permanently assigned to a particular virtual machine by a z/VM directory entry, or has been temporarily attached by the resource operator to the user's virtual machine.

dedicated maintenance mode. In a file pool server machine, a processing mode in which the server has exclusive use of the file pool, and the file pool is unavailable to other users. See also multiple user mode.

default file attributes. Values assumed by the CMS editor based on certain reserved CMS file types. These values include record type (fixed-length or variable-length), record length, tab setting, uppercase or lowercase setting, record sequence numbering, verification mode, truncation column, and other related record characteristics.

default operand. An operand that has a preset value if a value is not specified.

DELETE. (1) A status condition for a product listed in the system-level receive status table, system-level apply status table, or system-level build status table, which indicates that a request for removal of the product from the system is pending. See also system-level receive status table, system-level apply status table, and system-level build status table. (2) A status condition for an object listed in the service-level build status table for a product, which indicates that the object has been removed from the build list for the product, and the corresponding object must be deleted. See also service-level build status table.

DELETED. (1) A status condition for a product listed in the system-level receive status table, system-level apply status table, or system-level build status table, which indicates that the product has been removed from the system. See also system-level receive status table, system-level apply status table, and system-level build status table. (2) A status condition for an object listed in the service-level build status table for a product, which indicates that the object has been removed from the product. See also service-level build status table.

delimited string. In CMS Pipelines, a character string beginning and ending with a delimiter. See also null string.

delimiter. (1) A character used to indicate the beginning and end of a character string. (T) (2) A flag that separates and organizes items of data. (A) (3) A character that groups or separates words or values in a line of input.

delta disk. In VMSES/E, a minidisk or file pool directory containing control files used for servicing. The control files can include apply lists, exclude lists, PTF parts lists, auxiliary control files, update files, and text files.

delta string. In VMSES/E, the set of delta disks.

denial-of-service (DoS) attack. In an internet, a malicious attempt to consume all the bandwidth or computational server resources at the expense of the useful traffic. Common types of DoS attacks have been given colorful names, such as Blat and Kiss-of-Death.

dependent PTF. A PTF that has another PTF as a prerequisite or corequisite.

dependent requisite. A product that must be installed before another product can be installed correctly. Unlike prerequisites, dependent requisites are no longer satisfied when the requisite product is superseded. This occurs when a product requires a specific level of another product and newer levels of the product will not meet the requirements.

derived file. A CMS file created by the build process from selected versions of objects. Some derived files can be provided by IBM on a program update tape (PUT), or the customer installation can create them.

description table. The software inventory table that contains the descriptions of the products that have been received on the system (system-level description table) or contains the abstract information for an APAR that has been received on the system (service-level description table). See also system-level description table and service-level description table.

destage. The asynchronous writing of new or updated data from cache or nonvolatile storage to DASD. This method of writing data is used only for the fast-write function of the 3990 Model 3 Storage Control.

device. A mechanical, electrical, or electronic contrivance with a specific purpose. See also channel-to-channel adapter, dedicated device, direct access storage device, display device, spooling device, terminal, unit record device, and virtual device.

device address. See I/O address.

device block. A storage area used by a computer program to hold device information.

device driver. (1) A file that contains the code needed to use an attached device. (2) A program that enables a computer to communicate with a specific peripheral device, such as a printer or a CD-ROM drive. (3) A collection of subroutines that control the interface between I/O device adapters and the processor. (4) In CMS Pipelines, a stage that reads data from or writes data to I/O and storage devices, host environments (including CP, CMS, and XEDIT), and REXX and EXEC 2 variables. See also [filter](#).

device identifier. In a channel subsystem, an address, not apparent to the program, that is used to communicate with I/O devices.

device-level addressing. In an ESCON I/O interface, the level of addressing that identifies an I/O device to the channel or control unit once the control unit has been determined through link-level addressing. See also [link-level addressing](#).

device number. In a channel subsystem, one to four hexadecimal digits that uniquely identify an I/O device.

Device Support Facilities (ICKDSF). A program that provides utilities for installing and maintaining IBM DASD and Storage Subsystems so they can be accessed by IBM and user programs.

DFT. See [distributed function terminal](#).

DIAGNOSE interface. A programming mechanism that lets any virtual machine, including CMS, directly communicate with CP by way of the DIAGNOSE instruction. Specific interface codes let a virtual machine more efficiently request specific CP services.

DIRCONTROL directory. See [directory control directory](#).

direct access storage device (DASD). A mass storage medium in which the data access time is effectively independent of the data location.

directory. (1) In a hierarchical file system, a container for files or other directories. See also [BFS directory](#), [path name](#), [root directory](#), [SFS directory](#), and [working directory](#). (2) See [CMS minidisk file directory](#). (3) See [VM directory](#).

directory control directory. A type of SFS directory with the functional characteristics of a minidisk. A single access authority applies to the directory and all files in the directory. When the directory is accessed in read-only mode, changes are not visible until the directory is released and reaccessed.. When the directory is accessed in read/write mode, changes become available as they are made. Also see [file control directory](#).

directory entry. (1) A set of statements in the VM user directory that describe the configuration and operating characteristics of a virtual machine. (2) An object that associates a file name with a file. Several directory entries can associate names with the same file. (3) See [link](#).

directory identifier (dirid). The identification of an SFS directory in a command: the fully qualified directory name (in which the file pool ID and user ID can be allowed to default), or the file mode letter of the accessed directory, or a plus (+) or minus (-) designation indicating a directory down or up the directory structure from the specified file mode.

Directory Maintenance Facility (DirMaint™). An optional feature of z/VM that provides interactive facilities for maintaining the system directory for one or more z/VM systems.

directory name. A 1-character to 16-character alphanumeric name for an SFS directory. Two or more SFS directories may have the same name if each has a different parent directory. See also [fully qualified directory name](#).

dirid. See [directory identifier](#).

DirMaint. See [Directory Maintenance Facility](#).

dirname. See [fully qualified directory name](#).

disable. (1) To make nonfunctional. (2) In SFS, to lock a file space or storage group.

disconnect mode. The mode of operation in which a virtual machine is executing without a physical line or terminal connected as an operator console. Under the single console image facility (SCIF), a user can be disconnected from a primary virtual console but still have console communications through the console of the secondary user.

discontiguous saved segment (DCSS). A saved segment that begins and ends on a megabyte boundary and is not a segment space or a member of a segment space. A DCSS may contain logical saved segments. See also [segment space](#).

discretionary access control (DAC). A method of restricting access to data objects based upon authorizations granted to users or groups of users. Discretionary access control protects all system objects from unauthorized access. Usually, authorization to access an object is granted by its owner. Occasionally, it can be granted by someone else, such as a privileged administrator. See also [mandatory access control](#).

disk. A simulated magnetic disk unit in a user's CMS virtual machine configuration. See also [minidisk](#) and [virtual disk](#).

disk operating system (DOS). An operating system for computer systems that use disks and diskettes for auxiliary storage of programs and data.

Disk Operating System/Virtual Storage Extended (DOS/VSE). See [Virtual Storage Extended](#).

dispatch. To allocate time on a processor to jobs or tasks that are ready for execution.

dispatch/scheduler favoring scheme. A set of criteria that the dispatcher and scheduler use to create a bias in favor of queue 1 (Q1) users. Q1 users are usually highly interactive users.

dispatcher. The program in CP that places virtual machines or CP tasks into execution. The dispatcher selects the next virtual machine to run and prepares the virtual machine for problem state execution.

dispatching. (1) The starting of virtual machine execution. (2) In CMS Multitasking, to give each thread a turn at running on a processor.

dispatching class. In CMS Multitasking, a set of threads with two properties:

- No thread in the class is ever preempted by another in the same class unless the first thread voluntarily ceases execution.
- No two threads in a class are ever processed in parallel.

However, any thread can be preempted by or processed in parallel with any thread in a different class.

dispatch list. The list of virtual machines currently contending for real processor time. The virtual machines in the dispatch list can be in two states: dispatchable or nondispatchable. A dispatchable virtual machine is one that is ready to use a real processor. A nondispatchable virtual machine is one that is not ready to use a real processor because it is waiting for a resource or the completion of an activity. See also [eligible list](#).

dispatch request queue. A queue of executable CP tasks, I/O tasks, and timer requests ready to be dispatched.

display device. An output device that gives a visual representation of data.

display mode. See [full-screen mode](#).

display terminal. A terminal with a component that can display information on a viewing surface such as a screen or gas panel.

distributed data processing (DDP). Data processing in which processing, storage, and control functions, in addition to I/O operations, are distributed among remote locations and connected by transmission facilities.

distributed function terminal (DFT). (1) A protocol used for communication between a terminal and an IBM control unit that allows multiple concurrent logical terminal sessions. (2) A mode of operation that uses this protocol. (3) See also [control unit terminal mode](#).

distributed logical operator. A virtual machine at the distributed system to which machine intervention requests are sent. A machine attendant mounts forms and tapes and turns the power ON or OFF for that site.

distributed processing. (1) Processing that takes place across two or more linked systems. (2) A transaction that involves more than one node to complete its processing. A node might be a z/VM virtual machine in the same processor or a different processor, or it might be an LU partner in a non-VM system (for example, MVS). Using a file pool server is an example of distributed processing (a user machine and a server machine cooperating), and the file pool is an example of a distributed resource.

distributed resource. A resource that is accessed by users on two or more systems. See also distributed processing.

distribution code. In the z/VM user directory, a 1-character to 8-character identification word printed or punched with the user ID in the separator page (or punched card) to further identify the location or department of the user.

DMSPARMS file. A CMS file with a file type of DMSPARMS that contains the start-up parameters used by file pool servers: BFS, CRR, FIFO, or SFS.

domain. (1) That part of a computer network in which the data processing resources are under common control. (T) (2) In a database, all the possible values of an attribute or a data element. (3) The set of all possible communications partners. Each domain has a different set of possible partners, although they may overlap.

domain controller. A communications server that manages communications within a domain and between domains. See also VM domain controller.

domination rule. The rule that defines when one security label dominates another:

1. The security level of the first label is greater than or equal to the security level of the second label.
2. All the security categories of the second label are found among those of the first label.

dormant state. A state in which the active pages of a virtual machine have been paged out.

DoS. See denial-of-service attack.

DOS. See disk operating system.

DOS/VSE. See Virtual Storage Extended.

DOSLIB library. A CMS library that contains the executable phases produced by the DOS Linkage Editor under CMS. These phases are equivalent to, but not usable in the DOS/VS core image library. These phases can be fetched and executed only under CMS/DOS. Also known as the *CMS/DOS phase library*.

DOS simulation under CMS. See CMS/DOS.

dot. A path name component consisting of a single dot character (.), which refers to the directory specified by the preceding path name component.

dot-dot. A path name component consisting of two dot characters (..), which refers to the parent directory of the preceding path name component. As a special case, in the root directory, dot-dot refers to the root directory itself.

double-byte character set (DBCS). A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by the 256 code points provided by EBCDIC, require double-byte character sets. Because each character requires 2 bytes, the typing, display, and printing of DBCS characters requires hardware and programs that support DBCS.

double-density DASD volume. A DASD volume with twice the standard number of cylinders for its device type. See also single-density DASD volume and triple-density DASD volume.

double key protection. The association of each 2KB block of real storage with two storage protect keys. Two keys are needed to protect a 4KB frame.

doubleword. A contiguous sequence of bits or characters that comprises two computer words and is capable of being addressed as a unit. (A)

download. The act of transferring files from a host system to a workstation. See also upload.

DPA. See dynamic paging area.

drain. (1) For spooling devices, to bring spooling operations on a real device to a halt after the current spool file is processed. (2) For DASD, to halt I/O operations on a real device after the current I/O operations are completed.

dump. (1) To record, at a particular instant, the contents of all or part of one storage device in another storage device. Dumping is usually for the purpose of debugging. (T) (2) Data that has been dumped. (T) (3) To copy data in a readable format from main or auxiliary storage onto an external medium such as tape, diskette, or printer. (4) To copy

the contents of all or part of virtual storage for the purpose of collecting error information. (5) To write the contents of part or all of main storage, or part or all of a minidisk, to auxiliary storage or to a printer. (6) See also [abend dump](#) and [DASD Dump Restore program](#).

Dump Viewing Facility. A component of z/VM that can interactively diagnose system problems. Using this facility, a user can display, format, and print data interactively from virtual machine dumps, as well as display and format recorded trace data. Analysis of CP stand-alone dumps, CP ABEND dumps, and virtual machine dumps of a CP system, functions formerly performed by the Dump Viewing Facility, are now performed by the VM Dump Tool. See also [VM Dump Tool](#).

duplex pair. A logical volume comprised of two physical devices with all data recorded twice, once on each device. A 3990 Model 3 Storage Control automatically ensures that both devices are updated with each write operation to the dual copy volume.

duplex protocol. A communication protocol in which data can be sent and received at the same time. See also [half-duplex protocol](#).

dynamic. (1) In programming languages, pertaining to properties that can be established only during the execution of a program; for example, the length of a variable-length data object is dynamic. (1) (2) Pertaining to an operation that occurs at the time it is needed rather than at a predetermined or fixed time. (3) Pertaining to events occurring at run time or during processing. (4) See also [static](#).

dynamic address translation (DAT). The change of a virtual storage address to a real storage address during execution of an instruction.

dynamically modified channel program. A channel program changed by the program or by data being read in from a channel during the interval between the execution of the START I/O (SIO) instruction and the channel end interruption.

dynamic configuration. The process of configuring or reconfiguring a Communication Services (CS) collection or TSAF collection when a VM system enters or leaves the collection after a link goes up or down within the collection.

dynamic I/O commands. A group of CP commands that can change the I/O configuration without requiring a power-on reset (POR) of the hardware or an initial program load (IPL).

dynamic I/O configuration. In z/VM, the ability to change the I/O configuration without requiring a power-on reset (POR) of the hardware or an initial program load (IPL). Also known as *dynamic I/O reconfiguration*.

| **dynamic paging area (DPA).** An area of real storage that CP uses for virtual machine pages.

E

early warning system (EWS). An information system for getting information about programming problems to the field. The information includes:

- Programming symptom index (PSI)
- APAR list
- Programming symptom index text
- Miscellaneous program support information such as PTF application charts, PTF-to-APAR cross-reference list, and so forth.

EBCDIC. See [extended binary-coded decimal interchange code](#).

EC. See [engineering change](#).

ECB. See [event control block](#).

ECC. See [error checking and correction](#).

ECKD. See [extended count-key-data](#).

EDF. See [enhanced disk format architecture](#).

edit. An interactive function that makes changes, additions, or deletions to a file on a disk. The edit function can also generate information in a file that did not previously exist.

EDIT macro. (1) A procedure defined by a frequently used command sequence to do a commonly required editing function. A user creates the macro to save repetitious reentering of the sequence, and invokes the entire procedure by entering a command (that is, the file name of the macro file). The procedure can consist of a long sequence of edit, CMS, and CP commands, along with exec control statements to control processing within the procedure. (2) A CMS file whose file name starts with a dollar sign (\$) character and whose file type is EXEC.

edit mode. The CMS editor environment in which a user can enter editor subcommands to insert, change, delete, or rearrange the contents of a CMS file. See also input mode.

effective GID. The current POSIX group ID (GID), but not necessarily the group to which the user's login ID belongs (real GID). For example, if a logged-in user changes to another GID, the GID to which the user changes becomes the effective GID until the user changes back to the original GID. See also real GID and saved set-GID.

effective UID. (1) The current POSIX user ID (UID), but not necessarily equivalent to the user's login ID (real UID). For example, if a logged-in user changes to another UID, the UID to which the user changes becomes the effective UID until the user changes back to the original UID. See also real UID and saved set-UID. (2) An attribute of a process that is used in determining various permissions, including file access permissions. This value is subject to change during the process lifetime. (P1)

eligible list. The list of virtual machines waiting to move into the dispatch list. The virtual machines in the eligible list are assigned to one of four transactions classes, depending on whether they are to wait in the eligible list at all (E0 virtual machines do not wait in the eligible list for resources to become available) or on the expected length of their transactions (E1 for short transactions, E2 for medium-length transactions, and E3 for long-running transactions). FIFO queuing is used within the eligible list when eligibility priorities are equal. See also dispatch list.

ELN. See exchange log names.

emulation. The use of a data processing system to imitate another data processing system such that the imitating system accepts the same data, executes the same programs, and achieves the same results as the imitated system.

Emulation Program (EP). An IBM control program that allows a channel-attached IBM communication controller to emulate the functions of an IBM 2701 Data Adapter Unit, an IBM 2702 Transmission Control, or an IBM 2703 Transmission Control.

enable. (1) To make functional. (2) A deprecated term for removing a lock from an object in the CMS Shared File System, in particular from a file space or storage group.

encipherment. In computer security, the process of transforming plaintext into ciphertext. See also encryption.

encryption. In computer security, the process of transforming data into an unintelligible form in such a way that the original data either cannot be obtained or can be obtained only by using a decryption process.

end of file (EOF). (1) A coded character recorded on a data medium to indicate the end of the medium. (2) In CMS Pipelines, a condition in which no data can flow through a stream because the stream has been severed.

end-of-tape marker (EOT). A marker on a magnetic tape used to indicate the end of the permissible recording area; for example, a photo reflective strip or a transparent section of tape.

end-of-transmission character (EOT). A transmission control character used to indicate the conclusion of a transmission that may have included one or more texts and associated message headings.

end of volume (EOV). The logical end of a physical tape volume.

engineering change (EC). A change to a hardware device, either to the physical device or to the microcode.

enhanced disk format (EDF) architecture. A system of allocating DASD space, in which portions of DASD space are allocated to users as minidisks.

Enterprise Systems Architecture/Extended Configuration (ESA/XC). An IBM virtual machine architecture in which DAT-off programs, such as CMS and CMS applications, can create and access additional address spaces called data spaces. These additional address spaces can also be shared with programs running in other virtual machines. CP provides ESA/XC in an XC mode virtual machine.

| **Enterprise Systems Architecture/390® (ESA/390).** An IBM mainframe computer and operating system architecture. It provides both 24-bit and 31-bit addressing modes. See also [z/Architecture](#).

Enterprise Systems Connection (ESCON®). A set of IBM products and services that provides a dynamically connected environment using optical cables as a transmission medium.

entry field. An area into which a user can place text.

entry point. The address or label of the first instruction executed on entering a computer program, routine, or subroutine. A computer program, routine, or subroutine may have a number of different entry points, each perhaps corresponding to a different function or purpose. (I) (A)

envelope. In VMSES/E, an electronically-delivered container for RSU or COR service files.

Environmental Record Editing and Printing Program (EREP). A program that makes the data contained in the system recorder file available for further analysis.

EOF. See [end of file](#).

EOT. (1) See [end-of-tape marker](#). (2) See [end-of-transmission character](#).

EOV. See [end of volume](#).

EP. See [emulation program](#).

erased alias. An alias that no longer points to a base file because the base file was erased.

EREP. See [Environmental Record Editing and Printing Program](#).

EREP file. A collection of error records produced by the malfunctioning of hardware components on a computer and stored for processing by the EREP program.

ERROR. (1) A status condition for a product listed in the system-level build status table, which indicates that an error occurred while the product was being processed. See also [system-level build status table](#). (2) A qualifier on a status condition for an object listed in the service-level build status table for a product, which indicates that an error was detected by the build part handler when the object was processed. **ERROR** remains in effect until the object is successfully processed. See also [service-level build status table](#).

error checking and correction (ECC). In a processing unit, the detection and correction of all single-bit errors, plus the detection of double-bit and some multiple-bit errors.

error recording area. The DASD space that the system programmer defines during system generation that CP uses to record formatted outboard error recordings, machine check records, and channel check records. For CKD devices, this area is between 2 and 9 contiguous cylinders in size; for FBA devices, the size of this area can be any number of contiguous pages.

ESA/XC. See [Enterprise Systems Architecture/Extended Configuration](#).

| **ESA/390.** See [Enterprise Systems Architecture](#).

ESA virtual machine. A virtual machine that simulates ESA/390 functions. If a 64-bit CP image is running on a z/Architecture server, an ESA virtual machine can simulate either ESA/390 or z/Architecture, as determined by the program that is loaded into the virtual machine.

escape symbol. See [logical escape symbol](#).

escape to CP. Under z/VM, a transfer of control to CP when either the terminal user or the machine stops virtual machine operation. This can occur by entering a CP command (such as #CP), by invoking a DIAGNOSE function, or by signaling attention. See also [attention interruption](#), [DIAGNOSE interface](#), and [signaling attention](#).

ESCD. See [ESCON Director](#).

ESCM. See [ESCON Manager](#).

ESCON. See [Enterprise Systems Connection](#).

ESCON channel. A channel having a channel-to-control-unit I/O interface that uses optical cables as a transmission medium. See also [parallel channel](#).

ESCON Director (ESCD). A device that provides connectivity capability and control for attaching any two links to each other in an ESCON environment.

ESCON Manager (ESCM). An IBM licensed program that provides host control and intersystem communication capability for ESCON Director operations.

ESM. See [external security manager](#).

Ethernet. A 10-Mbps baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and delayed retransmission.

event. (1) An occurrence of significance to a task; for example, the completion of an asynchronous operation, such as an input/output operation. (2) In CMS Multitasking, an occurrence defined to be an event by CMS or an application. Such defined events can be monitored and signaled by CMS and by processes using CMS multitasking services. See also [system event](#).

event control block (ECB). A control block used to represent the status of an event.

event name. In applications using CMS multitasking services, a character string of arbitrary length and composition that is the primary identifier of an event.

event signal. In applications using CMS multitasking services, a signal that originates with CMS or an application to indicate that an event has occurred. The signal consists of the event name and additional data to be matched against keys specified by processes that want to monitor the event.

EWS. See [early warning system](#).

exabyte. 2**60 bytes.

exchange log names. In CRR, an exchange of log data (log names, LU names, and TPN) for validating levels of log data between the CRR recovery server and participating resource managers, or between the CRR recovery server on one processor and another CRR recovery server on another processor.

exclude list. A file listing PTFs to be omitted from a product or component.

exclusive access. A minidisk access mode that means the user holding the exclusive access has stable access with the added restriction that no other user has or can get access to the specified minidisk until the access is released. See [stable access](#).

exclusive segment. A range of pages within a saved system, member saved segment, or discontinuous saved segment that can be accessed by only one virtual machine at a time.

exec. A file containing a procedure that consists of one or more executable statements. The statements can be commands or execution control statements, such as REXX statements. The procedure is invoked by entering a command, which is the file name of the file. See also [CMS exec](#), [executable file](#), [executable program](#), and [GCS exec](#).

EXEC procedure. See [CMS exec](#).

executable file. A file that contains one or more programs or commands that perform operations or actions to be taken. See also [exec](#) and [executable program](#).

executable phase library. See [DOSLIB library](#).

executable program. (1) A program that has been link-edited and can therefore be run in a processor. (2) The set of machine language instructions that constitute the output from the compilation of a source program. (3) A program that can be executed as a self-contained procedure. It consists of a main program and, optionally, one or more subprograms. (4) A shell script. (5) See also [exec](#) and [executable file](#).

executable statement. In an EXEC procedure, EDIT macro, or XEDIT macro, any statement processed by the REXX Interpreter, the EXEC 2 processor, or the CMS EXEC processor. This can be an execution control statement or assignment statement, a CMS or CP command line, or a null line.

EXEC 2 exec. See EXEC 2 program.

EXEC 2 language. A general-purpose high-level programming language, particularly suitable for EXEC procedures and XEDIT macros.

EXEC 2 processor. A program in z/VM that interprets and executes procedures, EDIT macros, and XEDIT macros written in the EXEC 2 language.

EXEC 2 program. An EXEC procedure, EDIT macro, or XEDIT macro written in the EXEC 2 language and processed by the EXEC 2 processor.

exit. (1) To execute an instruction within a section of a computer program (for example, within a loop, subroutine, or module) in order to terminate the execution of that section. (2) A documented z/VM programming interface that permits modification of the z/VM system or gives temporary control to an application program. See also installation-wide exit and user exit.

expanded storage. Optional integrated high-speed processor storage that can be shared by CP and one or more virtual machines. It can also be dedicated to CP or to a particular virtual machine.

explicit lock. A lock on a file or directory that a user creates by entering the CREATE LOCK command or executing the DMSCRLOC CSL routine. See also implicit lock.

extended binary-coded decimal interchange code (EBCDIC). A set of 256 characters, with each character represented by 8 bits.

extended communications. A set of program-to-program communication routines that are an extension to CPI-Communications routines. These routines *are not* part of IBM's Systems Application Architecture.

extended count-key data (ECKD™). A DASD data storage architecture specifically designed to support nonsynchronous DASD control units.

extended PLIST (untokenized parameter list). Four addresses that indicate the extended form of a command as it was entered at a terminal.

external link. A file system entry that can be used to:

- Reference data outside of BFS (data residing on a CMS minidisk or in an directory)
- Create an implicit mount point
- Contain data in an application-defined format.

external object. Within a file pool, an object that the file pool server can refer to, but not control. An external object can be used to store a *remote name* of an entity residing outside the file pool. The external entity can be a file, but does not have to be.

external security manager (ESM). An application program not included in the z/VM base product that can be used to maintain z/VM security and integrity by identifying and verifying users and authorizing users to access protected resources.

F

favored execution performance option. A virtual machine performance option that lets an installation force the system to allocate more of its resource to a given virtual machine than would usually be the case.

FBA. See fixed-block architecture.

FCB. (1) See file control block. (2) See forms control buffer.

FCP. See Fibre Channel Protocol.

FDDI. See Fiber Distributed Data Interface.

feature. A part of an IBM product that can be ordered separately by the customer.

fence. A logical boundary that separates one or more paths or elements from the remainder of the logical DASD subsystem. This separation allows isolation of failing components so that they do not affect normal operations.

fetch protection. A storage protection feature that determines right-of-access to main storage by matching the protection key associated with a main storage fetch reference with the storage keys associated with those frames of main storage.

Fiber Distributed Data Interface (FDDI). An American National Standards Institute (ANSI) standard for a 100-Mbps LAN using optical fiber cables.

Fibre Channel Protocol (FCP). A hardware channel that allows an IBM zSeries® server to connect to Small Computer System Interface (SCSI) devices. It uses an adaptation of the queued direct I/O (QDIO) architecture.

Fibre Connection (FICON®). A fiber optic I/O architecture that coexists with and exploits ESCON equipment and infrastructure, but offers improved link performance and enhanced distance connectivity. Each FICON channel provides the equivalent of eight ESCON channels.

FICON. See [Fibre Connection](#).

field. (1) An identifiable area in a window, for example an entry field into which a user can type text, or a field of radio buttons from which a user can select one choice. (2) The smallest identifiable part of a record.

field-developed program. An IBM licensed program that does a function for the user. It can interact with IBM licensed programs, or it can be a stand-alone program.

FIFO (first-in-first-out). A queuing technique in which the next item to be retrieved is the item that has been in the queue for the longest time. (A) See also [LIFO](#).

FIFO special file. (1) A type of BFS file with the property that data written to such a file is read on a first-in-first-out basis. (2) A named permanent pipe that allows two unrelated processes to exchange information through a pipe connection. Also known as a *named pipe*.

file. (1) A named set of records stored or processed as a unit. (T) (2) Linear data that can be opened, written, read, and closed. A file can also contain information about the file, such as authorization information. (3) In OpenExtensions, an object that can be written to, or read from, or both. A file has certain attributes, including access permissions and type. See also [character special file](#), [directory](#), [FIFO special file](#), and [regular file](#). (4) The act of storing a container of data, such as a file.

file access mode. A mode that indicates whether the file can be used read-only or read/write.

file control block . A control block used by OS Simulation to contain information about an I/O device or file, such as: name, device type, format, and I/O control data.

file control directory. A type of SFS directory for which separate access authorities are granted to the directory and to the individual files in the directory. When the directory is accessed, changes to the directory become available as they are made. See also [directory control directory](#).

FILECONTROL directory. See [file control directory](#).

file definition. (1) Information that describes the contents and characteristics of a file. (2) Equating a CMS file identifier (file name, file type, file mode) with an OS data set name using the FILEDEF command, or equating a DOS file ID with a CMS file identifier using the DLBL command. (3) Identifying the input or output files used during execution of an OS simulation or DOS simulation program.

file descriptor. (1) A non-negative integer that a UNIX system uses to identify a file. A file descriptor is created by a process through issuing an **open** system call for the file name. A file descriptor ceases to exist when it is no longer held by any process. (2) In OpenExtensions, a per-process unique, nonnegative integer used to identify an open file for the purpose of file access. (3) A small positive number used to identify an open file in I/O operations. By convention, certain file descriptors are used for the same purpose by all programs.

file ID. A CMS file identifier that consists of a file name, a file type, and a file mode or directory identifier. The file ID is associated with a particular file when the file is created, defined, or renamed under CMS. See also [directory identifier](#), [file mode](#), [file name](#), and [file type](#).

file mode. (1) The third field in a CMS file ID. A CMS file mode is a 2-character field containing the file mode letter (A through Z) followed by the file mode number (0 through 6). The file mode letter indicates the minidisk or file pool directory on which the file resides. The file mode number indicates the access mode of the file. Also see [CMS search](#)

order and file mode number. (2) A 1-character CP file identifier containing the file mode letter (A through Z) of a disk that CP has accessed. (3) In OpenExtensions, an object containing the file permission bits and other characteristics of a file. (P1)

file mode extension. A file mode that is accessed as a logical extension of another file mode; for example, minidisk C can be accessed as an extension of minidisk A. In the CMS search order, an extension of a file mode is searched before the next file mode in the alphabetical order; for example, if minidisk C is accessed as an extension of minidisk A, minidisk C is searched following minidisk A but ahead of minidisk B. When a minidisk is accessed as a file mode extension, the extension is automatically read-only. Therefore, a minidisk can be accessed as an extension of itself to protect the files on it from being accidentally overwritten.

file mode number. The second character (a number 0 through 6) of a CMS file mode, which can be used to control the usage of the file. The file mode number is assigned when the file is created and can be changed by the user. File mode number 1, indicating a file used for reading and writing, is assigned by default.

file name. (1) A name assigned or declared for a file. (2) The first field in a CMS file ID. A CMS file name is a 1-character to 8-character field in which the valid characters are A through Z, a through z, 0 through 9, \$ (dollar sign), # (pound sign), @ (at sign), + (plus sign), - (hyphen), : (colon), and _ (underscore). Although lowercase alphabetic characters are valid for use within the CMS file system, some CMS commands do not support file IDs that contain lowercase letters. (3) In OpenExtensions, a name consisting of 1 to {NAME_MAX} bytes used to identify a file. The characters composing the name may be selected from the set of all character values excluding the slash character and the null character. The file names dot and dot-dot have special meanings. Also see dot, dot-dot, and path name.

file pool. A collection of minidisks managed by a file pool server. It contains user files and directories and associated control information. The files and directories for many users can be contained in a single file pool.

file pool administration machine. A virtual machine with file pool administration authority.

file pool catalog. The part of a file pool that contains information about the objects stored in the file pool and the authorizations granted on those objects. See also catalog storage group.

file pool ID. The name of a file pool. It is part of a fully qualified directory name, identifying where the directory and all files in it are located. It contains up to eight characters, followed by a colon (:).

file pool server machine. A virtual machine that is properly configured to manage a file pool. For example, its z/VM system directory entry must contain the MDISK statements for a file pool.

file space. A user's allocation of space within a file pool.

file status table (FST). A table that describes the attributes of a file on a CMS minidisk, including file name, file type, file mode, date last written, and other status information.

file system. (1) A collection of files and directories. (2) The collection of files and file management structures on a physical or logical mass storage device, such as a disk or disk partition. A single device can contain several file systems. (3) A mountable subtree of the directory hierarchy. (4) A collection of files and certain of their attributes. A file system provides a name space for file serial numbers referring to those files.

file system command. A CMS command that creates or manipulates CMS files.

file system control block (FSCB). A collection of information about a CMS file, which CMS OS simulation commands and user programs use. A file system control block is established for a file by the FILEDEF command or the FSCB macro instruction.

file type. (1) The second field of a CMS file ID. A CMS file type is a 1-character to 8-character field in which the valid characters are A through Z, a through z, 0 through 9, \$ (dollar sign), # (pound sign), @ (at sign), + (plus sign), - (hyphen), : (colon), and _ (underscore). Although lowercase alphabetic characters are valid for use within the CMS file system, some CMS commands do not support file IDs that contain lowercase letters. (2) In OpenExtensions, one of the four possible types of files: regular file, directory, character special file, and FIFO special file. See also character special file, directory, FIFO special file, and regular file. (3) See also reserved file type.

file type abbreviation (ftabbrev). The 3-character PTF abbreviation or the real CMS file type for a part that is not serviced by replacement.

file type abbreviation table. A system-level software inventory table that identifies the mapping between PTF-numbered file types and the real CMS file type. The service-level software inventory does not contain this table.

filter. In CMS Pipelines, a stage that transforms data but does not move data into or out of the pipeline. See also [device driver](#).

filter package. In CMS Pipelines, a MODULE file that contains stages.

first-in-first-out. See [FIFO](#).

first-level storage. Refers to real main storage. Contrast with *second-level storage* and *third-level storage*.

fixed-block architecture (FBA). A DASD data storage architecture in which the data is stored in fixed-length blocks. Each block is addressed by a block number relative to the beginning of the particular file.

flat file. A file that consists of a set of records ordered by record number or as sequentially entered in the file; that is, a two-dimensional file.

floating-point register. A register that can manipulate data in a floating-point representation system.

flush list. A set of pages available to replenish the free list.

force start. A z/VM system restart that attempts to recover information about closed spool files previously stored on the checkpoint cylinders. All unreadable or incorrect spool file information is ignored. See also [checkpoint start](#), [clean start](#), [cold start](#), and [warm start](#).

format program. (1) In CMS, the service program that creates 1024-byte, 2048-byte, or 4096-byte blocks on a minidisk, counts or redefines the number of cylinders on a virtual disk, or creates a DASD label for the virtual disk. (2) In CP, the service program that formats (in 4096-byte blocks), allocates, and creates DASD labels for CP-owned disks for paging, spooling, and CP system residence. (3) See also [virtual disk initialization program](#).

forms control buffer (FCB). In the 3800 Printing Subsystem, a buffer for controlling the vertical format of printed output.

forward recovery. The capability of a resource to recover all the data in the event of a media failure, including updates to the data that have been made since the last backup of the data.

Fraggle. A denial-of-service attack in which a UDP Echo request is sent to a broadcast or multicast address.

free list. A list maintained by CP that points to a set of pages that can be allocated to satisfy both virtual machine and system page requests.

free storage. Storage that has not been allocated. The blocks of central storage available for temporary use by programs or by the system.

FSCB. See [file system control block](#).

FST. See [file status table](#).

ftabbrev. See [file type abbreviation](#).

full-duplex. See [duplex protocol](#).

full-pack minidisk. A virtual disk that contains all of the addressable cylinders of a real DASD volume.

full recording mode. The mode of operation where transient processor and main storage errors that are corrected or circumvented by hardware retry or error correction code logic are then recorded on the z/VM error recording cylinders.

full-screen CMS. A CMS mode in which CMS is in a window and can take advantage of 3270-type architecture and windowing support, and various classes of output are routed to a set of default windows. Also, users can type commands anywhere on the physical screen and scroll through commands and responses previously displayed. See also [windowing](#).

full-screen editor. An editor used at a display terminal where an entire screen of data is displayed at once and where the user can access the data through commands or by using a cursor. See also [full-screen CMS](#).

full-screen mode. (1) A form of screen presentation in which the contents of an entire terminal screen can be displayed at once and in which the user can access data through commands or by using a cursor. Full-screen mode is often used for fill-in-the-blanks prompting. Also known as *display mode*. See also [line mode](#). (2) An environment in which an entire 3270 display screen is under the control of a program running in a virtual machine.

fully qualified directory name. The complete name of an SFS directory, which identifies the file pool ID, the user ID, and the parent directories.

fully qualified LU name. A name that identifies each LU in an SNA network. It consists of a network ID followed by a network LU name. See also [locally known LU name](#).

fully qualified path name. (1) A BFS path name that starts with *././VMBFS:filepoolid:filespaceid/*, in which *././VMBFS:* is a keyword string (not case sensitive). (2) An NFS path name that starts with *././NFS:foreign_host/directory_name*, in which *././NFS:* is a keyword string (not case sensitive).

G

gateway. The LU name of a VM system, CS collection, or TSAF collection that is a source for communications to an SNA-defined network or the target of communications from an SNA-defined network.

gateway manager. A virtual machine in which one or more gateways are active. AVS is a gateway manager.

GB. See [gigabyte](#).

GCS. See [Group Control System](#).

GCS exec. A GCS file with a file type of GCS that contains a procedure consisting of one or more executable statements. The statements can be GCS commands or execution control statements, such as REXX statements. The procedure is invoked by entering a command, which is the file name of the file.

GDDM. See [Graphical Data Display Manager](#).

GDDM interface for X Window System (GDDMXD). A graphical interface that formats and displays characters, graphics, and images on workstation display devices that support the X Window System.

GDDMXD. See [GDDM interface for X Window System](#).

general-purpose register (GPR). A register, usually explicitly addressable, within a set of registers that can be used for different purposes; for example, as an accumulator, index register, or special handler of data. (I) (A)

general register. In CMS, a register that does operations such as binary addition, subtraction, multiplication, and division. General registers primarily compute and modify addresses in a program.

general user. The user type that corresponds to IBM-defined CP privilege class G. A general user controls functions associated with a particular virtual machine. See also [privilege class](#).

generic file ID. A file identifier that allows the use of asterisks. The asterisk replaces any string of characters when the system is searching for a match on the rest of the file identifier.

GID. See [group ID](#).

gigabyte (GB). (1) For processor storage, real and virtual storage, and channel volume, 1 073 741 824 bytes. (2) For disk storage capacity and communications volume, 1 000 000 000 bytes.

global gateway. A gateway that programs outside a CS or TSAF collection can use to access global resources inside the collection, or that global resource manager programs can use to access resources outside a CS or TSAF collection. See also [private gateway](#) and [system gateway](#).

global resource. A resource accessible from anywhere within a CS or TSAF collection and whose identity is known throughout the collection. A shared file system file pool is an example of a global resource. See also [local resource](#), [private resource](#), and [system resource](#).

global resource manager. An application that runs in a server virtual machine and identifies itself to the CS or TSAF collection as a global resource owner using *IDENT. See also [local resource manager](#), [private resource manager](#), and [system resource manager](#).

GPR. See [general-purpose register](#).

Graphical Data Display Manager (GDDM®). An IBM licensed program that generates online graphics.

graphical user interface (GUI). A type of computer interface consisting of a visual metaphor of a real-world scene, often of a desktop. Within that scene are icons, representing actual objects, that the user can access and manipulate with a pointing device. See also [command line interface](#).

group. See [virtual machine group](#).

group box. A rectangular box drawn around a group of fields to indicate that the fields are related and to provide a label for the group.

group configuration file. A file, created by the GROUP command, that contains the blueprint for building the user's virtual machine group. The name of the file is *systemname* GROUP, where *systemname* is the name of the user's GCS saved system.

Group Control System (GCS). A component of z/VM, consisting of a named saved system that the user can IPL and run in a virtual machine. It provides simulated MVS services and unique supervisor services to help support a native SNA network.

group ID (GID). A nonnegative integer assigned to a group of related POSIX users. The GID can often be substituted in commands that take a group name as an argument. A system user is assigned a GID in the user directory; if no GID is assigned, a default value is used. When the identity of a group is associated with a process, the GID value is referred to as a real GID, an effective GID, or an (optional) saved set-GID. Also known as a *group number*. See also [effective GID](#), [real GID](#), and [saved set-GID](#).

group name. A name that uniquely identifies a group of POSIX users to the system.

group number. See [group ID](#).

guest. See [guest](#).

guest LAN. An emulated local area network (LAN) segment that can be shared by guest virtual machines on the same z/VM system. See also [Network Interface Card](#).

guest operating system. An operating system, such as Linux or z/OS®, running in a virtual machine managed by the z/VM Control Program (CP). See also [host](#).

guest real storage. The storage that appears real to the operating system running in a virtual machine. See also [guest virtual storage](#), [host real storage](#), and [host virtual storage](#).

guest virtual machine. A virtual machine in which an operating system is running.

guest virtual storage. The storage that appears virtual to the operating system running in a virtual machine. See also [guest real storage](#), [host real storage](#), and [host virtual storage](#).

GUI. See [graphical user interface](#).

H

half-duplex protocol. A communication protocol in which data can be sent in only one direction at a time. See also [duplex protocol](#).

handshaking. See [VM/VS handshaking](#).

hard link. (1) A mechanism that allows the **In** command to assign more than one name to a file. Both the new name and the file being linked must be in the same file system. (2) The relationship between two directory entries that represent the same file; the result of an execution of the **In** command or the **link()** function.

hard requisite. In VMSES/E, a prerequisite to a PTF that supplies a change required by the PTF. See also [corequisite](#) and [if-requisite](#).

Hardware Management Console. A console used to monitor and control hardware, such as zSeries servers.

hardware system area (HSA). A logical area of central storage, not addressable by application programs, used to store Licensed Internal Code and control information.

HDLC. See [high-level data link control](#).

Help. A choice that gives a user access to helpful information about objects, choices, tasks, and products. A Help choice can appear on a menu bar or as a push button.

HELP Facility. A CMS facility that provides Help information for the z/VM product. Applications and products that run on z/VM, as well as individual users, can also supply Help information to be accessed and displayed through the HELP facility.

heuristic damage. The corruption of data integrity in protected resources. In a distributed system, this occurs when all of the following conditions are true:

- Parts of a transaction are disconnected from each other before sync point processing is complete
- Commit or rollback is forced to occur at one or more locations
- At least one location made a decision different from the others.

Heuristic damage can occur only through intervention from the outside, generally to force completion of a process that is holding locks on needed data. See also [heuristic decision](#).

heuristic decision. To unilaterally force a logical unit of work to commit or roll back. When distributed protected resources become disconnected during a coordinated update, and resynchronization is unable to effect a timely resolution because one or more of the resources is not active, it may be desirable to force a commit or rollback in order to free locked resources for further processing. A heuristic decision is typically made by the system operator, but it can also be a programmed decision.

hierarchical. Relating to or arranged in a hierarchy.

hierarchy. (1) The resource types, display types, and data types that make up the organization, or levels, in a network. (2) An organization of entities, such as directories, each subordinate to the one above it. (3) See [class hierarchy](#).

high common storage. GCS common storage that resides above the 16MB line. High common storage can be used only for free storage. See also [common storage](#).

high-level data link control (HDLC). In data communication, the use of a specified series of bits to control data links in accordance with the International Standards for HDLC.

high-level language (HLL). A programming language that does not reflect the structure of any particular computer or operating system.

high private storage. GCS private storage that resides above the 16MB line. See also [private storage](#).

high-water mark. The highest contiguous address, starting from location 0, where the virtual system's real addresses equal the virtual system's virtual addresses.

HiperSockets™. (1) A hardware channel that provides high-speed TCP/IP communication between logical partitions (LPARs) on the same IBM zSeries server. It uses an adaptation of the queued direct I/O (QDIO) architecture. (2) The virtualization of the HiperSockets channel in z/VM, which provides high-speed communication between guest virtual machines. See also [Network Interface Card](#).

history files. One or more CMS files that describe the changes (with a date and time stamp) made to the z/VM system and its installed software products.

HLL. See [high-level language](#).

HOLDING. On a display terminal used as a virtual console under z/VM, a screen status that indicates the current contents of the screen will remain on the screen until the user requests that the screen be erased. This status occurs either by pressing Enter, or it is triggered by a message or warning displayed on the screen. See also screen status area.

host. (1) The z/VM Control Program (CP) in its capacity as manager of a virtual machine in which another operating system is running. See also guest. (2) In a TCP/IP network, a workstation or mainframe computer.

host access list. A CP-maintained list which defines the address spaces that are available to an XC virtual machine when it is in access-register mode. Host access lists are not directly addressable by virtual machines. CP adds and removes entries from the host access list for the virtual machine when requested through z/VM services. Within an ESA/XC context, the abbreviated term *access list* is often used as a synonym for host access list.

host access-list entry. The information in a host access list that identifies a particular address space and represents a virtual machine's capability to access it. An access-list-entry token (ALET) selects the host access-list entry to be used to access a particular storage operand. Within an ESA/XC context, the abbreviated term *access list entry (ALE)* is often used as a synonym for host access list entry.

host-primary address space. The initial address space for a virtual machine, created by CP at virtual machine logon. This is the address space from which instructions are fetched, and from which all operands are fetched and stored when in primary-space mode. For XA and ESA virtual machines, the host-primary address space represents virtual machine real storage. For XC virtual machines, the host-primary address space is one of a set of address spaces that the virtual machine may own. Within an ESA/XC context, the abbreviated term *primary address space* is often used as a synonym for host-primary address space.

host real storage. The storage that appears real to the z/VM Control Program (CP). If z/VM is running native, this is real storage; if z/VM is running in a virtual machine, this is virtual storage. See also guest real storage, guest virtual storage, and host virtual storage.

host system. A data processing system that prepares programs and the operating environments for use by another computer or controller.

host virtual storage. The storage that appears virtual to the z/VM Control Program (CP). See also guest real storage, guest virtual storage, and host real storage.

hot I/O. A serious error condition caused by an I/O interruption that disrupts system operation.

hot I/O rate. In z/VM, the maximum rate of consecutive unsolicited interrupts allowed by CP.

HSA. See hardware system area.

I

I/O. See input/output.

I/O adapter (IOA). A hardware and microcode element which, when combined with an integrated I/O processor, enables I/O devices to be attached to a processor without requiring a physical channel.

I/O address. An address provided by the channel subsystem (CSS) that consists of four parts: channel path identifier, subchannel number, device number, and device identifier. See also channel path identifier, subchannel number, device number, and device identifier.

I/O configuration. The collection of channel paths, control units, and I/O devices that attaches to the processor.

I/O configuration data set (IOCDs). The data set that contains an I/O configuration definition built by the I/O configuration program (IOCP).

I/O configuration program (IOCP). A program that defines to a system all available I/O devices and channel paths.

I/O throttling. The process of limiting or controlling the number of I/O operations that a guest operating system can initiate to a specific real device, thus preventing the guest from interfering with or dominating the I/O resources of that real device.

I/O throttling list. The list of real I/O devices whose I/O operations CP is currently limiting or controlling.

I/O throttling rate. The number of I/O operations per second that a specific real device can process from a guest operating system.

IAB. See Internet Architecture Board.

ICKDSF. See Device Support Facilities.

ICMP. See Internet Control Message Protocol.

icon. (1) A graphic symbol, displayed on a screen, that a user can point to with a device such as a mouse in order to select a particular function or software application. (T) (2) A graphical representation of an object (for example, a file or program) that consists of an image, an image background, and a label.

ID card. Under z/VM, the identification card that indicates the destination user ID of a deck of cards. These cards are read into the system card reader or into the card reader of an RSCS remote station.

IDRC. See improved data recording capability.

IEEE (Institute of Electrical and Electronics Engineers). A professional society accredited by the American National Standards Institute (ANSI) to issue standards for the electronics industry.

IEEE 802. A set of networking standards developed by the IEEE, which includes standards for local area networks (LANs), Ethernet, and token-ring networks. In general, the IEEE 802 standards define physical network interfaces such as network interface cards, bridges, routers, connectors, cables, and all the signaling and access methods associated with physical network connections.

IETF. See Internet Engineering Task Force.

if-requisite. (1) In VMSES/E at the system-level, a requisite of an optional product. (2) In VMSES/E at the service-level, an out-of-component hard requisite that must be applied to an optional product. See also hard requisite and out-of-component requisite.

IGMP. See Internet Group Management Protocol.

IIS. See initial installation system.

image library. A set of modules that define the spacing, characters, and copy modification data that a 3800 printer uses to print a spool file or that define the spacing and character set that an impact printer uses to print a spool file. See also system data file.

IML. (1) See initial machine load. (2) See initial microprogram load.

immediate command. A type of CMS command that, when entered after an attention interruption, causes program execution, tracing, or terminal display to stop. Another immediate command can be entered to resume tracing or terminal display. They are called immediate commands because they are executed when they are entered; they are not stacked in the console stack. Within an exec, immediate commands can be established or canceled by the CMS IMMCMMD command.

implicit lock. A lock automatically acquired and freed when CMS commands and program functions are issued against files or directories that reside in a file pool. Many readers and one writer can access a file or directory. See also explicit lock.

implied CP command. In CMS, a CP command invoked without preceding the command line with CP.

implied EXEC. In CMS, an EXEC procedure invoked without identifying it as such; that is, the word EXEC is not used for the invocation. Only the file name is used, as if entering a CMS command.

improved data recording capability (IDRC). A feature used on 3480 and 3490 tape devices that provides an improved data recording format.

improved spool file recovery. To recover from disk the checkpoint data that was previously recorded for closed spool files. Thus, if warm start is not possible, the z/VM system operator may attempt a checkpoint start or force start. See also checkpoint start and force start.

inactive page. A page in real storage that has not been referenced during a predetermined period.

inactive work unit. A work unit on which no requests have yet been made, or an atomic request was made, or requests were made and have been committed or rolled back; that is, an inactive work unit has no uncommitted work associated with it.

indicator. A 1-byte area of storage that contains either the character “1” to denote a true condition or the character “0” to denote a false condition.

in-doubt resource. A protected that has successfully completed the first phase of the two-phase commit and it is waiting for a decision from the initiator to either commit or roll back the changes and therefore start the second phase of the two-phase commit.

initial access. The main path CP uses when communicating between a partition and a channel path.

initial installation system (IIS). In VMSES/E, a functional subset of the z/VM system shipped on the z/VM system DDR tapes and used during installation of z/VM.

initialization. (1) The operations required for setting a device to a starting state, before the use of a data medium, or before implementation of a process. (2) Preparation of a system, device, or program for operation. (3) To set counters, switches, addresses, latches, or storage contents to zero or to other starting values at the beginning of, or at the prescribed points in, a computer program or process.

initial machine load (IML). A procedure that prepares a device for use.

initial microprogram load (IML). The action of loading a microprogram, which is a set of elementary instructions maintained in special storage that corresponds to a specific computer operation.

initial program load (IPL). (1) The initialization procedure that causes an operating system to commence operation. After the IPL of the z/VM operating system, each z/VM user must IPL the specific operating system into the virtual machine that will control the user’s work. This can be CMS or a full-function operating system such as Linux, z/OS, or z/VM itself. Each virtual machine can be loaded with a different operating system. (2) The process by which a configuration image is loaded into storage at the beginning of a work day or after a system malfunction. (3) The process of loading system programs and preparing a system to run jobs. (4) See also IPL parameter and IPL processor.

initiator. In CRR, the role of the sync point manager when the transaction program issues a sync point request that begins the coordinated updating of distributed resources.

in-memory file. In EXEC 2, a file resident in storage and similar in concept to a file on disk.

input/output (I/O). (1) Pertaining to input, output, or both. (2) Pertaining to a device, process, or channel involved in data input, data output, or both.

input area. On the z/VM logon screen, the area that contains input fields where the user can enter information such as a user ID and password, or command text.

input field. (1) In computer graphics, an unprotected field on a display surface in which data can be entered, modified, or erased. (2) A field in a display file into which a user can key in data. An input field is passed from the device to the program when the program reads the record containing that field.

input focus. The position, indicated on the screen, where a user’s interaction with the keyboard will appear.

input line. (1) On a typewriter terminal, the information entered by a user from the time the typing element of the terminal comes to rest following a carriage return until another carriage return is typed. (2) On a display terminal, the data entered into the user input area of the screen. See also user input area.

input mode. The CMS editor environment in which a user can enter new lines of data. See also edit mode.

input stream. (1) The sequence of job control statements and data submitted to an operating system through an input unit especially started for this purpose by the operator. (2) In CMS Pipelines, a stream that flows into a stage. See also output stream, primary input stream, secondary input stream, and tertiary input stream.

in-queue virtual machine. A virtual machine in the dispatch list waiting to be dispatched.

installation exit. See installation-wide exit.

installation verification procedure (IVP). A procedure distributed with a program that exercises the newly installed program and verifies that the basic facilities of the program are functioning correctly.

installation-wide exit. A documented z/VM programming interface that a system programmer can use to change or extend the functions of the z/VM system. Such modifications consist of exit routines written to replace one or more existing z/VM modules, or to add one or more modules or subroutines to z/VM, for the purpose of modifying or extending the functions of z/VM. Generally, an installation-wide exit is activated for all users on the system and is run as part of a system program. See also user exit.

installed user program (IUP). An IBM licensed program produced by or for an individual IBM system user (customer or IBM internal). This kind of program can interface with licensed programs, or it can be a stand-alone program.

install-time requisite. A product that must be installed before another product can be installed correctly.

Institute of Electrical and Electronics Engineers. See IEEE.

instruction address stop. An instruction address specified by a CP or CMS command, which, when fetched, causes the virtual machine to stop. See also breakpoint.

instruction counter. A counter that indicates the location of the next computer instruction to be interpreted.

instruction simulation wait. A virtual machine wait state, in which the virtual machine waits for the completion of instruction simulation.

integrated adapter. (1) An integral part of a processing unit that provides for direct connection of a device and uses neither a control unit nor the standard I/O interface. (2) A combination of an integrated I/O processor and an I/O adapter.

integrated I/O processor (IOP). A hardware and microcode element that enables I/O devices to be attached to a processor without requiring a physical channel.

integrated 3270 console. A 3270 console device, provided through a Hardware Management Console, that can be used as a z/VM system operator console.

intensive recording mode. A special error recording mode that can be invoked by an IBM service representative for only one I/O device at a time. On the 1st through 10th unit checks or other error conditions specified by the service representative, an I/O error record is constructed, formatted, and written to the z/VM I/O error recording cylinder, after which no more errors are recorded.

interaction. A basic unit that records system activity, consisting of acceptance of a line of terminal input, processing of the line, and a response, if any.

interactive. (1) Pertaining to a program or system that alternately accepts input and then responds. An interactive system is conversational; that is, a continuous dialog exists between user and system. See also batch. (2) Pertaining to the exchange of information between a user and a computer. (3) A classification given to a virtual machine that uses less than its allocation time slice because of terminal I/O. See also noninteractive.

interactive user. A user whose virtual machine is dispatched for the first time, or whose virtual machine had an I/O interrupt from the terminal before the previous queue had ended.

interface. (1) A shared boundary between two functional units, defined by functional characteristics, signal characteristics, or other characteristics, as appropriate. The concept includes the specification of the connection of two devices having different functions. (T) (2) Hardware, software, or both, that links systems, programs, or devices.

intermediate communication server. A virtual machine that handles communication requests to a resource manager program for a user program.

internal trace table. See CP trace table.

internet. A collection of interconnected networks that use the Internet suite of protocols. The internet that allows universal access is referred to as the Internet (with a capital "I"). An internet that provides restricted access (for example, to a particular enterprise or organization) is frequently called an intranet, whether or not it also connects to the public Internet.

Internet. The worldwide collection of interconnected networks that use the Internet suite of protocols and permit public access.

internet address. See [IP address](#).

Internet Architecture Board (IAB). The technical body that oversees (at a high level) the work of the Internet Engineering Task Force (IETF). The IAB approves the membership of the IETF.

Internet Control Message Protocol (ICMP). The protocol used to handle errors and control messages in the Internet Protocol (IP) layer of TCP/IP. Reports of problems and incorrect datagram destinations are returned to the original datagram source.

Internet drafts. Proposals, techniques, and mechanisms that document the Internet Engineering Task Force (IETF) work in progress and that define protocols and their characteristics in an internet. After the drafts are approved, they become Requests for Comments (RFCs).

Internet Engineering Task Force (IETF). The task force of the Internet Architecture Board (IAB) that is responsible for solving the short-term engineering needs of the Internet. The IETF consists of numerous working groups, each focused on a particular problem. Internet standards are typically developed or reviewed by individual working groups before they can become standards.

Internet Group Management Protocol (IGMP). The protocol used by Internet Protocol (IP) hosts to report their host group memberships to multicast routers.

Internet Protocol (IP). In the Internet suite of protocols, a connectionless protocol that routes data through a network or interconnected networks and acts as an intermediary between the higher protocol layers and the physical network.

Internet router. A device that forwards and routes IP datagrams from one network to another. Routers allow hosts on different networks to communicate with each other.

Internet suite of protocols. A set of protocols developed for use on the Internet and published as Requests for Comments (RFCs) through the Internet Engineering Task Force (IETF).

interprocess communication (IPC). In CMS Multitasking, the exchange of information between processes or threads through messages placed on queues maintained by the kernel.

interrupt. (1) A suspension of a process, such as execution of a computer program caused by an external event, and performed in such a way that the process can be resumed. (A) (2) To stop a process in such a way that it can be resumed.

Inter-System Facility for Communications (ISFC) . A function of CP that provides communication services between transaction programs on interconnected z/VM systems. A group of interconnected domains consisting of z/VM systems that use ISFC to communicate with each other is known as a Communication Services (CS) collection. CP acts as the domain controller for all of the users who are defined in the directory of that system and authorized to use APPC/VM communications.

inter-user communication vehicle (IUCV). A CP interface for passing data between virtual machines or between CP and a virtual machine.

intranet. A private network that integrates Internet standards and applications (such as Web browsers) with an organization's existing computer networking infrastructure.

invoke. To start a command, procedure, or program.

IOA. See [I/O adapter](#).

IOCDS. See [I/O configuration data set](#).

IOCP. See [I/O configuration program](#).

IOP. See [integrated I/O processor](#).

IP. See [Internet Protocol](#).

IP address. The unique 32-bit number that specifies the location of each device or workstation in a TCP/IP network. It is often represented in “dotted-decimal” format; for example, 9.130.57.21 is an IP address.

IPC. See interprocess communication.

IP datagram. In the Internet suite of protocols, the fundamental unit of information transmitted through an internet. It contains source and destination addresses, user data, and control information such as the length of the datagram, the header checksum, and flags indicating whether the datagram can be or has been fragmented.

IPL. See initial program load.

IPL parameter. An option for an initial program load passed to CP through the stand-alone loader.

IPL processor. In an MP system, the processor on which the control program was first initialized during system generation. Note that both the IPL and the non-IPL processors in a real MP configuration have I/O capabilities.

IPL volume. The DASD volume that is IPLed and contains a loader.

ISFC. See Inter-System Facility for Communication.

IUCV. See inter-user communication vehicle.

IUP. See installed user program.

IVP. See installation verification program.

J

JES. See Job Entry Subsystem.

JIB. In CMS/DOS, the job information block.

Job Entry Subsystem (JES). An IBM licensed program that receives jobs into the system and processes all output data produced by the jobs.

K

KB. See kilobyte.

kilobyte (KB). (1) For processor storage, real and virtual storage, and channel volume, 1024 bytes. (2) For disk storage capacity and communications volume, 1000 bytes.

Kiss-of-Death (KOD). An IGMP-based denial-of-service attack that depletes the stack’s large envelopes. See also KOX and Pimp.

KOD. See Kiss-of-Death.

KOX. An IGMP-based denial-of-service attack that depletes the stack’s large envelopes and also has source IP address spoofing. KOX is a version of the Kiss-of-Death (KOD) attack.

L

label. (1) In programming languages, a language construction naming a statement and including an identifier. (l) (2) An identifier of a command generally used for branching. (3) In CMS Pipelines, an alphanumeric string that defines how streams are connected between stages. See also label definition and label reference.

label definition. In CMS Pipelines, the first occurrence of a label in a pipeline. A label definition makes it possible to connect other pipelines to the labeled stage. See also label reference.

label reference. In CMS Pipelines, a second or subsequent occurrence of a label in a pipeline. A label reference defines an additional input and output stream for the stage on which the label is defined. See also label definition.

LAN. See local area network.

LAN broadcast. The sending of a transmission frame intended to be accepted by all other data stations on the same LAN.

Land. A denial-of-service attack in which the TCP/IP stack is flooded with SYN packets that have spoofed source IP addresses and port numbers that match the destination IP addresses and port numbers. See also [Blat](#).

language binding file. A programming language header file or assembler macro that aids in using an application programming interface. The binding file defines the entry points, declares the data types of function parameters, maps long function names to external symbols, and defines constants for return codes, reason codes, and other values.

Language Environment®. A component of z/VM that provides the run-time environment for programs written in C/C++, COBOL, or PL/I.

LAN multicast. The sending of a transmission frame intended to be accepted by a group of selected data stations on the same LAN.

last agent optimization. An optimized flow technique that is part of the LU 6.2 sync point architecture. An initiator can pick one adjacent agent as last agent. The initiator sends this agent a request commit action rather than the (normal) prepare action (only after all other agents have responded to the prepare action, thus the term last agent). This last agent is then free to select one of its cascaded agents also to be the last, and so on. This support is architected for performance reasons.

last-in-first-out. See [LIFO](#).

LCU. See [logical control unit](#).

LIC. See [Licensed Internal Code](#).

Licensed Internal Code (LIC). Software provided for use on specific IBM machines and licensed to customers under the terms of IBM's Customer Agreement. Microcode can be Licensed Internal Code and licensed as such.

LIFO (last-in-first-out). A queuing technique in which the next item to be retrieved is the item most recently placed in the queue. (A) See also [FIFO](#).

limp mode. A z/VM system participating in CRR without a CRR recovery server, which could result in some degradation in CMS performance.

line delete symbol. See [logical line delete symbol](#).

line end symbol. See [logical line end symbol](#).

line mode. A form of screen presentation in which the information is presented a line at a time in the message area of the terminal screen, equivalent to using a typewriter-like terminal. See also [full-screen mode](#).

line number. A number located at either the beginning or the end of a record (line) that can be used during editing to refer to that line. See [prompting](#).

line-number editing. A reference to new or existing lines in a CMS file by line number.

link. (1) The combination of the link connection (the transmission medium) and two link stations, one at each end of the link connection. A link connection can be shared among multiple links in a multipoint or token-ring configuration. (2) To interconnect items of data or portions of one or more computer programs: for example, the linking of object programs by a linkage editor, linking of data items by pointers. (T) (3) In RSCS, a connection, or ability to communicate, between two adjacent nodes in a network. (4) In TSAF, the physical connection between two systems. (5) In OpenExtensions, a new path name or directory entry for an existing file. The new directory entry can be in the same directory that holds the file or in a different directory. You can access the file under the old path name or the new one.

linkage editor. A computer program for creating load modules from one or more object modules or load modules by resolving cross references among the modules and, if necessary, adjusting addresses. (T)

link-attached. Pertaining to devices that are connected to a controlling unit by a data link. See also [channel-attached](#).

linking to a disk. Sharing a disk owned by another user. A user can share the disk on a temporary or permanent basis. The sharing is usually read-only and can require a password to access the data.

link-level addressing. In an ESCON I/O interface, the level of addressing that identifies the channel path between a channel and a control unit. See also device-level addressing.

list box. A control that contains a list of objects or settings choices that a user can select.

listening mode. A type of CRR participation in which the participating resource or product registers only for the postcoordination function, because the resource or product only needs to know when sync points occur and what their outcome is.

load. In installation and service, to move files from tape to disk, auxiliary storage to main storage, or minidisks to virtual storage within a virtual machine.

loadable unit. In VMSES/E, a portion of a product that can be installed independently of the rest of the product, but is serviced as part of the product.

loader. A routine, commonly a computer program, that reads data into main storage.

load map. A map containing the storage addresses of control sections and entry points of a program loaded into storage.

local. Pertaining to either of two entities (for example, a user and a server) that belong to the same system within a collection or to the same node within an SNA system. Pertaining to a device accessed directly without use of a telecommunication line. Contrast with *remote*. See *local area network (LAN)*, *local ID*, *local disk*, *local modification*, *local program*, *local resource*, *local resource manager*, *local service*, *local string*, *local tracking number*, *locally known LU name*.

local area network (LAN). A network located on a user's premises or within a limited geographical area, in which a set of devices are connected to one another for communication and that can be connected to a larger network. See also Ethernet, token ring, and wide area network.

local disk. In VMSES/E, a minidisk or file pool directory containing local service, customized files, and any circumventive service.

locally known LU name. (1) The LU name that transaction programs use to identify a communications partner in a TSAF or CS collection. (2) The LU name that transaction programs use to identify a remote LU in the SNA network. See also fully qualified LU name.

local modification. See *local service*.

local program. The conversation partner being discussed within a particular context. Contrast with *remote program*.

local resource. A resource accessible only from within a single z/VM system and whose identity is known only within a single z/VM system in the CS or TSAF collection. See also global resource, private resource, and system resource.

local resource manager. An application that runs in a virtual machine and identifies itself to the local system in the CS or TSAF collection as a local resource owner using *IDENT. See also global resource manager, private resource manager, and system resource manager.

local service. Change applied to your z/VM system that was not supplied by IBM on a COR or RSU tape. Also known as *local modification*. See also *circumventive service* and *user modification*.

local string. In VMSES/E, the set of local disks.

local tracking number. The unique identifier assigned to a local modification. The local tracking number is used in the file type of update files and in the update file identification records of auxiliary control files. Each installation has its own system of local tracking numbers.

lock. (1) The means by which integrity of data is ensured by preventing more than one user from accessing or changing the same data or object at the same time. (2) A restriction on concurrent use of a file in a directory, file space, or storage group.

See *exclusive lock*, *explicit lock*, *implicit lock*, and *share lock*. (3) To restrict concurrent use of an object.

locked page. A page that is not to be paged out.

log data. Information that a communications program can send to its partner to help diagnose errors.

logical character delete symbol. A special editing symbol, usually the at (@) sign, that causes CP to delete it and the immediately preceding character from the input line. If many delete symbols are consecutively entered, that same number of preceding characters are deleted from the input line. The value can be redefined or unassigned by the installation or the user.

logical control unit (LCU). A group of contiguous words in the hardware system area (HSA) that provides all of the information necessary to control I/O operations through a group of paths that are defined in the IOCDs. Logical control units represent to the channel subsystem a set of control units that attach common I/O devices.

logical editing symbols. Symbols that let the user correct entering errors, combine multiple lines of input on one physical line, and enter logical editing symbols as data. The logical editing symbols can be defined, reassigned, or unassigned by the user. See *logical character delete symbol*, *logical escape symbol*, *logical line delete symbol*, and *logical line end symbol*.

logical escape symbol. A special editing symbol, usually the double quotation ("), that causes CP to consider the immediately following character as a data character instead of a logical editing symbol.

logical line. A command or data line that can be separated from one or more additional command or data lines on the same physical input line by a logical line end symbol.

logical line delete symbol. A special editing symbol, usually the cent (¢) sign, that causes CP to delete the previous logical line in the physical input line back to and including the previous logical line end symbol.

logical line end symbol. A special editing symbol, usually the pound (#) sign, that lets the user enter the equivalent of several command or data lines in the same physical line; that is, each logical line except the last line is terminated with the logical line end symbol.

logically connected terminal. A terminal connected by leased or switched telecommunications or by local attachment to a multiple-access virtual machine by the CP DIAL command.

logically partitioned mode. A central processor complex (CPC) mode that enables use of the PR/SM feature and allows an operator to allocate CPC hardware resources (including central processors, central storage, expanded storage, and channel paths) among logical partitions (LPARs). See also basic mode.

logically sparse file. A file that contains sparse records.

logical operator. A virtual machine (other than the virtual machine in which the programmable operator facility is running) designated to receive messages from the programmable operator and to perform actions on behalf of the programmable operator.

logical partition (LPAR). A subset of the processor hardware that is defined to support the operation of a system control program (SCP). See also logically partitioned mode.

logical record. A formatted record that consists of a 2-byte logical record length and a data field of variable length.

logical record interface (LRI). Builds logical records from record segments on input and breaks logical records into segments on output for the application. LRI is used with QSAM spanned records.

logical saved segment. A saved segment defined by CMS within a physical saved segment. A single physical saved segment can contain many logical saved segments. A logical saved segment can contain different types of program objects, such as MODULE files, TEXT files, execs, callable services libraries, language information files, user-defined objects, or a single minidisk directory. See also *physical saved segment*.

logical segment definition file . A file that identifies the contents of a logical saved segment.

logical unit (LU). An entity addressable within an SNA-defined network, similar to a node within a VM network. LUs are categorized by the types of communication they support. A TSAF collection in an SNA network is viewed as one or more LUs.

logical unit name (LU name). A symbolic name given to a particular LU in an SNA-defined network.

logical unit of work. (1) In a file pool, a group of related operations that the file pool server performs for a user. The operations in a logical unit of work can be either committed or rolled back as a unit. Also known as a *resource logical unit of work*. (2) In CRR, a convenient abstraction for the application processing (including the underlying system support) performed to take a set of protected resources (such as file pools) from one consistent state to another (commit changes) in such a way that the unit of work appears atomic. If a failure occurs during the sync point processing of a logical unit of work, any changes made by (or for) the logical unit of work are rolled back, so that the protected resources are returned to their previous consistent state. A CRR logical unit of work is also known as a *transaction* or a *logical unit of work identifier (LUWID)* and consists of one or more LUWID instances. See also logical unit of work identifier and LUWID instance.

logical unit of work identifier (LUWID). The identifier of a CRR logical unit of work. The LUWID includes three parts: the fully qualified LU network name; the instance number, which is unique at the LU that creates it; and the sequence number, which is incremented by one following a sync point. Also, the conversation correlator is used to further qualify LUWIDs. See also LUWID instance.

log in. In UNIX systems, to gain access to a computer system by entering identification information at the workstation. To begin a session at a workstation. See also *log on*, the VM term.

login. In UNIX systems, the act of gaining access to a computer system by entering identification and authentication information at the workstation. The unspecified activity by which a user gains access to the system. Each login shall be associated with exactly one login name. In the OpenExtensions implementation, a user gains interactive access to the shell by first logging on.

login name. A string of characters that uniquely identifies a user to the system. A user name that is associated with a login.

log minidisks. In file pools, two duplicate minidisks that contain information about changes made to the file pool. File pool servers use the file pool log minidisks to help protect the integrity of the file pool if a system failure occurs. In CRR, two duplicate minidisks that contain information about the states of various logical units of work during sync point processing. CRR recovery servers use the CRR log minidisks to perform resynchronization processing to protect the integrity of the transaction if a failure occurs during sync point processing.

logo configuration file. A file that selects logo picture files for terminals and printers and text files for certain areas of the logon screen.

logoff. The procedure by which a user ends a terminal session.

log on. In VM, to begin a session. See also *log in*, the UNIX term.

logon. The procedure by which a user begins a terminal session.

logo picture file. A file that contains the logon screen logo for a particular system.

look-aside entry. A nucleus resident routine becomes a look-aside entry after it has been executed.

low common storage. GCS common storage that resides below the 16MB line. See *common storage*.

low private storage. GCS private storage that resides below the 16MB line. See *common storage*.

LPAR. See logical partition.

LPP. lines-per-page, describes the number of printed lines that a user wishes to have on a page. For separator pages it defines the number of printable lines in the FCB.

LRI. Logical Record Interface.

LU. Logical unit.

LU name. Logical unit name. The entry in an LU-mode pair that contains information about the partner logical unit.

LU type 6.2. A set of protocols and services defined by IBM's SNA for communication between application programs.

LUWID. See logical unit of work identifier.

LUWID instance. A subset of a CRR logical unit of work (transaction) that is identified by the LUWID and represents the work done by a user ID for this LUWID. An LUWID instance consists of one or more resource logical units of work.

M

MAC. Mandatory access control.

machine. A synonym for a virtual machine running under the control of z/VM.

machine check. An error condition that is caused by an equipment malfunction.

machine ID. A 2-byte field that uniquely defines a virtual machine within a virtual machine group. Machine ID is sometimes combined with task ID to uniquely identify a task within the virtual machine group.

MACLIB library. A library that contains macros, copy files, or source program statements for use under CMS.

macro. Abbreviation for *macrodefinition* and *macroinstruction*.

macrodefinition. A set of statements that defines the name of, format of, and conditions for generating a sequence of assembler language statements from a single source statement.

macroinstruction. In assembler language programming, an assembler language statement that causes the assembler to process a predefined set of statements called a macrodefinition. The statements usually produced from the macrodefinition replace the macroinstruction in the program.

macro library. A library of macrodefinitions.

mandatory access control (MAC). A security regimen that governs which subjects can access which objects, and in what way, based upon the relationship between their security labels. Mandatory access control restricts a subject's access to an object based upon three things:

1. The security label of the subject
2. The security label of the object
3. The type of access the subject wants.

See also discretionary access control.

MANUAL. This status, listed in the service-level build status table, indicates that the object requires MANUAL processing.

map. In CMS, the file that contains a CMS output listing, such as (i) a list of macros in the MACLIB library, including macro size and location within the library; (ii) a listing of the directory entries for the DOS/VS system or private source, relocatable, or core image libraries; (iii) a linkage editor map for CMS/DOS programs; and (iv) a module map containing entry point locations. A set of values having defined correspondence with the quantities or values of another set. (I) (A) To show relationships between objects.

mapped conversation. An LU 6.2 conversation type specified by the allocating transaction program. Transaction programs using a mapped conversation can exchange messages of arbitrary format regardless of the underlying data stream. System-defined or user-defined mappers can perform data transformation for the transaction programs. See also basic conversation.

mapping. To show relationships between objects.

mask. A pattern of characters that controls the keeping, deleting, or testing of portions of another pattern of characters. [I][A]

master file directory. See CMS minidisk file directory.

Mb. See megabit.

MB. See megabyte.

Mbps. Megabits per second.

MCCU. Multisystem channel communications unit.

MDISK. Synonym for minidisk. The VM directory statement that describes a user's storage space.

megabit (Mb). (1) For processor storage, real and virtual storage, and channel volume, 1 048 576 bits. (2) For disk storage capacity and communications volume, 1 000 000 bits.

megabyte (MB). (1) For processor storage, real and virtual storage, and channel volume, 1 048 576 bytes. (2) For disk storage capacity and communications volume, 1 000 000 bytes.

member saved segment. A saved segment that begins and ends on a page boundary and belongs to up to 64 segment spaces. A member saved segment is accessed by its own name or by the name of a segment space to which it belongs. A member saved segment may contain logical saved segments. See also discontiguous saved segment and segment space.

memo-to-users. A file provided on a service tape that contains specific service information for a product. *user memo*.

menu. A list of choices that can be applied to an object. A menu can contain choices that are not available for selection in certain contexts. Those choices are indicated by unavailable-state emphasis.

menu-bar. The area near the top of a window, below the title bar and above the rest of the window, that contains routine choices that provide access to pull-down menus.

menu-bar choice. A graphical or textual item on a menu-bar that provides access to pull-down menus that contain choices that can be applied to an object.

menu choice. A graphical or textual item on a menu. A user selects a menu choice to work with an object in some way.

merge. When receiving files from a service tape using VMFMRDSK, the process of moving existing service files from each minidisk or file pool directory in the target string to the minidisk or directory that contains the previous service level. The result is that the primary target minidisk or directory is left empty and ready to receive the latest service.

message. Data sent from a source application to a target application program in a conversation. See *message text*, *message key*, *message header*, *message queue*, *message repository*.

message header. The leading part of a message that contains information such as the source or destination code of the message, the message priority, and the type of message.

message key. In CMS Multitasking, a part of the message text that describes or qualifies the message in some way.

message level. In CMS Pipelines, a number specifying which informational messages you can receive from CMS Pipelines. These messages include: DMS2651I, DMS2652I, DMS2653I, and DMS2654I. Depending on the message level, you can receive these messages along with other messages. These messages help to determine what stage was running, what pipeline subcommand was running, and what pipeline was running that caused the previous message to be issued.

message queue. A list of messages awaiting processing or waiting to be sent to a terminal.

message repository. A source file that contains message texts for a VM component or user application. It is compiled into internal form by the GENMSG command. The message text in a repository file can be translated and used to support national languages.

message text. The part of a message of concern to the party ultimately receiving the message, that is, the message exclusive of the header or control information.

metacharacter. A character used to specify another character or series of characters. [OSF] A character that may have a special meaning in a regular expression. You can usually use a backslash to remove the special meaning.

MIF. See Multiple Image Facility.

MIH. Missing interrupt handler.

minidisk. A logical subdivision (or all) of a direct access storage device that has its own virtual device number, consecutive virtual cylinders (starting with virtual cylinder 0), and a VTOC or disk label identifier. A *virtual disk in*

storage. See CMS minidisk file directory, CMS system minidisk, control minidisk, full-pack minidisk, log minidisks, minidisk directory, minidisk pool, minidisk-relative block number.

minidisk directory. See CMS minidisk file directory.

minidisk pool. A logical DASD containing one or more DASD or minidisk extents that are formatted with 4K records. It is mapped to address spaces.

minidisk-relative block number. A 4K record contained on a minidisk or DASD extent with its origin relative to zero.

minimum truncation. The shortest form of a command name, operand, or option that can be entered and still be recognized by z/VM. For example, AC is the minimum truncation for the ACCESS command. However, note that the letter A is the minimum truncation for ASSEMBLE. See *truncation*.

missing interrupt handler (MIH). A z/VM facility that detects incomplete I/O conditions by monitoring I/O activity. It also tries to correct incomplete I/O conditions without operator intervention.

mode. A method of operation. A method of operation, frequently used in UNIX to refer to read, write, run, or search permissions of a file or directory. [OSF] A collection of attributes that specifies a file's type and its access permissions.

mode name. Part of the CPI Communications side information. The mode name is used by LU 6.2 to designate the properties for the session that will be allocated for a conversation.

module. A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading; for example, the input to or output from an assembler, compiler, linkage editor, or executive routine. (A) A nonrelocatable file whose external references have been resolved.

MORE screen status. For a display terminal used as a virtual console under z/VM, an indicator located in the lower right of the screen that displays when the user's display screen is full and more data will be displayed. After 60 seconds, the screen is automatically erased and the next screen is displayed. To immediately clear the screen, press the Clear, Cancel, or PA2 key. To hold the data on the screen longer than 60 seconds, press the Enter key to enter HOLDING status. See *HOLDING screen status*.

mount. To make a file system accessible. [OSF] To logically mount a file system in another file system with the CMS command MOUNT. The mount point is in a directory.

mount point. The path name of the directory on which the file system is mounted. Either the root directory or a directory for which the *st_rdev* field of the POSIX.1 *struct stat* differs from that of its parent directory.

MP. Multiprocessor.

multicast. (1) Transmission of the same data to a selected group of destinations. (T) (2) A special form of broadcast in which copies of a packet are delivered to only a subset of all possible destinations. (3) See also broadcast.

Multi-Path Lock Facility (MPLF). A lock facility which controls locking through a set of channel commands implemented by the 3990 Model 6 DASD control unit.

multiple-access virtual machine. A virtual machine running under z/VM that supports teleprocessing terminals.

Multiple Image Facility (MIF). A facility that allows channels to be shared among PR/SM logical partitions in an ESCON or FICON environment.

multiple user mode. In a file pool server machine, a processing mode (started with the CMS FILESERV START command) in which the server processes user requests for file pool data. See also dedicated maintenance mode.

Multiple Virtual Storage (MVS™). An element of z/OS.

multiplexer channel. A channel designed to operate with a number of I/O devices simultaneously. Several I/O devices can transfer records at the same time by interleaving items of data. See *block multiplexer channel* and *byte multiplexer channel*.

multiplexing. In data transmission, a function that permits two or more data sources to share a common transmission medium so that each data source has its own channel. (I) (A)

multiprocessor (MP). A computer using two or more processing units under integrated control. A processor complex that can be physically partitioned to form two operating processor complexes.

multistream pipeline. In CMS Pipelines, a pipeline that contains at least one stage that has more than one input stream, more than one output stream, or both.

multisystem channel communications unit (MCCU). An I/O device; for example, the 3088 MCCU, which interconnects up to eight systems using block-multiplexer channels.

multitasking. Providing services for many tasks that are active at the same time.

multivolume file. A file that occupies more than one tape reel.

mutex. In CMS Multitasking, a variable with an associated wait queue used to enforce mutual exclusion from a shared resource. CMS Multitasking allows only one thread at a time to acquire the mutex, and only the thread that has acquired the mutex can execute the critical section of code for the resource. See also *semaphore*.

MVS. Multiple Virtual Storage.

N

N/A. Not applicable. Not available.

namedef. A temporary name that represents either: (1) a file name and file type, or (2) a directory name. Namedefs are used in program functions so that it is not necessary to directly code a file name and file type or directory name in the program.

named pipe. See [FIFO special file](#).

named saved system (NSS). The control program portion of an operating system that is assigned a name and saved in pageable format in a system data file. Loading an operating system into a virtual machine by specifying the name of a saved system is more efficient than loading it from a device number. CMS can also be saved in and loaded from a named saved system.

native mode. Refers to running an operating system stand-alone on the real machine instead of under z/VM.

native SNA. SNA operating without a separate GOS (VS1 or VSE).

native SNA network. A z/VM network that operates according to the conventions of SNA and functions as part of a z/VM system without help from a GOS.

NCCF. Network Communication Control Facility.

NCP. See [Network Control Program](#).

NCPDUMP. Network control program DUMP.

negative prerequisite. In VMSES/E, a product that cannot exist on a system at the same time as another product.

netdata. The name of the format that sends a file when the NEW option of the CMS SENDFILE command is specified.

network. Any set of two or more computers, workstations, or printers linked in such a way as to let data be transmitted between them.

Network Communication Control Facility (NCCF). An IBM licensed program consisting of a base for command processors that can monitor, control, and improve the operation of a network.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability.

Network Interface Card (NIC). The simulation of a hardware HiperSockets adapter or OSA-Express QDIO-mode adapter in z/VM. A guest operating system can use the NIC to connect to a guest LAN. Also known as a *virtual adapter*.

network job entry (NJE). A facility for transmitting jobs, sysout data sets, operator commands and operator messages, and job accounting information from one computing system to another. NJE is supported by JES2, JES3, RSCS, VSE/POWER, and BDT.

NIC. See Network Interface Card.

NJE. Network job entry.

node. A single processor or a group of processors in a teleprocessing network. A computer, workstation, or printer, when it is participating in a network.

node ID. Node identifier.

node identifier (node ID). The name by which a node is known to all other nodes in a network.

nonblocking. A way of requesting a service over an interface so that if the request cannot be completed immediately, the requesting process is able to continue and is not suspended. See also blocking.

nondisruptive transition. A facility that lets an installation transfer control of an operating system from z/VM virtual machine mode to native mode (and vice versa) without having to shut down and reinitialize the operating system.

noninteractive. A classification given to a virtual machine that usually uses all of its allocated queue slice. See also interactive.

noninteractive user. A user whose virtual machine completed its previous queue slice without having an I/O interrupt from the terminal.

non-IPL processor. In an AP or MP system, the attached or second processor initialized at system generation time. Note that both the IPL processor and the non-IPL processor in a real MP configuration have I/O capabilities.

nonpaging mode. See *OS/VS1 nonpaging mode*.

nonprivileged program. In GCS, a program called by a GCS application that operates in problem state. See also privileged program.

nonresident pages. Pages whose contents are on DASD but not in real storage. A page is considered nonresident when an attempt to load its real address returns a nonzero condition code.

nonsynchronous processing for DASD. A buffer is inserted in the control unit data path, between the device and the channel. With this configuration, channel data is typically not transferred for each system channel operation when the target data field passes the read/write head on the device.

nonvolatile storage (NVS). Additional random access electronic storage available with a 3990 Model 3 or model 6 Storage Control, used to retain data during a power failure. Nonvolatile storage, accessible from all storage directors, stores data during DASD fast-write operations.

NOT ACCEPTED screen status. For a display terminal used as a virtual console under z/VM, an indicator in the lower right of the screen that indicates that the user is: (1) trying to enter another command, but the terminal buffer still contains a previous command, or (2) using the copy function to copy the contents of the screen onto an associated hardcopy printer; however, the printer is busy, nonexistent, or otherwise unavailable.

NPT. Nonprogrammable terminal.

NSS. See named saved system.

| **nucleus.** The part of CP, CMS, or GCS that is resident in main storage.

NUCON. The nucleus constant area of CMS.

null line. A logical line with a length of zero that usually signals the CMS Editor to end input mode and enter edit mode. In z/VM, a null line for typewriter terminals is a terminal input line consisting of a return character as the first and only information, or a logical line end symbol as the last character in the data line. For display devices, a null line is indicated by the cursor positioned at the beginning of the user input area or the data in the user input area ending with a logical line end symbol.

null string. (1) A string containing no element. (T) (2) A character string with a length of zero. (3) In CMS Pipelines, a delimited string formed by two adjacent delimiters. See also delimited string.

NVS. Nonvolatile storage.

O

object. In computer security, a passive entity that contains or receives information. Access to an object implies access to the information it contains. Example of objects in z/VM are: minidisks, spool files, named saved segments, and virtual storage. Contrast with *subject*. In VMSES/E, a usable form defined in build lists. In VMSES/E, a built part of a product. A product consists of many objects, such as, nuclei, modules, execs, help files, and macrolibraries. See *external object*, *object code*, *object module*, *public object*. In CUA, something that a user works with to perform a task. In object-oriented programming, a single instance of a set of data and the operations that can act on that data.

object code. Compiler or assembler output that is executable machine code or is suitable for more processing to produce executable machine code. Contrast with *source code*.

object module. A module that is the output of an assembler or a compiler and is input to a linkage editor.

object-oriented programming. A type of programming in which code is divided into modules called objects that communicate with each other by passing messages.

offline. Pertaining to the operation of a functional unit that takes place either independently of, or in parallel with, the main operation of a computer. (T) Neither controlled by, nor communicating with, a computer. Contrast with *online*.

OLTS. Online test system.

OLTSEP. Online test stand-alone executive program.

one-phase commit protocol. This is outside the CRR sync point architecture. Resources that are committed by this method are not recorded in the CRR log. The one-phase commit protocol may be used when a single resource has been changed and a commit request issued for it.

online. Pertaining to the operation of a functional unit when under the direct control of the computer. (T) Pertaining to a user's ability to interact with a computer. (A) Pertaining to a user's access to a computer via a terminal. (A) Controlled by, or communicating with, a computer. Contrast with *offline*. See *online message*, *online test stand-alone executive program (OLTSEP)*, *online test system (OLTS)*, *simultaneous peripheral operations online (SPOOL)*.

online message. The text that appears in the top area of a logon screen.

online test stand-alone executive program (OLTSEP). A program IBM uses for I/O maintenance.

online test system (OLTS). A system that lets a user test I/O devices concurrently with execution of programs. Tests can be run to diagnose I/O errors, verify repairs and engineering changes, or to periodically check devices.

OpenExtensions™. The implementation of certain POSIX standards in z/VM to support an environment within which operating systems, servers, distributed systems, and workstations share common interfaces. The OpenExtensions POSIX interfaces are provided as C/C++ library routines in the C/C++ run-time library included in Language Environment. A language-neutral version of the POSIX functions is provided as a set of CMS callable services library (CSL) routines. OpenExtensions includes a POSIX-compliant file system known as the byte file system (BFS). CMS provides a set of OPENVM commands for managing BFS directories and files. The OpenExtensions shell provides a UNIX-like interactive user environment.

OpenExtensions user ID. See POSIX user ID.

open file. A file that is currently associated with a file descriptor.

open system. A system whose characteristics comply with standards made available throughout the industry and that therefore can be connected to other systems complying with the same standards. (T)

operand. Information entered with a command name to define the data on which a command processor operates and to control the execution of the command processor.

operator console. See system operator console.

optimized last agent. See *last agent optimization*.

option. A specification in a statement that may be used to influence the execution of the statement. In CMS Pipelines, a keyword that controls the execution of a stage, the PIPE command, the ADDPIPE pipeline subcommand, or the CALLPIPE pipeline subcommand.

ordered seek queuing. A technique the CP I/O supervisor uses to minimize seek time. This is done by scheduling DASD I/O operations for nondedicated disks in a sequential progression of cylinder numbers.

ordinary application. A GCS application, started with the OSRUN command, that operates in problem state. See also authorized application.

OSA. Open systems adapter.

OS simulation under CMS. The environment of CMS that permits the simulation of OS functions. Contrast with *CMS/DOS*.

out-of-component requisite. In VMSES/E, a PTF to one product or component that is required by a PTF to another product or component. See also if-requisite.

output display area. For display devices, the upper portion of the display screen that contains an historical log of the most recent lines of console input to and output from the virtual machine and CP. On the 3270, this area is protected; that is, the user is unable to enter information into the output display area. The CMS Editor does not use this display format.

output stream. In CMS Pipelines, a stream that flows out of a stage. See also input stream, primary output stream, secondary output stream, and tertiary output stream.

overhead. The additional processor time charged to each virtual machine for the CP functions needed to simulate the virtual machine environment and for paging and scheduling time.

overlay. The technique of repeatedly using the same areas of internal storage during different stages of a program.

override. (1) A value that updates or replaces a previously defined value. See also class override file and component parameter override. (2) The process of implementing an override.

override \$PPF. See product parameter override file.

override area. See component override area.

override file. See class override file and product parameter override file.

P

pack. A set of flat, circular recording surfaces that a disk storage device uses. Sometimes called a "disk pack".

page. A fixed-length block that has a virtual address and can be transferred between real storage and auxiliary storage. See *external page storage*, *external page storage management*, *inactive page*, *locked page*, *MVS page fault assist*, *nonresident pages*, *page-aligned*, *page frame*, *page frame table*, *page locking*, *page number*, *page reclamation*, *page table*, *page zero*, *pageable virtual machine*, *pseudo page fault*, *reserved page frame performance option*, *shadow page table*.

pageable virtual machine. See *virtual=virtual machine*.

page-aligned. In fixed-block architecture, having a starting block number that is a multiple of eight and containing a number of blocks that is a multiple of eight.

page frame. A block of 4096 bytes of real storage that holds a page of virtual storage.

page frame table. A table (called the CORTABLE) that contains an entry for each frame. Each frame table entry describes how the frame is being used.

page locking. Marking a page as nonpageable so that it remains in real storage until released.

page number. The part of a virtual storage address needed to refer to a page.

page reclamation. Making available and addressable the contents of a page in real storage that is waiting to be (or already has been) paged out. Page reclamation can occur after a page fault or after a request to fix or load a page, as long as no page-in operation has been scheduled for that particular page frame.

page table. A table that indicates whether a page is in real storage and that correlates virtual addresses with real storage addresses.

page zero. Storage locations 0 to 4095.

paging. Transferring pages between real storage and external page storage.

paging activity indexes. Values that affect the algorithm that CP uses in controlling the dispatching and scheduling of all active logged-on virtual machines.

paging area. An area of direct access storage (and an associated area of real storage) that CP uses for the temporary storage of pages when paging occurs.

paging supervisor. A part of the CP nucleus that allocates and releases real storage page frames for pages, selects the appropriate paging device, and initiates page-in and page-out operations. This is based on ordered seek queuing and slot sorting techniques. See *ordered seek queuing* and *slot sorting*.

parallel channel. A channel having a channel-to-control-unit I/O interface that uses bus-and-tag cables as a transmission medium. See also ESCON channel.

parallel processing. The concurrent or simultaneous execution of two or more processes in a single unit. (A) In CMS Multitasking, the execution of threads of a particular application at the same time on different real CPUs of the real processor complex.

Parallel Sysplex®. A set of MVS, OS/390®, or z/OS systems communicating and cooperating with each other through certain multisystem hardware components and software services to process customer workloads.

parameter. A variable that is given a constant value for a specified application and that may denote the application. (I) (A) See also *component parameter override*, *extended PLIST (untokenized parameter list)*, *parameter driven installation*, *parameter list (PLIST)*, *product parameter file (PPF)*, *product parameter override file*, *tokenized PLIST (parameter list)*, *untokenized parameter list*.

parameter driven installation (PDI). An installation method in which instructions for the installation are given at the beginning of the process rather than in response to prompts during the process.

parameter list (PLIST). In CMS, a string of 8-byte arguments that call a CMS command or function. The first argument must be the name of the command or function to be called. General register 1 points to the beginning of the parameter list.

parent directory. The directory for a CMS disk that has a disk extension defined for it by the ACCESS command. With file pools, the next higher-level directory in which the current directory is defined. In OpenExtensions, when discussing a given directory, the directory that both contains a directory entry for the given directory and is represented by the path name dot-dot in the given directory. When discussing other types of files, a directory containing a directory entry for the file under discussion.

parm disk. A disk that CP accesses during IPL. The parm disk contains all the system definition information required at IPL, for example, the system configuration and logo configuration files. See *parm disk volume*.

parm disk volume. The volume on which the parm disk resides. This volume can be the same one as the IPL volume and the system residence volume.

part. A CMS file provided on a z/VM product tape or CD-ROM, or on a z/VM service tape or CD-ROM, as input to the build process. A part is the smallest serviceable unit of a component. See *part handler*, *parts catalog*, *PTF parts list*, *VM part catalog table*.

part handler. An exec provided by VMSES/E that builds a specific type of object or loads parts from service media.

partition. A fixed-size division of storage. See *logical partition* and *target logical partition*.

partner. See *conversation partner*.

parts catalog . In VMSES/E, a set of software inventory files that catalog all parts of a product on a minidisk or file pool directory. All product parts are cataloged when they are loaded onto the system, when they are generated, and when they are moved.

password. In computer security, a string of characters known to the computer system and a user, who must specify it to gain full or limited access to a system and to the data stored within it.

patch. A circumventive service change applied directly to object code in a text deck.

patch update file. A file containing a single patch. The file can also specify requisites for applying the patch.

path. (1) A list of directory names, usually separated by a colon (:), that are to be searched (in left-to-right order) to locate an object. This concept of path is also known as the “search path”. (2) In a network, a route between two nodes. (3) In APPC/VM or IUCV, a named connection between two application programs that are on the same or different systems.

path name. (1) A list of one or more directory names and an object name (such as the name of a file) that are separated by an operating system-specific character, such as the slash (/) in UNIX operating systems, the backslash (\) in Windows® operating systems, and the semicolon (;) in OS/2® operating systems. The directory names detail the path to follow, in left-to-right order, to locate the object within the file system. In OpenExtensions, C/C++ functions interpret path names with exactly two leading slashes, no leading blanks or other characters, and the third character not a slash to mean that the rest of the name refers to a traditional CMS native record file system. (2) Also see absolute path name, directory, fully qualified path name, and relative path name.

PC. Personal computer.

PCE. Processor controller.

PDI. Parameter driven installation.

peer system. From the perspective of a particular system node in a network, an equivalent system; one with which jobs and data can be mutually exchanged.

PER. Program Event Recording.

performance option. One or more functions that can be assigned to a virtual machine to improve its performance, response time (if terminal-oriented), or throughput under z/VM.

Performance Toolkit for VM™. An optional feature of z/VM that gathers, analyzes, and displays VM performance data. It can also process Linux performance data obtained from the Resource Management Facility.

permission. A code that determine how the file can be used by any users who work on the system. [OSF] The modes of access to a protected object. [OSF]

petabyte. 2**50 bytes.

PF key. Programmed function key.

PGR. Presentation graphics routines.

physically partitioned (PP) configuration. A system configuration that allows the processor controller to use both processor complex sides as individual processor complexes. The A-side of the processor controller controls side 0, and the B-side of the processor controller controls side 1. Contrast with *single-image (SI) configuration*.

physical saved segment . One or more pages of storage that have been named and retained on a CP-owned volume (DASD). Once created, it can be loaded within a virtual machine’s address space or outside a virtual machine’s address space. Multiple users can load the same copy. A physical saved segment can contain one or more logical saved segments. A system segment identification file (SYSTEM SEGID) associates a physical saved segment to its logical saved segments. See *logical saved segment* and *saved segment*.

physical screen. See *screen*.

physical segment definition file . A file that identifies the logical saved segments to be included within a physical saved segment.

physical unit block (PUB). In a VSE system, an entry in a table containing the channel and device address of a device. There is a physical unit block for each physical device available in the system.

PID. Process ID.

PIE. Program interrupt element.

Pimp. An ICMP-based denial-of-service attack that depletes the stack's large envelopes. Pimp is an ICMP version of the Kiss-of-Death (KOD) attack. See also Kiss-of-Death and KOX.

PIN. Problem identification number.

Ping-o-Death (POD). A denial-of-service attack in which huge, fragmented ICMP packets are sent.

pinned data. Data that is held in a 3990 Model 3 Storage Control because of a permanent error condition. The data can be destaged to DASD or explicitly discarded. Pinned data exists only when using fast-write.

pipe. In OpenExtensions, an interprocess communication mechanism that connects an output file descriptor to an input file descriptor. Usually the standard output of one process is connected to the standard input of another, forming a pipeline. A sequence of one or more commands in FIFO order. The output of one command becomes the input to the next command. A pipe usually contains several filters. Pipes allow related or unrelated processes to read and write to each other as if they were files; they allow unidirectional communication from one process to another. OpenExtensions treats pipes as though they were files. A named pipe has a directory name and is accessed by a path name. An unnamed pipe must be used between a parent process and a child process. An object accessed by one of the pair of file descriptors created by the **pipe()** function. Once created, the file descriptors can be used to manipulate it, and it behaves identically to a FIFO special file when accessed in this way. It has no name in the file hierarchy. To direct data so that the output from one process becomes the input to another process. An I/O stream that has a descriptor and can be used in unidirectional communications between related processes. [OSF]

pipeline. In CMS Pipelines, a series of programs, called stages, each performing part of a task and passing the results to the next stage. Several parts of different tasks can be performed concurrently. See *multistream pipeline*, *pipeline subcommand*, *subroutine pipeline*.

pipeline subcommand. In CMS Pipelines, a subcommand that can be issued from a user-written stage command or with the PIPCMD stage command. Pipeline subcommands process data and interact with the calling pipeline.

plaintext. Text that is not encrypted and therefore is intelligible.

PLIST. See parameter list.

PMA. Preferred machine assist.

POD. See Ping-o-Death.

pointer. In CUA, a visible cue, usually in the shape of an arrow, that a user can move with a pointing device. Users place the pointer over objects they want to work with.

pointing device. A device, such as a mouse, trackball, or joystick, used to move a pointer on the screen.

point-to-point channel path configuration. In an I/O interface, a configuration that consists of a single link between a channel and one control unit. Contrast with *switched point-to-point channel path configuration*.

POOLDEF file. A CMS file with a file type of POOLDEF that contains information that a file pool server and CRR recovery server use to locate all the minidisks in their file pools.

pool-relative block number. A 4K record contained within a minidisk-pool with its origin relative to zero.

POR. Power-on reset.

port. The origin or destination of TCP/IP messages in a host. To be used, a port must have an associated socket.

portability. The ability of a program to run on more than one computer. The ability to use applications or files with different operating systems. The ease with which software can be transferred from one information system to another. [POSIX.0]

portable character set. The set of characters described in POSIX.2 that is supported on all conforming systems.

Portable Operating System Interface for Computer Environments. See [POSIX](#).

port number. In TCP/IP, a 16-bit number used to communicate between TCP and a higher-level protocol or application. Some protocols, such as the File Transfer Protocol (FTP) and the Simple Mail Transfer Protocol (SMTP), use the same port number in all TCP/IP implementations.

POSIX (Portable Operating System Interface for Computer Environments). An interface standard governed by the IEEE and based on UNIX. See also [OpenExtensions](#).

POSIX user ID (UID). A fullword nonnegative integer that identifies a POSIX user. The UID is the sole basis for authority checking against such POSIX-defined resources as BFS files. A system user is assigned a UID in the user directory; if no UID is assigned, a default value is used. When the identity of the user is associated with a process, the UID value is referred to as a real UID, an effective UID, or an (optional) saved set-UID. Also known as an *OpenExtensions user ID*. See also [effective UID](#), [real UID](#), and [saved set-UID](#).

POSIX user name. The system login name that identifies a POSIX user. It is analogous to a user's z/VM user ID and is the lowercase version of the z/VM user ID.

PP. Physically partitioned (as in configuration).

PPF. Product parameter file.

PR/SM. Processor Resource/Systems Manager.

predefined function. A specialized function, invoked by a keyword, that has been built into the system program code because it is commonly required by many users; applies to CMS EXEC, EXEC2, and REXX.

preferred auxiliary file. In CMS, an auxiliary file that applies to a particular version of a source module to be updated, if multiple versions of the module exist.

preferred paging area. A special area of auxiliary storage where frequently used pages are paged out. It provides high-speed paging.

prefix area. The five left-most positions on the XEDIT full-screen display, in which prefix subcommands or prefix macros can be entered. See *prefix macros* and *prefix subcommands*.

prefix macros. XEDIT macros entered in the prefix area of any line on a full-screen display. See *prefix area*.

prefix storage area (PSA). A page zero of real storage that contains machine-used data areas and CP global data.

prefix subcommands. XEDIT subcommands entered in the prefix area of any line on a full-screen display. See *prefix area*.

prepared. In a file pool server, a synonym for *in-doubt*.

prerequisite. A change that must be applied to the system before another change can be applied. In VMSES/E, at the system level, a product that must be installed before another product can be installed. In VMSES/E, at the service level, a PTF that must be applied before another PTF can be applied.

prerequisite change. A change that must be applied to the system before another change can be applied. For example, change2 lists change1 as a prerequisite. This indicates that the user must apply change1 before applying change2.

preventive service . The application of all PTFs from a PUT or RSU. See also [selective preventive service](#).

primary address space. See [host-primary address space](#).

primary input stream. In CMS Pipelines, the input stream defined by specifying a stage. It is input stream number 0.

primary output stream. In CMS Pipelines, the output stream defined by specifying a stage. It is output stream number 0.

primary paging device. The DASD with the highest effective data rate available for CP use. CP always attempts to store pages on this paging device instead of on slower paging devices if space on the primary paging device is available.

primary-space mode. An address translation mode in which storage operands are always considered to reside in the primary address space. Access registers are not used to resolve addresses when in primary-space mode. The SET ADDRESS SPACE CONTROL and SET ADDRESS SPACE CONTROL FAST instructions can be used to change the PSW to enter and exit primary-space mode. See also [access-register mode](#).

primary system operator. The CP privilege class A user who is automatically logged on during z/VM system initialization. If the current primary system operator logs off, the next class A user to log on becomes the primary system operator. See also [system operator](#).

printer universal character set. A printer feature that permits a variety of character arrays.

print inhibit. A hardware feature available on some typewriter terminals, that lets the user enter information with a keyboard without causing the data to be typed on the terminal's typewriter.

Print Services Facility/VM (PSF/VM). An IBM licensed printer driver program that produces printer commands from the data sent to it.

priority performance option. A virtual machine parameter that influences the internal scheduling algorithm of the z/VM control program. The lower the priority value specified, the higher the priority of the virtual machine.

private gateway. A gateway that programs outside a CS or TSAF collection can use to access private resources inside the collection, or that nonglobal resource manager programs can use to access resources outside a CS or TSAF collection. See also [global gateway](#) and [system gateway](#).

private resource. A resource accessible from anywhere within a CS or TSAF collection or SNA network and whose identity is known only within a single workstation or virtual machine. See also [global resource](#), [local resource](#), and [system resource](#).

private resource manager. An application that runs in a server workstation or virtual machine and provides a service for connecting programs, but that does not identify itself to the CS or TSAF collection. See also [global resource manager](#), [local resource manager](#), and [system resource manager](#).

private storage. A combination of application code and GCS code available to only one particular virtual machine. No virtual machine can access or share another's private storage area. See also [high private storage](#).

privilege class. The authorization required to use a subset of the CP commands and DIAGNOSE codes and certain CP system functions. The privilege class corresponds to a type of user. Each CP command and DIAGNOSE code belongs to one or more privilege classes. A user is assigned one or more privilege classes in the z/VM directory entry for that virtual machine.

Class	Type of user
A	System operator
B	System resource operator
C	System programmer
D	Spooling operator
E	System analyst
F	Service representative (reserved for IBM use only)
G	General user
Any	Available to any user, regardless of the user's privilege class
H	Reserved for IBM use
I - Z, 1 - 6	Reserved for redefinition by an installation for its own use through user class restructure (UCR)

privileged instruction simulation. The handling of privileged instruction execution for virtual machine operating systems that execute as if they were in supervisor state under z/VM.

privileged program. In GCS, a program called by a GCS application that operates in supervisor state and uses privileged functions. A privileged program is one that meets either of the following requirements:

- It runs in an authorized virtual machine.
- It is called through the AUTHCALL facility.

See also [nonprivileged program](#).

problem state. A state during which the central processing unit cannot execute I/O and other privileged instructions. See *privileged instruction simulation*. Contrast with *supervisor state*.

process. A systematic sequence of operations to produce a specified result. A process is usually logical, not physical. In CMS Multitasking, a collection of threads performing related work. A process can have resources associated with it, such as storage subpools, queues, open files, and APPC conversations. All threads in a process have equal access to the resources associated with the process.

processor complex. A system configuration that consists of all the machines required for operation; for example, a processor unit, a processor controller, a system display, a service support display, and a power and coolant distribution unit.

processor controller (PCE). Hardware that initializes and provides support and diagnostic functions for the processor unit.

Processor Resource/Systems Manager™ (PR/SM™) feature. The feature that allows the processor to use several system control programs (SCPs) simultaneously, provides logical partitioning capability for the real machine, and provides support for multiple preferred guests. See *multiple preferred guests*.

processor storage. The storage available to the central processors (central storage, and, if installed, expanded storage).

PRODPART file. VMSES/E uses information in this file, included on a product's install tape, to update entries in the system-level Software Inventory each time a product is loaded onto your system.

product. Any separately installable software program, whether supplied by IBM or otherwise, distinct from others and recognizable by a unique identification code. The product identification code is unique to a given product, but does not identify the release level of that product. See *product parameter file (PPF)*, *product parameter override file*, *software product*, *product service upgrade (PSU)*, *product tape*.

product identifier (prodid). The product identifier is the 7- or 8-alphanumeric character identifier assigned to the product by IBM.

product parameter file (PPF). A file containing installation and service parameters for a product: control options, minidisk and file pool directory assignments, and component part type/function lists.

product parameter override file. A file containing one or more component override areas.

product processing exit. An interface used by program products to perform additional product installation tasks.

product service upgrade (PSU). A procedure used to upgrade the service level of a product or component using a recommended service upgrade (RSU) tape.

product tape. A tape containing components or products to load and build.

PROFILE EXEC. A special EXEC procedure with a file name of PROFILE that a user can create. The procedure is usually executed immediately after CMS is loaded into a virtual machine (also known as IPL CMS).

programmable operator facility. A CMS facility that provides automatic filtering and routing of messages sent to the virtual machine in which the programmable operator is running (for example, the z/VM system operator's virtual machine). The programmable operator facility can be used in a single-system environment, a distributed z/VM environment, or a mixed environment.

programmable station. An I/O configuration that must be programmed before it can communicate with other remote stations that adhere to a compatible protocol.

programmed function (PF) key. On a terminal, a key that can do various functions selected by the user or determined by an application program.

programmed symbols. A feature that allows definition of user-indicated shapes or symbols.

program stack. Temporary storage for lines (or files) being exchanged by programs that execute under CMS. See *console stack*.

program state. A state associated with each partner in a conversation. This state defines the functions that a communication program can issue at a given time.

program status word (PSW). An area in storage used to indicate the order in which instructions are executed, and to hold and indicate the status of the computer system.

program temporary fix (PTF). The code changes supplied by IBM to provide a temporary solution or bypass for a problem reported in an authorized program analysis report (APAR). A PTF contains the fixes for one or more APARs. For object-maintained parts that are changed, the PTF includes replacement parts. For source-maintained parts that are changed, the PTF includes update files and replacement parts. Each PTF is unique to a given release of a product. If the same problem occurs in multiple releases of a product, a separate PTF is defined for each release.

program update service. To receive the contents of a PUT, apply all or some of the changes, and rebuild the serviced parts. See *preventive service* and *selective preventive service*.

program update tape (PUT). A tape containing a customized collection of service tapes (preventive service) to match the products listed in a customer's ISMS (IBM Software Manufacturing Solutions) profile. Each PUT contains cumulative service for the customer's products back to earlier release levels of the product still supported. The tape is distributed to authorized customers of the products at scheduled intervals or on request.

projected working set. An estimate of the number of pages of real storage that must be allocated to an in-queue virtual machine if it is to avoid excessive paging. It determines whether the virtual machine can be added to the run list from an eligible list.

prompt. A displayed message that describes required input or gives operational information.

prompting. An interactive technique that lets the program guide the user in supplying information to a program. The program types or displays a request, question, message, or number, and the user enters the desired response. The process is repeated until all the necessary information is supplied.

protected conversation. An APPC conversation that is allocated (initiated) with the SYNC_LEVEL=SYNCPT option between two application programs. When one of the application programs issues a commit (or roll back), the CRR sync point manager notifies (by means of the protected conversation) the other application program to issue a commit (or roll back). CRR processing handles the actual committing (or rolling back) of both of the application programs' work. Applications that use protected conversations must follow the rules of the LU 6.2 sync point architecture.

protected resources. Resources, local or distributed, that are to be updated (or not updated) in a synchronized and controlled manner, a CRR logical unit of work at a time, through the support of CRR processing (sync point and resynchronization). (The SNA definition of protected resources also includes protected conversations.)

protocol. A set of rules for communication that are mutually understood and followed by two communicating stations or processes. The protocol specifies actions that can be taken by a station when it receives a transmission or detects an error condition.

PSA. Prefix storage area.

pseudo page fault. A facility available with VM/VS handshaking that lets the VS1 virtual machine dispatch another task while waiting for a page-in request to be completed for some other task. Without this facility, the entire virtual machine would wait until the page request was satisfied, even if higher priority tasks were ready to execute.

pseudo timer. A special z/VM timing facility that provides date, time, virtual processor, and total processor time information to a virtual machine.

PSF/VM. See Print Services Facility/VM.

PSS. Program support services.

PSU. Product service upgrade.

PSW. Program status word.

PTF. See program temporary fix.

PTF number. A number assigned by a service organization to uniquely identify a PTF. For example, IBM uses UVnnnnn for a VM-unique product and UPnnnnn for a cross-system product. PTFs for different products or different releases of a product have different numbers.

PTF parts list. A file that identifies the file name and file type of each part required to install a PTF. A PTF parts list is shipped on the service tape for each PTF on the tape.

PUB. Physical unit block.

PUBLIC. In a file pool, all valid users of the system.

public object. An object that all subjects can access but *only trusted subjects* can modify. Since all subjects are allowed to access them, public objects must contain innocuous data.

pull-down menu. A menu that extends from a selected choice on a menu-bar or from the system menu symbol. The choices in a pull-down menu are related to one another in some manner.

push button. A button, labeled with text, graphics, or both, that represents an action that will be initiated when a user selects it.

PUT. Program update tape.

PVM. VM/Pass-Through Facility.

Q

QDIO. See [queued direct I/O](#).

QSAM. Queued sequential access method.

queue. A list constructed and maintained so that the next data element to be retrieved is the one stored first. (T) This method is characterized as first-in-first-out (FIFO). A line or list of items waiting to be processed; for example, virtual machines waiting to run or messages to be displayed. In CMS Multitasking interprocess communication, a list of messages. Synonymous with *message queue*. To arrange in or form a queue.

queue-add. The action by the system scheduler of placing a runnable virtual machine on the list of virtual machines that can be given control of a processor.

queued direct I/O (QDIO). A hardware channel architecture for direct data exchange with I/O devices, where both the I/O device and the program running on the server reference main storage directly through a set of data queues. The QDIO architecture is used by Open Systems Adapter-Express (OSA-Express), HiperSockets, and Fibre Channel Protocol (FCP) channels.

queue-drop. The action by the system scheduler of removing a virtual machine from the list of virtual machines that can be given control of a processor.

queue-drop elimination. A z/VM performance option that eliminates the dropping of a virtual machine from the run list if the virtual machine is determined to be idle.

queued sequential access method (QSAM). An extended version of BSAM. When this method is used, a queue is formed of input data blocks awaiting processing or processed output data blocks awaiting transfer to auxiliary storage or to an output device.

queue slice. The maximum amount of time that a virtual machine can stay in the run list.

quick start. See *system restart*.

quiet recording mode. The mode of operation where transient processor or main storage errors corrected or circumvented by hardware RETRY or error correction code logic are not recorded on the z/VM error recording cylinders. This mode is entered by the SET MODE RETRY QUIET command or after 12 transient machine checks have occurred while in full-recording mode.

R

R/O. Read-only.

R/W. Read/write.

RACF. See Resource Access Control Facility.

radio button. A circle with text beside it. Radio buttons are combined to show a user a fixed set of choices from which the user can select one. The circle becomes partially filled when a choice is selected.

RAS. Reliability, availability, serviceability.

RC. Return code.

rdev. The real device address of an I/O device.

reach-ahead service. Corrective service or local service that has been applied to a product but is not available on a program update tape, product service upgrade, or other service vehicle.

read/write access. An access mode associated with a virtual disk or file pool directory that lets a user read and write any file on the disk or file pool directory (if write authorized).

read/write rules. Requirements in a B1 trusted computing base for a subject's gaining read/write access to a particular object:

1. The subject's security level must exactly equal the security level of the object.
2. The security categories of the subject must be exactly the same as those of the object.

This prevents a subject both from writing down and from reading up. See also *read-only rule*, *write-only rule*.

read authority. The authority to read the contents of a file without being able to change them. For a directory, read authority lets the user view the names of the objects in the directory.

reading backward. Reading a file sequentially starting with the last record and working toward the first record. In a file of n records, the first input operation would obtain record n and the last input operation (assuming the entire file is read) would obtain record 1. Backward I/O is only supported for tapes.

reading forward. Reading a file sequentially starting with the first record and working toward the last record. In a file of n records, the first input operation would obtain record 1 and the last input operation (assuming the entire file is read) would obtain record n .

reading up. An event in which a subject with a given security label reads data from an object whose security label dominates that of the subject. A B1 trusted computing base does not allow reading up. Contrast *writing down*. See also *domination rule*.

read-only access. An access mode associated with a virtual disk or file pool directory that lets a user read, but not write or update, any file on the disk or file pool directory.

read-only rule. A requirement of a B1 trusted computing base that the security label of the subject dominate that of the object. This prevents a subject from reading up. See also *read/write rules*, *write-only rule*.

read-only system residence disk. See *shared read-only system residence disk*.

real address. The address of a location in real storage or the address of a real I/O device.

real GID. The POSIX group ID (GID) assigned to a POSIX user's login ID. See also effective GID and saved set-GID.

real machine. The actual processor, channels, storage, and I/O devices required for z/VM operation.

real system operator. Any user who loads and runs VM in the real machine. Contrast with *virtual machine operator*.

real UID. The POSIX user ID (UID) assigned to a POSIX user's login ID. See also effective UID and saved set-UID.

receive. (1) To bring into the specified buffer data sent to the user's virtual machine from another virtual machine or from the user's own virtual machine. (2) To load product files from a product tape or CD-ROM. (3) To load service files from a service tape. (4) In CMS Multitasking interprocess communication, the action of retrieving a message from a queue.

RECEIVED. The status condition listed in the receive status table which indicates that a product or PTF has been received on the system.

receive history log. The \$VMFREC \$HISTORY file, generated by the VMFREC command, that lists the CMS files in each tape file loaded from the service tape.

receive ID. A seven-character or eight-character alphanumeric identifier that is used to name the software inventory files created during receive processing.

receive message log. The file in which the VMFREC command writes status and error messages during receive processing.

receive status table. A software inventory table that indicates the receive status of all products on the system (system-level receive status table) or all PTFs for a product (service-level receive status table). See also system-level receive status table and service-level receive status table.

recommended service upgrade (RSU) tape . A tape containing preventive service for upgrading the current release of a z/VM system once it has been installed.

recomp. To change the number of cylinders/blocks (FB-512 blocks) on the disk that are available to you.

recording mode. See *full recording mode, intensive recording mode, or quiet recording mode*.

recovery. To maintain or regain system operation after a failure occurs. Generally, to recover from a failure is to identify the failed hardware, to deconfigure the failed hardware, and to continue or restart processing.

recovery machine. The first machine to join a virtual machine group. It has responsibility for executing routines that were set with the GCS MACHEXT macro and cleaning up system resources when machines leave the group.

recovery server. See CRR recovery server.

region table. A table used in DAT. Each entry indicates a block of sequential virtual addresses spanning 2G bytes and beginning at a 2G-byte boundary..

register. See *general register*.

regression. Causing serviced parts to go back to earlier levels. This can occur when applying changes from a PUT to parts updated by corrective service or user modifications.

regular file. A BFS file that is a randomly accessible sequence of bytes, with no further structure imposed by the system. (P1)

relative path name. (1) A path name that begins with the working directory. Relative path names do not begin with a / (slash) but are relative to the current directory. (2) See also absolute path name.

remote. Two entities (for example, a user and a server) are said to be remote to each other if they belong to different systems within a collection, or to different nodes within an SNA network. Contrast with *local*.

remote name. For file pools, the name of an entity residing outside a file pool. Within a file pool, remote names are contained in *external objects*.

remote operator console facility (ROCF). A 4300 Series Support Processor licensed internal code function that permits communication from a remote console for functions like IML or IPL using a switched line. The VM/Pass-Through Facility program provides a communication vehicle that lets any of its supported display stations serve as this remote console.

remote program. The program at the other end of a conversation with respect to the reference program. Contrast with *local program*.

Remote Spooling Communications Subsystem Networking (RSCS). An IBM licensed program and special-purpose subsystem that supports the reception and transmission of messages, files, commands, and jobs over a computer network.

REMOVED. This status, listed in the apply status table, indicates that the PTF has been REMOVED from the system.

replacement part. See *serviceable part*.

replacement service. Servicing a part by replacing the part with a new one.

reply. A response to an inquiry. In SNA, a request unit sent only in reaction to a received request unit. In CMS Multitasking interprocess communication, the action of sending a response to a message received from a queue.

requester. (1) A virtual machine containing a user program that requests a resource. See also *server*. (2) The program that relays a request to another computer through the server-requester programming interface (SRPI).

Request for Comments (RFC). In Internet communications, the document series that describes a part of the Internet suite of protocols and related experiments. All Internet standards are documented as RFCs.

requisite. The requirements of a product or PTF.

requisite relationships. The interrelated requirements of a product or PTF.

requisite table. The software inventory table that contains the requisite relationships between products, in the system level, and PTFs in the service level. The file type of the system level inventory table is SYSREQT and the file type of the service level inventory table is SRVREQT.

reserved file type. (1) A file type recognized by the CMS editor as having specific default attributes that include record size, tab settings, truncation column, and uppercase or lowercase characters associated with that particular file type. The CMS editor creates a file according to these attributes. (2) A specific file type used by a CMS command. Some CMS commands search for and use particular file types or create one or more files with a particular file type. (3) A file with a specific file type that is supplied as part of the z/VM product. For example, the file type HELPCP is reserved for help files for CP commands.

reserved page frame performance option. A virtual machine option that reserves a specific number of page frames for one virtual machine. Generally, this option lets the most recently active pages of storage in a virtual machine remain allocated in real storage.

resource. A program, a data file, a specific set of files, a device, or any other entity or a set of entities that the user can uniquely identify for application program processing in a VM system.

Resource Access Control Facility (RACF®). An optional feature of z/VM that provides for access control by identifying and verifying the users to the system, authorizing access to protected resources, logging the detected unauthorized attempts to enter the system, and logging the detected accesses to protected resources.

resource adapter. Resource manager code that runs in an application's virtual machine. This is the interface between an application program and resource manager. If the adapter represents a resource that is to be protected by the Coordinated Resource Recovery (CRR) facility, then the adapter must register the resource with the sync point manager (SPM), handle various coordination exits that are driven by the SPM, and pass return codes back to the SPM.

resource ID. A one-to-eight character name that identifies a resource.

resource manager. An application running in a server virtual machine that directly controls one or more VM resources. There are four categories of VM resource managers: global, local, private, and system. Also, a resource manager (such as the SFS file pool server), may participate in CRR.

response time. The time between the submission of an item of work to a computing system and the return of results. In systems with time sharing, the time between the end of a block or line-end character of terminal input and the display of the first character of system response at the terminal.

restricted saved segment. A segment space or discontinuous saved segment that can be accessed by a virtual machine only if the directory entry for the virtual machine contains a NAMESAVE control statement that specifies the name of the segment space or discontinuous saved segment.

restricted saved system. A saved system that can be accessed by a virtual machine only if the directory entry for the virtual machine contains a NAMESAVE control statement that specifies the name of the saved system.

Restructured Extended Executor (REXX) language. A general-purpose programming language, particularly suitable for EXEC procedures, XEDIT macros, or programs for personal computing. Procedures, XEDIT macros, and programs written in this language can be interpreted by the REXX/VM interpreter. Contrast with *CMS EXEC language* and *EXEC 2 language*.

resync. See [resynchronization](#).

resynchronization. A CRR function that is performed by the CRR recovery server when there has been a failure during sync point processing for a transaction. Resynchronization, which involves exchanging log names and comparing logical unit of work states, automatically attempts to complete the sync point process for the transaction. The goal of resynchronization is to maintain a consistent state (data integrity) among the protected resources involved in a transaction. Resynchronization may complete after the application ends. In very rare cases, such as an irrecoverable media failure or an operator error, resynchronization cannot complete and CRR allows operator intervention to complete the transaction.

resynchronization initialization. The initial exchange of log names that a participating resource manager initiates with the CRR recovery server before participating in a sync point.

resynchronization recovery. The exchange of log names and compare states flows that the CRR recovery server initiates to ensure consistent completion of a sync point by all protected resources for which data was logged. See also [resynchronization](#).

return code (RC). A code used to influence the execution of succeeding instructions. (A) A value returned to a program to indicate the results of an operation requested by that program.

reverse video. A form of highlighting a character, field, or cursor by reversing the color of the character, field, or cursor with its background.

revoked ALE. The state of a host access-list entry that exists if the entry designates an address space that was subsequently destroyed, or for which the owner has revoked access permission. If a virtual machine attempts to use a host access-list entry that is in the revoked state, an addressing-capability exception is recognized.

revoked alias. A file pool alias that no longer points to a base file because authorization on the base file was revoked from the owner of the alias. Aliases may also be revoked if the storage group in which the alias resides is restored and the base file, which resides in another storage group, does not exist.

REXX/VM. A component of z/VM that contains the REXX/VM interpreter, which processes the REXX language. It also contains the VM implementation of SAA REXX.

REXX/VM Interpreter. The language processor of the z/VM operating system that processes procedures, XEDIT macros, and programs written in the REXX language.

REXX exec. An EXEC procedure or XEDIT macro written in the REXX language and processed by the REXX/VM Interpreter.

REXX language. Restructured Extended Executor language.

REXX program. See *REXX exec*.

RFC. See [Request for Comments](#).

ring of files. The arrangement of files in virtual storage when multiple files are being edited by XEDIT.

ROCF. Remote operator console facility.

roll back. In the context of file pools, undoing changes that were made to a resource (such as a file).

rollback . In CRR, the action taken by CRR for an application program (or transaction program) to initiate CRR backout processing to undo updates to protected resources (such as file pools) during a transaction. See [backout](#).

root. The starting point of the byte file system. The first directory in the byte file system. The user name for the system user with the most authority.

root directory. (1) The highest level directory in a hierarchical file system. UNIX and POSIX-conforming systems have a single root directory, with mounted devices. (2) The directory used to resolve path names that begin with a slash (/). (3) See also [working directory](#).

root process. In CMS Multitasking, a process that performs session initialization and creates a number of threads dedicated to performing standard system functions or managing shared facilities.

rotational position sensing (RPS). A standard or optional feature of most IBM disk storage devices. It lets these devices disconnect from a block-multiplexer channel (or its equivalent on Model 3115/3125 processing units) during rotational positioning operations, thereby letting the channel service other devices.

route. A connection to another system by a logical link and one or more intermediate systems. In TSAF, many links and possible intermediate systems that allow the connection of one system to another.

router. An enhanced connectivity program that interprets requests for services and directs them to the applicable server. See *server-requester programming interface (SRPI)*.

routing table. A CMS file that contains the information that controls the operation of the Programmable Operator Facility. It lets the Programmable Operator Facility recognize a message as a command, determine the action to take when a message comes in, and recognize the authorized users of programmable operator functions.

RPS. Rotational position sensing.

RSCS. Remote Spooling Communications Subsystem Networking.

RSU. Recommended service upgrade

RUNNING screen status. For a display terminal used as a virtual console under z/VM, an indicator located in the lower right of the screen. It indicates that the user's virtual machine is in control (but not necessarily executing a program or command) and that the terminal can receive messages.

R4P3D. A denial-of-service attack in which TCP packets are sent to the stack with no header flags set. R4P3D is an augmented variant of the Stream attack. See also [Stream](#).

S

S_ISGID bit. See *set-group-ID mode bit*.

S_ISUID bit. See *set-user-ID mode bit*.

SAA. Systems Application Architecture.

SAA Communications Interface. See [Common Programming Interface for Communications](#).

SAA Resource Recovery Interface. The routines that allow applications to initiate a sync point to either commit or back out (roll back) all updates. The SRRCMIT routine commits and the SRRBACK routine backs out the updates. Also known as *CPI Resource Recovery*.

SAC. See [single access control](#).

SAPL. Stand-alone program loader.

saved segment. An area of virtual storage that is assigned a name and saved. Segment spaces, member saved segments, and discontinuous saved segments are defined by CP and saved in system data files. Logical saved segments are defined by CMS. A saved segment can be attached to and detached from a virtual machine and can be shared by many virtual machines. See *segment space*, *member saved segment*, *discontinuous saved segment*, and *logical saved segment*.

saved set-GID. The POSIX group ID (GID) of a file or program, assumed from the owner, which gives the file or program the owner's privileges. When a user uses the file or program, the user's effective GID is changed to the saved set-GID of the file or program while it is being used. See also [effective GID](#) and [real GID](#).

saved set-UID. The POSIX user ID (UID) of a file or program, assumed from the owner, which gives the file or program the owner's privileges. When a user uses the file or program, the user's effective UID is changed to the saved set-UID of the file or program while it is being used. See also [effective UID](#) and [real UID](#).

saved system. See [named saved system](#).

scale. A line on the XEDIT full-screen display, used for column reference.

SCIF. Single console image facility.

SCMBK. Subchannel measurement block.

SCP. See [system control program](#).

screen. An illuminated display surface; for example, the display surface of a CRT.

screen attribute byte. A character position on the screen of a display terminal that defines the characteristics of the next field displayed on the screen; for example, protected, not protected, displayable, or nondisplayable.

screen status area. On a display terminal used as a virtual console under z/VM, an area located in the lower right of the display screen that indicates the current status of the display screen. The possible status conditions are:

Status	Meaning
CP READ	CP is waiting for a response or a request for work from the user.
HOLDING	The current contents of the screen will remain until the user requests that the screen be erased.
MORE	The display screen is full and more data will be displayed.
NOT ACCEPTED	The terminal buffer is full, or a requested printer is busy, nonexistent, or unavailable.
RUNNING	The user's virtual machine is in control.
VM READ	The user's virtual machine is not executing, but is waiting for a response or a request for work from the user.

SCRIPT/VS. A component of the IBM Document Composition Facility program product available from IBM for a license fee.

scroll bar. A window component that shows a user that more information is available in a particular direction and can be scrolled into view. Scroll bars can be either horizontal or vertical.

scrolling. Moving a display image vertically or horizontally to view data not otherwise visible within the boundaries of the display screen. Performing a scroll up, scroll down, scroll right, or scroll left operation.

SCSI. Small computer system interface.

SDB. Structured data base.

SDF. See [system data file](#).

SDLCL. Synchronous data link control.

SDO. System delivery offering.

search order. See [CMS search order](#).

SECLABEL. Security label.

secondary console image facility. A VM facility that lets console messages and replies be handled by another virtual machine whenever the originating virtual machine is disconnected.

secondary input stream. In CMS Pipelines, an input stream defined for a stage that has a label definition by the first reference to the label, or an input stream defined by the ADDSTREAM pipeline subcommand. The secondary input stream has input stream number 1.

secondary output stream. In CMS Pipelines, an output stream defined for a stage that has a label definition by the first reference to the label, or an output stream defined by the ADDSTREAM pipeline subcommand. The secondary output stream has output stream number 2.

secondary user. A user who is designated to receive a disconnected user's console messages and to enter commands to the disconnected user's console.

second-level storage. The storage that appears real to a virtual machine. Contrast with *first-level storage* and *third-level storage*.

security category. One of the two components of a security label that specifies which area of information a subject is permitted to access or an object is permitted to contain. See also *security level*.

security label. A security level and any security categories associated with a subject or object. It is either a precise statement of the level of sensitivity and confidentiality of the contents of an object, or a precise statement of the power and privilege of a subject over objects.

security labeling. Assigning to each subject and object in a system a label denoting security sensitivity. The system uses security labels to enforce mandatory access control.

security level. One of the two components of a security label that specifies into which general class of sensitivity and confidentiality a subject or object falls. See also *security category*.

segment. An architected segment or saved segment. See *discontiguous saved segment (DCSS)*, *exclusive segment*, *logical saved segment*, *logical segment definition file*, *member saved segment*, *physical saved segment*, *physical segment definition file*, *restricted saved segment*, *segment interface*, *segment number*, *segment space*, *segment table*, *shared segment*, *system segment identification file*.

segment interface. A method of reading and writing records in which the application is responsible for assembling input segments into logical records and for disassembling logical output records into segments. The segment interface is used under the BSAM and QSAM access methods.

segment number. The part of a virtual storage address needed to refer to a segment.

segment space. A saved segment that begins and ends on a megabyte boundary and contains 1-64 nonoverlapping member saved segments. A segment space is created by CP when member saved segments are defined. Access to a segment space provides access to all of its members. See also discontiguous saved segment and member saved segment.

segment table. A table used in DAT to control user access to virtual storage segments. Each entry indicates the length, location, and availability of a corresponding page table.

select data file. In VMSES/E, a file containing a list of the parts serviced by the VMFAPPLY EXEC. The VMFAPPLY EXEC updates this file with a time stamp and a list of parts that were serviced. The VMFBLD EXEC checks the select data file for build requirements and updates the objects that are affected by service to a status of "SERVICED" in the service-level build status table. The select data file is named *appid* \$SELECT, where *appid* is the apply ID.

selection. The act of explicitly identifying one or more choices to which a subsequent choice will apply.

selective line editing. A feature of XEDIT that allows editing of a specified collection of lines while excluding other lines from the screen.

selective preventive service. The selective application of PTFs from a PUT or RSU. See also preventive service.

selector channel. An I/O channel designated to operate with only one I/O device at a time. After the I/O device is selected, a complete record is transferred one byte at a time. See also block multiplexer channel and byte multiplexer channel.

semaphore. In CMS Multitasking, a variable with an associated wait queue used by threads to control access to a shared resource. CMS Multitasking blocks and unblocks threads on the semaphore's wait queue, but it does not control access to the resource. See also *mutex*.

separator. See delimiter.

server. (1) A functional unit that provides services to one or more clients over a network. Examples include a file server, a print server, and a mail server. See also *client*. (2) The general name for a virtual machine that provides a service for a requesting virtual machine. See also *communication server*, *CRR recovery server*, *file pool server machine*, *intermediate communication server*, and *trusted server*. (3) The program that responds to a request from another computer or the same computer through the server-requester programming interface (SRPI).

server-requester programming interface (SRPI). A protocol between requesters and servers in an enhanced connectivity network. Includes the protocol to define a cooperative processing subsystem. The interface that enables enhanced connectivity between requesters and servers in a network.

server system. A data processing system containing one or more servers providing services in response to a request from another computer.

service. Changing a product after installation. See *access method services (AMS)*, *callable services library (CSL)*, *circumventive service*, *console communication service (CCS)*, *corrective service*, *corrective service tape*, *local service*, *preventive service*, *program update service*, *replacement service*, *selective preventive service*, *serviceable part*, *service level*, *service-level inventory*, *service machine*, *service pool*, *service pool virtual machine*, *service representative privilege class*, *service routines*, *service tape*, *service virtual machine*, *serviceability enhancements support stage (SESS)*, *system service program (SSP)*, *system services control point (SSCP)*, *update service*, *VMSES/E installation/service tool*, *VTAM service machine (VSM)*.

serviceable part. In VMSES/E, An individual part of a product that can be serviced separately. A serviceable part has the file name of the source or replacement part and a file type in the form *tttnnnnn*, where *ttt* is a unique three-character abbreviation for the part type and *nnnnn* is the PTF number. Serviceable parts are maintained by both source updates and replacement service. Contrast with *usable part*.

SERVICED. This status, listed in the service-level build status table, indicates that the object has been SERVICED but not built.

service level. The PTF or preventive service level that is associated with the testing level and support level of an orderable product function.

service-level apply status table. A software inventory table that indicates the apply status of all PTFs for a product on the system. The file type of this table is SRVAPPS. The possible status conditions for each PTF are:

APPLIED	The PTF has been applied (passed requisite checking).
REMOVED	The PTF has been removed.
SUPED	The PTF has been superseded by another PTF.

service-level build status table. A software inventory table that indicates the status of all objects that have been built or need to be built for a product on the system. The file type of this table is SRVBLDS. The possible status conditions for each object are:

MANUAL	The object requires manual processing.
SERVICED	The object has been serviced but not built.
BUILDALL	A user has requested this object to be built with the ALL option on the VMFBLD command, and the object still needs to be built.
BUILT	The object has been built (created in usable form).
DELETE	The object has been removed from the build list for the product, and the corresponding object must be deleted.
DELETED	The object has been removed from the product.

A qualifier of **ERROR** can appear on any status condition, indicating that an error was detected by the build part handler when the object was processed. **ERROR** remains in effect until the object is successfully processed.

service-level description table. A software inventory table that contains the abstract information for an APAR that has been received on the system. The file type of this table is SRVDESCT.

service-level inventory. See *service level software inventory*.

service-level receive status table. A software inventory table that indicates the receive status of all PTFs for a product on the system. The file type of this table is SRVRECS. The possible status conditions for each PTF are:

RECEIVED	The PTF has been received (loaded onto the system).
COMMITTED	The PTF parts are obsolete and can be discarded (not received by the VMFREC command from a future tape).

service-level software inventory. A file maintained by VMSES/E that shows: requisite relationships between PTFs; the status of the PTFs installed; the level of each part of the product serviced; and the status of objects built for the product. See also *system-level software inventory*.

service machine. A virtual machine running a program that provides system-wide services.

service pool. A set of service pool virtual machines, designed to do work with a CMR.

service pool virtual machine. A virtual machine that is one of a set of identical virtual machines, created through the use of the POOL directory statement.

service representative. The user type that corresponds to IBM-defined CP privilege class F. This privilege class is reserved for IBM use only. An IBM service representative is permitted to set or change the level of detail of I/O device error recording. See [full recording mode](#), [intensive recording mode](#), [privilege class](#), and [quiet recording mode](#).

service routines. CP or CMS routines used for addressing and updating directories; formatting or initializing disks; or doing disk, tape, or terminal I/O functions.

service tape. A tape containing service changes for one or more products. See *corrective service tape* and *program update tape (PUT)*.

service virtual machine. A virtual machine that provides a system service such as accounting, error recording, monitoring, or that provided by a supported licensed program.

session. The SNA term for a connection between two LUs. The LUs involved allocate conversations across sessions. In CMS Multitasking, the processes, accessible devices, and addressable storage associated with a virtual machine. See *session limits*, *terminal session*.

session limits. The maximum number of sessions that can occur between a pair of LUs.

SET ADDRESS SPACE CONTROL (SAC). An instruction that modifies the translation mode in which a virtual machine is operating. For XC virtual machines, the SET ADDRESS SPACE CONTROL instruction can be used to switch between the primary-space and access-register modes.

setgid bit. Deprecated term for *set-group-ID mode bit*.

set-group-ID mode bit. In setting file access permissions, the bit that sets the effective group ID of the process to the file's group on execution.

setuid bit. Deprecated term for *set-user-ID mode bit*.

set-user-ID mode bit. In setting file access permissions, the bit that sets the effective user ID of the process to the file's owner on execution.

sever. Ending communication with another virtual machine or with the user's own virtual machine. In CMS Pipelines, to cause a stream to become unconnected.

SFS. Shared file system.

SFS communication adapter. The part of CMS in a user's virtual machine that communicates with file pool server machines.

SFS directory. A group of files in the shared file system. SFS directories can be arranged to form a hierarchy in which one directory can contain one or more subdirectories as well as files. Also see [directory control directory](#) and [file control directory](#).

shadow page table. A page table that CP creates and uses to control the virtual storage of a virtual machine operating system (such as DOS/VS or OS/VS) that itself can perform paging on a real machine.

shared file system (SFS). A part of CMS that lets users organize their files into groups known as *directories* and selectively share those files and directories with other users.

shared read-only system residence disk. A system residence disk tailored so that most of the system residence information is read-only and accessible to all relevant virtual machines, leaving a relatively smaller private read/write

system disk that must be dedicated to each virtual machine. This technique can substantially reduce the disk requirements of an installation by avoiding needless duplication of disk packs by virtual machines that use the same operating system. See *saved system*.

shared segment. One or more segments of real storage, saved in a named saved system, member saved segment, or discontinuous saved segment, that can be shared among many virtual machines. For example, in a CMS named saved system, the CMS nucleus is shared in real storage by all virtual machines that loaded CMS by name; that is, every CMS virtual machine maps a 1MB segment of virtual storage to the same 1MB of real storage.

shared system. See *saved system* and *shared read-only system residence disk*.

shell. A program that interprets and processes interactive commands from a pseudoterminal or from lines in a shell script. A program that interprets sequences of text input as commands. It may operate on an input stream, or it may interactively prompt and read commands from a terminal. Also known as a *command language interpreter*. A software interface between a user and the operating system of a computer. Shell programs interpret commands and user interactions on devices such as keyboards, pointing devices and touch-sensitive screens and communicate them to the operating system. The command interpreter that provides a user interface to the operating system and its commands. The program that reads a user's commands and executes them. The shell command language interpreter, a specific instance of a shell. A layer, above the kernel, that provides a flexible interface between users and the rest of the system. Software that allows a kernel program to run under different operating system environments.

shell procedure. See *shell script*.

shell script. A file of shell commands. If the file is executable, a user can run it by specifying the file's name as a shell command or as an operand on **sh**. A shell script is like a CMS REXX exec. A file containing shell commands. If the file is made executable, it can be executed by specifying its name as a simple command: Execution of a shell script causes a shell to execute the commands within the script. Alternately, a shell can be requested to execute the commands in a shell script by specifying the name of the shell script as the operand to **thes** utility.

short. In CMS Pipelines, to cause a stream to bypass a stage by connecting the output of the preceding stage to the input of the following stage. The shorted stage can neither read from the input stream nor write to the output stream. In CMS Pipelines, a bypass made by shorting.

shortcut keys. A key or combination of keys assigned to a menu choice that initiates that choice, even if the associated menu is not currently displayed.

SI. Single-image (as in configuration).

SID code. Support Identification code.

side information. System-defined values that are used for the initial values of the *partner_LU_name*, *mode_name*, and *TP_name* conversation characteristics, among others. VM implements side information in CMS communications directory files.

signal. An information packet that indicates the occurrence of an event. To announce that an event has occurred.

signaling attention. An indication that a user has pressed a terminal key or entered a CP command to present an attention interruption (I/O interruption) to CP or to the user's virtual machine.

simultaneous peripheral operations online (SPOOL). (Noun) An area of auxiliary storage defined to temporarily hold data during its transfer between peripheral equipment and the processor. (Verb) To use auxiliary storage as a buffer storage to reduce processing delays when transferring data between peripheral equipment and the processing storage of a computer.

single console image facility (SCIF). (1) Allows a user who is disconnected from a primary virtual console to have console communications handled by a secondary user. See also *secondary user*. (2) Enables a virtual machine operator to control multiple virtual machines from one physical terminal.

single-density DASD volume. A DASD volume with the standard number of cylinders for its device type. See also *double-density DASD volume* and *triple-density DASD volume*.

single-image (SI) configuration. A system configuration that allows the processor controller to use one processor complex side while the other side is available as a backup. The A-side or B-side becomes the operational processor complex, the remaining side becomes the backup, and all the functional elements can be activated.

single key protection. This program support associates each 4K block of real storage with one storage key. Only one key is needed to protect a 4K frame.

single key storage. Real storage composed of storage frames that are protected by one storage key per 4K frame rather than two storage keys per 4K frame.

single user group. In GCS, the concept of a virtual machine that runs applications that do not require group communications. This allows an application to run without the overhead of group initialization and multiple virtual machines. Multiple users cannot IPL the same named saved system if was built for a single user environment. See also [virtual machine group](#).

sink virtual machine. In VMCF, the virtual machine that receives messages or data from a source virtual machine. Contrast with *source virtual machine*.

SIO. Start I/O.

slash. The literal character “/”. This character is also known as *solidus* in ISO 8859-1 [B34]. UNIX and POSIX-conforming systems use the slash to separate the parts of a file name.

sleep mode. A mode in which the virtual machine is in a dormant state; that is, the virtual machine is not running, but connect time still accumulates, and messages can be displayed at the terminal. The virtual machine is restarted either at the end of a specified interval or when the user signals attention to CP. See *signaling attention*.

slot. A continuous area of a paging device in which a page can be stored.

slot sorting. A technique the CP paging supervisor uses to reduce the number of separate channel programs needed to read pages from or write pages on a paging device. This is done by grouping, in the same channel program, the reading or writing of pages that occur in different relative record positions on the same track or within the same cylinder.

smoothed data. Statistical data (as in a curve or graph) freed from irregularities by ignoring random occurrences or by a process of continual averaging.

SMSG function. A CP function that lets a virtual machine send a special message to another virtual machine programmed to accept and process the message. See also *special message*.

Smurf. A denial-of-service attack in which an ICMP Echo Request is sent to a broadcast or multicast address. There are three variants of the Smurf attack: Smurf-IC, Smurf-OB, and Smurf-RP. See also [Smurf-IC](#), [Smurf-OB](#), and [Smurf-RP](#).

Smurf-IC. A denial-of-service attack in which an ICMP Echo Request is sent to a broadcast or multicast address. “IC” denotes that incoming packets are using the TCP/IP stack to launch an attack. See also [Smurf-OB](#) and [Smurf-RP](#).

Smurf-OB. A denial-of-service attack in which an ICMP Echo Request is sent to a broadcast or multicast address. “OB” denotes that an outbound ICMP Echo Request matched the description of a Smurf attack. See also [Smurf-IC](#) and [Smurf-RP](#).

Smurf-RP. A denial-of-service attack in which an ICMP Echo Request is sent to a broadcast or multicast address. “RP” denotes that the ICMP Echo Reply packets being received by the stack do not match any Echo Requests that were sent. See also [Smurf-IC](#) and [Smurf-OB](#).

SNA. Systems Network Architecture.

SNA/CCS terminal. Any terminal accessing VM that is managed by a VTAM service machine.

socket. An application programming interface used by processes to send and receive messages in a TCP/IP network. Each socket binds a process to a port.

soft requisite. The subset of a PTF’s requisite that is not a hard requisite. A PTF has a soft requisite for another PTF if it affects any of the same modules. The relationship exists because the pre-built replacement parts that are shipped with PTFs are built with all prior PTFs.

software inventory. See *service-level software inventory*, *system-level software inventory*, *software inventory management*.

software inventory management. Utilities provided by VMSES/E that provide a standard interface to the system-level inventory, service-level inventory, tool control statements (TCS), product parameter file (PPF), and file type abbreviation table.

software product. Any software supplied by IBM or an Original Equipment Manufacturer (OEM), or user written programs. The term includes program offerings and program products (PPs).

software vendor. A variety of application developers that includes, but is not limited to, Value-Added Dealers (VADs), Value-Added Remarketers (VARs), and Third Party Programmers (TPPs).

source code. The input to a compiler or assembler, written in a source language. Contrast with *object code*.

source file. A file that contains source statements for such items as high-level language programs and data description specifications.

source product parameter file. In VMSES/E, a file supplied with a product containing recommended values for the options that control VMSES/E processing for the product, formats of installation and service tapes, and the list of build lists used to build the product. The file name is the ID of the product and the file type is \$PPF.

source update. A change to the original assembler code provided with a product. VM source code is contained in files with a file type of ASSEMBLE. To update an ASSEMBLE file, the user creates update files containing control statements that describe the changes to be made.

source update file. A file containing a single change to a statement in a source file. The source update file can also include requisite information for applying the change. Also known as *update file*.

source virtual machine. In VMCF, the virtual machine that initiates the sending of messages or data to another virtual machine. Contrast with *sink virtual machine*.

spanned record. A logical record that spans across one or more data blocks on a storage device.

sparse block. A data block or pointer block that contains all sparse records. Sparse blocks are not physically stored in a file. Do not write programs that depend on logically sparse files because the CMS file system's handling of sparse blocks may change. See also *logically sparse file* and *sparse record*.

sparse record. For files with fixed-length records, a logical record with a position number between the position numbers of two records that have been written to the file. For example, if the last record written to the file, DOG DATA, has a position number of 55, you can write a record with a position number of 60. Records 56, 57, 58, and 59 are the sparse records. When a sparse record is read, a record of X'00's is returned. See also *logically sparse file*, *sparse block*.

special message. A data transmission, made up of instructions or commands, sent from one virtual machine to another by means of the SMSG function. A special message is processed by the receiving virtual machine and does not appear on the receiver's console. See also *SMSG function*.

special variable. A reserved variable name assigned a value during processing by the REXX Interpreter, the EXEC 2 processor or CMS EXEC processor. These variables can be tested within an EXEC procedure, edit macro, or XEDIT macro.

SPF. Storage protect feature.

SPM. Synchronization point manager

spoofing. An act of forging and inserting data that is incorrect or not valid. It is most commonly used in reference to IP source spoofing, where the source address in an IP packet header is replaced with a false one, effectively masking the source of the packet (making it difficult to trace back to the originator).

SPOOL. Simultaneous peripheral operations online.

spool file. A collection of data along with CCWs for processing on a unit record device. See also system data file.

spool file block. A 4096-byte buffer that contains control information, in addition to records. Also known as the *spool file buffer*.

spool file class. A one-character class associated with each virtual unit record device. For input spool files, the spool file class lets the user control which input spool files are read next; and, for output spool files, it lets the spooling operator better control or reorder the printing or punching of spool files having similar characteristics or priorities. The spool file class value can be A through Z or 0 through 9.

spool file tag. In z/VM, a 136-character data field associated with each output spool file generated. The use, content, and format of this field is a bilateral decision between the originator and receiver of the file.

spool ID. A spool file identification number automatically assigned by CP when the file is closed. The spool ID number can be from 0001 to 9999; it is unique for each spool file. To identify a given spool file, a user must specify the owner's user ID, the virtual device type, and the spool ID.

spooling. The processing of files created by or intended for virtual readers, punches, and printers. The spool files can be sent from one virtual device to another, from one virtual machine to another, and to real devices. See *virtual console spooling*.

spooling area. Any direct access storage area that z/VM temporarily uses to store input for a virtual card reader, output for a virtual printer or punch, or a console log of I/O for a virtual console.

spooling device. An I/O device (card reader, punch, printer) that reads input and writes output.

spooling operator. The user type that corresponds to IBM-defined CP privilege class D. A spooling operator controls spool files and the z/VM system's real unit record devices allocated to spooling use. See also privilege class.

spooling unit record I/O. See *spooling* and *virtual spooling device*.

SR. Symptom record.

SRPI. Server-requester programming interface.

SSCP. System services control point.

SSP. See System Support Programs.

S-STAT. A block of storage that contains the FSTs associated with the S-disk. The FSTs are sorted so that a binary search can search for files. The S-STAT usually resides in the CMS nucleus so it can be shared. Only files with file mode of 2 will have their associated FSTs in the S-STAT.

stable access. A minidisk access mode that means the user holding the stable access can be assured that the minidisk remains stable, unchanged by others, until the access is released. See also exclusive access.

stack. See *console stack* and *program stack*.

stage. In CMS Pipelines, a program or a label reference in a pipeline. A pipeline consists of one or more stages, delimited by stage separators. See also *device driver*, *filter*. See *built-in stage command*, *stage command*, *stage separator*, *user-written stage command*.

stage command. See *stage*. See also *filter*, *device driver*. See *built-in stage command*, *user-written stage command*.

stage separator. In CMS Pipelines, a character that indicates the end of one stage of a pipeline and the beginning of the next stage. The default stage separator is the solid vertical bar (|).

stall. In CMS Pipelines, a condition in a multistream pipeline in which no stage can run.

stand-alone. An operation independent of another device, program, or system. See *online test stand-alone executive program (OLTSEP)*, *stand-alone dump*, *stand-alone program*, *stand-alone program loader (SAPL)*.

stand-alone dump. A dump acquired without regular system functions. For example, to obtain a CP dump when the regular system is unable to dump the machine, the stand-alone dump facility gets a CP stand-alone dump.

stand-alone program. A program independent of any other program or system.

stand-alone program loader (SAPL). A program installed in cylinder 0 of a disk volume. The stand-alone loader is a generic loader that can load any program designed to work with it.

standard CMS multivolume support. Refers to the CMS support of tape switching. For this support, CMS does all necessary volume label processing. All volume switching is performed by either the default CMS volume switching routine (DMSTVS) or the DMSTVI tape label processing exit (if one has been provided by the user or installation).

state. See *program state*.

state transition. The change from one program state to another in a conversation.

static. (1) In programming languages, pertaining to properties that can be established before execution of a program; for example, the length of a fixed length variable is static. (l) (2) Pertaining to an operation that occurs at a predetermined or fixed time. (3) See also dynamic.

static CP area. The portions of virtual storage allocated to CP during system generation and IPL.

status area. The area in the bottom right corner of the screen that contains messages about the status of a virtual machine.

sticky bit. A file access permission bit that allows multiple users to share a single copy of an executable file.

storage access component (SAC). The part of a file pool server machine that accesses catalogs and user files and provides support for locking, catalog indexes, logging, file pool recovery, and file pool generation. See also data access component.

storage control. The component in a DASD subsystem that connects the DASD to the host channels. It does channel commands and controls the DASD devices.

storage group. A subset of minidisks within a file pool. Each storage group is identified by a number.

storage group 1. See catalog storage group.

storage key. An indicator associated with one or more storage blocks that requires that tasks have a matching protection key to use the blocks.

storage level. See *first-level storage*, *second-level storage*, and *third-level storage*.

Stream. A denial-of-service attack in which TCP packets are sent to the stack with no header flags set. See also R4P3D.

stream. In CMS Pipelines, a flow of data records into a stage or out of a stage. One end of a stream enters or leaves a stage. The other end can be connected to streams of other stages so that data can flow between stages. A stage's input and output streams are numbered separately, starting at zero. Streams can also be given an identifier. In REXX, characters transmitted to a destination or from a source, such as a human user, a display, or a file. A stream can be manipulated character by character or line by line. A stream is transient (for example, data sent to or received from a display) or persistent (for example, data written to or read from a file). In TCP/IP, the collection of datagrams needed to represent a message transmitted by a process. The number and size of the datagrams needed to contain the message may vary according to network capacity. The process sees only the message, not the datagrams. See *input stream*, *multistream pipeline*, *output stream*, *primary input stream*, *primary output stream*, *secondary input stream*, *secondary output stream*, *stream identifier*, *tertiary input stream*, *tertiary output stream*.

stream identifier. In CMS Pipelines, a symbolic name for a stream, consisting of up to 4 alphabetic characters or a combination of alphabetic characters and digits that includes at least one alphabetic character, with no intervening blanks. When referencing a particular stream by operands on built-in stage commands or subcommands, a *stream identifier* is a number of a stream where 0 is the primary stream, 1 is the secondary stream, and so on.

string. A group of minidisks defined for a specific function in the product parameter file, for example, the BASE2 string, which holds source code.

structurally sparse files. Files that contain sparse blocks. See *sparse block*.

subchannel. A division of a channel data path. The channel facility required for sustaining a single I/O operation. The facility that provides all of the information necessary to start, control, and complete an I/O operation.

subchannel number. A system-unique 16-bit value used to address a subchannel. See also *channel path identifier*, *device identifier*, and *device number*.

subcommand. A command that can be specified only within the environment created by a certain command. For example, the XEDIT subcommands can be specified only within the environment that is initiated by specifying the XEDIT command.

subdirectory. Any directory below a user's top directory. The CREATE DIRECTORY command creates subdirectories. There can be up to eight levels of subdirectories with no limit on the number of them at each level, other than overall DASD space limits. Each level of a subdirectory is an additional identifier of up to 16 characters that is appended to next higher level subdirectory.

sub hard requisite. In VMSES/E, a sub hard requisite is a hard requisite of an explicitly defined requisite.

sub if-requisite. In VMSES/E, a sub if-requisite is an if-requisite of an explicitly defined requisite.

subject. In computer security, an active entity that causes information to flow among objects or changes the system's state. A subject is generally a person, process, or device. Contrast *object*.

subrequisite. A subrequisite is a prerequisite or corequisite or an explicitly defined requisite. The requisite of requisites.

subroutine pipeline. In CMS Pipelines, the operand of the CALLPIPE pipeline subcommand.

subsystem. A secondary or subordinate system, usually capable of operating independently of, or asynchronously with, a controlling system. (T)

SUPED. This status, listed in the service-level apply status table, indicates that the PTF has been superseded.

supersede. Of a PTF, to include all the APARs, parts, and requisite relationships of another PTF.

superuser. A system user who operates without restrictions. A superuser has the special rights and privileges needed to perform administrative tasks.

supervisor call instruction (SVC). An instruction that interrupts a program being executed and passes control to the supervisor so that it can do a specific service indicated by the instruction.

supervisor state. A state during which the processor can execute I/O and other privileged instructions. Contrast with *problem state*.

SVC. Supervisor call instruction.

SVC 76 error recording interface. A means for z/VM to record the error incidents met by certain operating systems running in a virtual machine under z/VM. When the virtual operating system issues SVC 76, z/VM translates the virtual storage and I/O device addresses to the real ones, records the information on the z/VM error recording cylinder, and returns control to the virtual machine; thus bypassing the virtual machine's own error recording routine and avoiding duplicate recording of the same errors.

switched point-to-point channel path configuration. In an ESCON I/O interface, a configuration that consists of a link between a channel and an ESCON Director and one or more links from the ESCD, each of which attaches to a control unit. This configuration depends on the capabilities of the ESCD for establishing and removing connections between channels and control units. Contrast with *point-to-point channel path configuration*.

symbolic destination name. A name an APPC/VM or CPI-Communications connection uses. Symbolic destination names index SNA routing and security parameters, which are stored in communications directory NAMES files, to complete a connection.

symbolic link. A file that contains the path name for another file; the path name can be relative or absolute. If a symbolic link contains a relative path name, the path name is relative to the directory containing the symbolic link.

synchronization point manager (SPM). The part of the Coordinated Resource Recovery (CRR) facility that resides in the application's virtual machine. A protected resource registers with the SPM to participate in CRR. The SPM coordinates the updating of protected resources and distributes the coordination of protected conversations to other SPMs.

synchronization point processing. The coordination function of CRR. The synchronization point manager (SPM) drives the participating resource adapters through the following SPM exits:

- Precoordination - checks participating resources to ensure they are ready for a sync point.
- Coordination - the actual sync point, which implements the one-phase and two-phase commit protocols.
- Postcoordination - performs cleanup processing after a sync point.

There are also the following exits, but they are not considered sync point exits:

- End of work unit - does cleanup processing before the work unit ends.
- Backout required - puts the protected resource in a state such that rollback (backout) is required.

synchronous communication. A method of communication in a conversation where a user's virtual machine is put into a WAIT state and cannot issue any communication functions on any conversations until a particular function completes. See also [asynchronous communication](#).

synchronous data link control (SDLC). A data link over which communication is conducted using the synchronous data protocol.

synchronous processing for DASD. Channel data is transferred for each system channel operation when the target data field passes the read/write head on the device.

sync point. See *synchronization point processing*.

sync point manager. Synchronization point manager.

sync point processing. Synchronization point processing.

sync point tree. A conceptual structure used to organize all the protected resources and protected conversations that are coordinated by a SPM in a transaction. The tree consists of nodes that contain the protected resources and nodes that are the targets of protected conversations.

SynFlood. A denial-of-service attack in which the initiator floods the TCP/IP stack with SYN packets that have spoofed source IP addresses, resulting in the server never receiving the final ACKs needed to complete the three-way handshake in the connection process.

synonym. In CMS, an alternative command name defined by the user as equivalent to an existing CMS command name. Synonyms are entries in a CMS file with a file type of SYNONYM. Entering the SYNONYM command allows use of those synonyms until that terminal session ends or until the use of synonyms is revoked by entering the SYNONYM command with no operands.

syntax. The rules for the construction of a command or program.

SYSGEN. System generation.

SYSHIGH. The security label associated with the most important and most sensitive data handled by a given B1 trusted computing base. It is a security label combining the system's highest security level with all of the system's security categories. Contrast *SYSLOW*.

SYSIML. System initial machine load.

SYSLOW. The security label associated with the least important and least sensitive data handled by a given B1 trusted computing base. It is a security label consisting of the system's lowest security level with none of the system's security categories. Contrast *SYSHIGH*.

SYSRESET. System reset.

system administrator. The person responsible for maintaining a computer system.

system analyst. The user type that corresponds to IBM-defined CP privilege class E. A system analyst examines and saves z/VM system operation data in specified z/VM storage areas. See also [privilege class](#).

system configuration. A process that specifies the devices and programs that form a particular data processing system.

system configuration file. A file that resides on the parm disk and contains information about how CP should initialize the system.

system console. The panel displayed on the Hardware Management Console for the Operating System Messages task.

system control file. In CP, the file that consists of macroinstructions that describe the CP system residence disk, the real main storage size, the CP-owned DASD volumes, the z/VM system operator's user ID, and the system timer value.

system control program (SCP). Programming that is fundamental to the operation of the system. SCPs include the MVS element of the z/OS operating system and the CP component of the z/VM operating system, plus any other programming that is used to operate and maintain the system.

system data file (SDF). A file defined by CP to hold a collection of data associated with a particular system function, such as a saved segment, a saved system, a printer image library, user class restructure definitions, a message repository, or system trace data. Because a system data file contains no CCWs, it cannot be processed on a unit record device. See also [spool file](#).

system DDR CD-ROM. A CD-ROM containing the image of a built system for various types of DASD.

system DDR tape. A tape containing the image of a built system for various types of DASD.

system definition. The process, completed before a system is put into use, by which desired functions and operations of the system are selected from various available options. Synonymous with *system generation*.

system delivery offering (SDO). A z/VM package that includes a subset of all VM products or components. This package has a single point of order and delivery, is refreshed periodically, and is installed from one logical tape. All products or components included with the package, and their requisite relationships, are tested to ensure the package functions as a system.

system disk. In VMSES/E, a minidisk or file pool directory containing the other products that are required during service.

system event. In CMS Multitasking, an event defined and signaled by CMS. See also [event](#).

system gateway. A gateway that APPC programs can use to access global or private resources on a specific system within a CS or TSAF collection, or that APPC programs in a TSAF collection can use to access resources in an adjacent CS collection, or that APPC programs in a CS collection can use to access resources in an adjacent TSAF collection. See also [global gateway](#) and [private gateway](#).

system generation (SYSGEN). The process of selecting optional parts of an operating system and of creating a particular operating system tailored to the requirements of a data processing installation. (I) (A) Synonymous with *system definition*.

system integrity. The property of a system that is designed, implemented, and maintained to protect itself from unauthorized access.

system-level apply status table. A software inventory table that indicates the apply status for all products on the system. The file type of this table is SYSAPPS. The possible status conditions for each product are:

APPLIED	The product has been applied (has passed requisite checking).
SUPED	The product has been superseded by another product.
DELETE	A request for removal of the product is pending.
DELETED	The product has been removed from the system.

system-level build status table. A software inventory table that indicates the build status for all products on the system. The file type of this table is SYSBLDS. The possible status conditions for each product are:

BUILT	The product has been built (created in usable form).
SUPED	The product has been superseded by another product.
DELETE	A request for removal of the product is pending.
DELETED	The product has been removed from the system.
ERROR	An error occurred while the product was being processed.

system-level description table. A software inventory table that contains the descriptions of the products that have been received on the system. The file type of this table is SYSDESC.

system-level inventory. See *system-level software inventory*.

system-level receive status table. A software inventory table that indicates the receive status for all products on the system. The file type of this table is SYSRECS. The possible status conditions for each product are:

RECEIVED	The product has been received (loaded onto the system).
DELETE	A request for removal of the product is pending.
DELETED	The product has been removed from the system.

system-level software inventory. A file maintained by VMSES/E that contains requisite relationships between products or components; mapping of product identifier to the name of the \$PPF file used during installation; the status of the product or component on the system; and mapping of PTF file type abbreviation to real CMS file type. See also *service-level software inventory*.

system load. The combination of active devices, programs, and users that use the system resources of the processor and storage.

system menu. A menu that appears from the system menu symbol in the leftmost part of a title bar. It contains choices that affect the window.

system menu symbol. A symbol in the leftmost corner of a title bar that gives a user access to choices that affect the window or the view it contains.

system name table. In CP, the table that contains the name and location of saved systems, including shared and nonshared segments.

system object. An object, such as a saved segment, that may contain objects or parts supplied by more than one component or product.

System Offering. A package containing VM/SP and associated products.

system operator. The user type that corresponds to IBM-defined CP privilege class A. A system operator controls the z/VM system and is responsible for the availability of the z/VM system and its resources. In addition, a system operator controls system accounting, broadcast messages, virtual machine performance options, and other options that affect the overall performance of z/VM. The class A user who is automatically logged on during z/VM initialization is designated as the *primary system operator*. See also privilege class.

system operator console. The device where the primary z/VM system operator's virtual machine is logged on. Also known as the *operator console*.

system profile. An EXEC (SYSPROF) that resides in a saved system or on a system disk and called by CMS initialization. It contains some initialization functions, and provides a means for installations to override the default CMS environment by tailoring the exec to suit the installation.

system programmer. The user type that corresponds to IBM-defined CP privilege class C. A system programmer updates or changes system-wide parameters of the z/VM system. See also privilege class.

system reset (SYSRESET). To reinitialize the execution of a program by repeating the initial program load (IPL) operation.

system resource. A resource that is unique on the system on which it is defined (similar to a local resource) but is accessible (similar to a global resource) from remote systems in a CS or TSAF collection, or in the SNA network. See also global resource, local resource, and private resource.

system resource manager. An application that runs in a server workstation or virtual machine and provides a service for connecting programs. The system resource identified is not known globally throughout the TSAF or CS collection. However, by specifying the system gateway name of the system on which the system resource manager resides, APPC programs within the collection can access the system resource. See also global resource manager, local resource manager, and private resource manager.

system resource operator. The user type that corresponds to IBM-defined CP privilege class B. A system resource operator controls all the real resources of the z/VM system, except those controlled by system operators and spooling operators. See also privilege class.

system restart. See *initial program load*, *quick start*, and *warm start*.

Systems Application Architecture® (SAA®). A defined set of interfaces, conventions, and protocols that can be used across various IBM systems.

system segment identification file. A file (SYSTEM SEGID) that identifies the logical saved segments on the system and the physical saved segments in which they reside.

system service program. In ACF/TCAM, an IBM-supplied or user-supplied program that does system-oriented auxiliary functions in support of the message control program. System service programs run under control of the initiator as attached subtasks.

system services control point (SSCP). In SNA, the focal point within an SNA network for managing the configuration, coordinating network operator and problem determination requests, and providing directory support and other session services for end users of the network.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

system startup. See initial program load.

system string. In VMSES/E, the set of system disks.

System Support Programs (SSP). An IBM licensed program, made up of a collection of utilities and small programs, that supports the operation of the NCP.

system trace file. A type of system data file that contains CP or virtual machine trace data.

T

tailorable file. Any source level product file that requires user input in order for the product to work correctly. (An example is a PROFILE EXEC.)

tailorings. Changes made to a source level product file to customize it for your own environment.

tape descriptor file. A file containing a directory of the products on a service tape.

tape document. A document describing the service procedure for a service tape.

target. One of many ways to identify a line to be searched for by XEDIT. A target can be specified as an absolute line number, a relative displacement from the current line, a line name, or a string expression. In CMS Pipelines, a way to identify a record to be searched for. A target can be a group of characters, a delimited string, a number of records, or a displacement value.

target disk. In VMSES/E, a minidisk or file pool directory on which are received tape files from which the objects are built.

target logical partition. In LPAR mode, the current or immediate logical partition being used or displayed. It is identified on the status line and determined by the SETLP service language command.

target processor. The processor that controls execution during a program restart, instruction trace, stand-alone dump, or IPL, and whose ID is identified by highlighting on the status line.

target string. In VMSES/E, the set of target disks.

task. A basic unit of work used for the execution of a program or a system function.

task ID. A 2-byte field that uniquely defines a task within a GCS virtual machine. Task ID is sometimes combined with machine ID to uniquely identify a task within a virtual machine group.

TCAM. See Telecommunications Access Method.

TCB. Trusted computing base.

TCP. Transmission Control Protocol.

TCP/IP. Transmission Control Protocol/Internet Protocol.

TCP/IP for z/VM. A facility supplied with z/VM that provides the TCP/IP protocol suite.

TCS. Tool control statement.

T-disk. See *temporary disk*.

Telecommunications Access Method (TCAM). An access method used to transfer data between main storage and remote or local terminals.

template file. A file that defines the number, data type, and length of parameters that a CSL routine expects.

temporary disk. An area on a DASD available to the user for newly created or stored files until logoff, at which time the area is released. Temporary disk space is allocated to the user during logon or when entering the CP DEFINE command.

temporary product parameter file. In VMSES/E, the output of the VMFOVER EXEC. The file name is either the file name of the last override product parameter file in the chain of overrides, or the file name of the source product parameter file. The file type is \$PPFTEMP.

terabyte. 2**40 bytes.

terminal. A device, usually equipped with a keyboard and a display, capable of sending and receiving information. See *control terminal*, *control unit terminal (CUT)*, *display terminal*, *distributed function terminal (DFT)*, *logically connected terminal*, *SNA/CCS terminal*, *terminal input buffer*, *terminal session*, *terminal user*.

terminal input buffer. A buffer used to hold lines entered at the user's terminal until CMS processes them.

terminal session. The time from logon to logoff when a user and the virtual machine can use the facilities of z/VM or the operating system or both. This also includes any time that the virtual machine is running in disconnect mode. See *disconnect mode*.

terminal user. Anyone who uses a terminal to log on to z/VM.

tertiary input stream . In CMS Pipelines, an input stream defined for a stage that has a label definition by the second reference to the label, or an input stream defined by the ADDSTREAM pipeline subcommand. The tertiary input stream has input stream number 2.

tertiary output stream . In CMS Pipelines, an output stream defined for a stage that has a label definition by the second reference to the label, or an input stream defined by the ADDSTREAM pipeline subcommand. The tertiary output stream has output stream number 2.

text deck. An object-code file that must be additionally processed to produce executable machine code.

text library. A CMS file that contains relocatable object modules and a directory that indicates the location of each of these modules within the library.

text shell. A file that contains prologue information for a text deck but no additional code.

third-level storage. The virtual storage created and controlled by an OS/VS or VM virtual machine. Contrast with *first-level storage* and *second-level storage*.

thread. In CMS Multitasking, the basic dispatchable entity in the system. It is an instance of execution of a unit of program code; its environment is characterized by a PSW, a set of register values, and a save area stack.

throttle. To limit or control the number of I/O operations that a guest operating system can initiate to a specific real device, thus preventing the guest from interfering with or dominating the I/O resources of that real device. See also *I/O throttling*.

time-of-day (TOD) clock. A hardware feature required by z/VM. The TOD clock is incremented once every microsecond, and provides a consistent measure of elapsed time suitable for the indication of date and time; it runs regardless of the processor state (running, wait, or stopped).

time-out. For a terminal attempting to log on to z/VM, through a switched line, the Line Timeout hardware feature of a telecommunications control unit that logs off the user if characters are not entered for a specified time, usually 28 seconds. If logged off, the user must dial the z/VM computer again.

time share. To use a device or system for two or more interleaved purposes.

time sharing. A method of using a computing system that lets many users execute programs concurrently and interact with the programs during execution.

time stamp. A record containing the TOD clock value stored in its internal 32-bit binary format.

title bar. The area at the top of each window that contains the system menu symbol from which the system menu appears, a small icon, a window title, and the window sizing buttons.

TOD clock. Time-of-day clock.

token. An eight-character symbol created by the CMS EXEC processor when it scans an EXEC procedure or EDIT macro statements. Symbols longer than eight characters are truncated to eight characters. In a programming language, a character string, in a particular format, that has some defined significance.

tokenized PLIST (parameter list). A string of doubleword aligned parameters occupying successive doublewords.

token ring. According to IEEE 802.5, network technology that controls media access by passing a token (special packet or frame) between media-attached stations. A station ready to send can capture the token and insert data for transmission.

tool control statement (TCS). Statements used for product or component installation and for a PTF. The TCS data for product installation is supplied by the product owner or product packager on the product install tape. The TCS data for PTFs is supplied by the product's local control group (LCG).

top directory. The directory created for a user when the user is enrolled in a file pool. The name of the top directory is the same as the person's user ID.

topmost window. With the window support, the highest window in the display order such that: (1) The window name is not WM or STATUS. (2) The window currently displays at least one virtual screen data line or reserved line. For example, a vsize window connected to a virtual screen such that there are no scrollable data being displayed, is NOT the topmost window.

Note: It may not be obvious by looking at the screen which is the topmost window.

total CPU time. The virtual processor time plus the CP overhead to service the virtual machine.

TPN. Transaction program name.

trace. A record of the execution of a computer program. It exhibits the sequences in which the instructions were executed. (A) The process of recording the sequence in which the statements in a program are executed and, optionally, the values of the program variables used in the statements. To record a series of events as they occur.

trace table. See CP trace table.

transaction. See logical unit of work and logical unit of work identifier.

transaction program. An application that runs within a particular LU. Within an SNA-defined network, a resource in a z/VM system, in a CS or TSAF collection is viewed as a transaction program within the LU that represents the z/VM system, CS collection, or TSAF collection. In the context of CRR, an application program that executes one or more transactions or CRR logical units of work.

transaction program name (TPN). A symbolic name given to a particular transaction program in an SNA-defined network.

transient program area. In CMS, the virtual storage area occupying locations X'E000' to X'10000'. Some CMS commands and user programs execute in this area of CMS storage.

transition. See *state transition*.

translate mode. The operating mode of a virtual machine when virtual addresses are converted to real addresses by segment and page tables.

Transmission Control Protocol (TCP). A formal specification for the reliable delivery of streams of data between two processes. Delivery is guaranteed. TCP provides a reliable host-to-host protocol in packet-switched communication networks and in an interconnected system of such networks. It assumes that the Internet Protocol is the underlying protocol. TCP is the protocol that provides a reliable, duplex, connection-oriented service for applications.

Transmission Control Protocol/Internet Protocol (TCP/IP). The entire Internet protocol suite containing TCP, IP, and their related protocols. TCP provides for the reliable transfer of data, while IP transmits the data through the network in the form of datagrams. Users can send mail, transfer files across the network, or process commands on other systems. A set of communication protocols that support peer-to-peer connectivity functions for both local and wide area networks.

transparency mode. A BSC mode that permits transmission of any data, bypassing regular BSC control character scanning.

Transparent Services Access Facility (TSAF). A component of z/VM that routes communication between APPC application programs on interconnected z/VM systems. TSAF runs in a virtual machine. When a TSAF virtual machine on one z/VM system establishes a link to a TSAF virtual machine on another z/VM system, a TSAF collection is formed. A TSAF collection can include up to eight z/VM systems. APPC programs on one system in the collection can communicate with APPC programs on other systems in the collection. TSAF allows a source program to connect to a target program by specifying a name that the target has made known, instead of specifying a user ID and node ID.

triple-density DASD volume. A DASD volume with three times the standard number of cylinders for its device type. See also [single-density DASD volume](#) and [double-density DASD volume](#).

TRN. Token ring network.

truncation. A valid shortened form of a command name, operand, option, or statement. When the shortened form is used, the number of key strokes is reduced. For example, the minimum allowed truncation for the ACCESS command is two characters, so AC, ACC, ACCE, ACCES, and ACCESS are all recognized by CMS as the ACCESS command. See also [command abbreviation](#).

truncation setting. In the CMS Editor, the value that determines the maximum length of input lines.

trusted computing base (TCB). In computer security, all of the protection mechanisms within a computer system, including hardware, software, and firmware, the combination of which enforces a security policy. It creates a basic protection environment and provides additional user services required for a trusted computer system.

trusted server. A virtual machine that runs programs necessary to the operation of the system. These programs provide services such as accounting, error recording, security, network management, printing, and many others. A trusted server always runs disconnected, and it never performs work on behalf of some other user. Though not all trusted servers are privileged, most are able to issue CP privileged commands.

A RACF virtual machine is an example of a trusted server.

TSAF. [Transparent Services Access Facility](#).

TSAF collection. A group of up to eight z/VM systems that are interconnected through a TSAF virtual machine running in each system.

TSAF virtual machine. A virtual machine in which TSAF is installed and running.

TSAF VTAM line driver. A portion of TSAF that handles APPC communications across VTAM-controlled links.

two-phase commit protocol. The method that permits updates to distributed protected resources to be committed or rolled back atomically. In the first phase the initiator requests that all participating resource managers vote whether the transaction should be committed or rolled back. All participating resource managers must vote to commit if the transaction is to be committed. When all the votes are collected and the initiator's decision is recorded on the CRR logs, then the second phase begins. The initiator informs the participating resource managers to commit or roll back. At various times, state information is written to the CRR logs so that the distributed resources can be resynchronized if there are any failures during the two-phase commit processing. The two-phase commit is implemented during CRR's coordination function and is part of the LU 6.2 sync point architecture.

two-word command. A command resolved to a program name by using the first two tokens of its tokenized parameter list.

U

UCR. See user class restructure.

UCS. Universal character set.

UCW. Unit control word.

UDP. User Datagram Protocol.

UID. See POSIX user ID.

unavailable state emphasis. A visible cue that indicates a choice cannot be selected.

uncommitted work. Operations associated with a work unit that have not yet been committed or rolled back.

uniprocessor mode. This term indicates that there is only one processor in the physical configuration, or that z/VM uses the facilities of one processor in an MP system (not to be confused with *single processor mode*).

unit address. The last two hexadecimal digits of a device address or a device number.

unit control word (UCW). An identifier that contains the control information necessary for a channel to perform input/output operations to an attached device.

unit record device. A reader, printer, or punch.

universal character set (UCS). See *printer universal character set*.

universal class card reader. A virtual card reader that can read any class of reader, printer, or punch files spooled or transferred to it.

UNIX®. A highly portable operating system originally developed by Bell Laboratories that features multiprogramming in a multiuser environment. UNIX is implemented in the C language. UNIX was originally developed for use on minicomputers but has been adapted on mainframes and microcomputers. It is especially suitable for multiprocessor, graphics, and vector-processing systems. Many of the commands in the OpenExtensions shell are based on similar commands available with UNIX System V.

unmount. To logically disassociate a mountable file system from another file system. The CMS command to perform this action is OPENVM UNMOUNT.

unresolved alias. An alias pointing to a base file that does not exist or for which the creator does not have the necessary authorizations. Such aliases are resolved when the base file is created, provided the authorizations exist. Administrator authority is required to create an unresolved aliases.

untokenized parameter list. A parameter list in which no restrictions are placed on the structure of the items in the list. See *token* and *tokenized PLIST (parameter list)*.

unused ALE. The state of a host access-list entry that exists when the entry does not designate an address space. If a virtual machine attempts to use a host access-list entry that is in the unused state, an ALEN-translation exception is recognized.

update file. See source update file.

update number. A number assigned by service organizations and uniquely associated with a PTF. The PTF number and update number can be the same. If they are different, there is a one-to-one correspondence between the PTF number and the update number. With z/VM source-maintained products, only one APAR is fixed in each PTF, and the PTF number is not the same as the update number. The update number format is *raaaaacc*, where *r* identifies the product and release, *aaaaa* is the APAR number, and *cc* defines the component.

update service. Servicing a part by applying a change to a source file statement, then assembling or compiling the source file to produce a new object file.

update shell. A file that contains requisite information for applying an update but does not contain the update code.

upload. The act of transferring files from a workstation to a host system. See also [download](#).

UPSI. User program switch indicator.

usable form. A built part of a product. The service level of a usable form cannot be determined from the file identifier, for instance an exec file with the file type of EXEC. See *usable form product parameter file*. See also *serviceable part, base file type*.

usable form product parameter file. In VMSES/E, a product parameter file produced by applying all override product parameter files to a source product parameter file, and used by most VMSES/E execs during installation. The file name is either the file name of the last override product parameter file in the chain of overrides, or the file name of the source product parameter file if there are no overrides. The file type is PPF.

user. Anyone who requests the services of a computing system. See *authorized user ID, class A user, class Any user, class B user, class C user, class D user, class E user, class F user, class G user, CMS user disk, general user privilege class, installed user program (IUP), inter-user communication vehicle (IUCV), interactive user, memo-to-users, multiple user mode, noninteractive user, secondary user, single user group, terminal user, user class, user class restructure (UCR), user data, user exit, user ID, user identification card, user input area, user memo, user modification, user profile table, user program, user program area, user program switch indicator (UPSI), user-written CMS command, user-written stage command*.

user class. A privilege category assigned to a virtual machine user in the user's directory entry; each class specified allows access to a logical subset of all the CP commands. See *privilege class*.

user class restructure (UCR). The extension of the privilege class structure for CP commands, DIAGNOSE codes, and certain CP functions from eight classes to as many as 32 classes. Creating a more elaborate class structure gives an installation more control over the functions that each user can use.

user data. In a file pool, any data that resides in storage groups 2 through 32767.

User Datagram Protocol (UDP). A datagram level protocol built directly on the IP layer. UDP is used for application-to-application programs between TCP/IP hosts.

user directory. See [VM directory](#).

user exit. A documented z/VM programming interface that can be used by an application program to transfer control to the application program. Generally, a user exit affects only the particular application specifying the exit and is run as part of the application program. See also [installation-wide exit](#).

user ID. (1) The identification associated with a user or job. See also [POSIX user ID](#) and [VM user ID](#). (2) A user ID is equivalent to an account on a UNIX-type system.

user identification card. See *ID card*.

user input area. On a display device, the lines of the screen where the user is required to enter command or data lines.

user interface. The combination of hardware and software that allows a user to interact with a computer.

user memo. At the system-level, special instructions for installing a product. At the service-level, special instructions for installing a PTF. *memo-to-users*.

user modification. Any change that a user originates for a product or component. See also *local service*.

user profile table. A table of user attributes (called virtual machine control block (VMBLOK)) built for each active user from information gathered during logon.

user program. A transaction program that requests a service from a resource manager program. User programs reside in requester virtual machines.

user program area. In CMS, the virtual storage area occupying location X'20000' to the end of the user's virtual machine. The beginning of the user program area is the default loading point for user programs and for many CMS commands.

user program switch indicator (UPSI). An operand of the CMS SET command. The user can set the switches (1 byte) to a desired value, which can be tested by a program in CMS/DOS.

user-written CMS command. A CMS file created by a user that has a file type of EXEC or MODULE and contains a procedure consisting of one or more commands or execution statements. Such a file can be executed as a CMS command by issuing its file name, followed by any operands or options expected by the procedure.

user-written stage. In CMS Pipelines, a stage that is not supplied by CMS Pipelines. A user-written stage is written in REXX. It can contain pipeline subcommands, REXX instructions, and host commands. It has a file type of REXX or is called with the REXX stage. See also built-in stage command.

V

| **V=F.** See virtual=fixed (V=F) virtual machine.

| **V=R.** See virtual=real (V=R) virtual machine.

| **V=V.** See virtual=virtual (V=V) virtual machine.

vaddr. Virtual address.

valid ALE. The state of a host access-list entry that exists when the entry designates an address space and access permission for the space is still in effect. A valid host access-list entry can be used to access the subject address space when in access-register mode.

variable symbol. In an EXEC procedure, a symbol beginning with an ampersand (&) character, the value of which is assigned by the user, or sometimes by the VM/REXX interpreter, the EXEC 2 processor, or CMS EXEC processor. The value of a variable symbol can be tested and changed using control statements. See *special variable*.

VCIT. Virtual configuration identification token.

Vector Facility (VF). A hardware feature that provides synchronous instruction processing for high-speed manipulation of fixed-point and floating-point data.

verification setting. When using the CMS Editor or XEDIT, the verification setting determines whether new lines entered, or the results of editing changes entered by the user, are displayed at the user's terminal.

version vector table. The software inventory table that identifies which PTFs have been applied to each part of the product and the current level of each part. The file type of the service level inventory table is *VVT/lvid*. The *lvid* may be unique for each level of service the customer has installed for a product or component. It corresponds directly to each AUX level in the control file. The system level inventory does not contain this table.

VF. Vector Facility.

| **virtual=fixed (V=F) virtual machine.** A type of virtual machine (no longer supported) that was assigned a fixed, contiguous area of host real storage not starting at page 0. See virtual=virtual (V=V) virtual machine.

| **virtual=real (V=R) virtual machine.** A type of virtual machine (no longer supported) that was assigned a fixed, contiguous area of host absolute storage starting at page 0. See virtual=virtual (V=V) virtual machine.

virtual=virtual (V=V) virtual machine. A virtual machine that runs in the dynamic paging area. CP pages this virtual machine's guest real storage in and out of host real storage. See also *dynamic paging area*.

virtual adapter. See Network Interface Card.

virtual address. The address of a location in virtual storage. A virtual address must be translated into a real address to process the data in processor storage.

virtual address space. See *virtual storage*.

virtual block multiplexer mode. A virtual machine option that allows the interleaving of data to different virtual devices on the same virtual channel path.

virtual card reader. CP's simulation on disk of a real card reader. A virtual card reader can read card, punch, or print records of up to 151 characters in length. The virtual device type and I/O device address are usually defined in the z/VM directory. See *pool file class* and *universal class card reader*.

virtual configuration. See virtual machine.

virtual configuration identification token (VCIT). An 8-byte token that uniquely identifies a particular virtual machine. The VCIT is a system-wide, unique identification token—once a VCIT value has been assigned to a virtual machine, that VCIT value is not used again within the scope of a z/VM IPL (CP IPL). The VCIT for a virtual machine is equal to the ASIT that identifies the virtual machine's host-primary address space.

virtual console. A console simulated by CP on a terminal for a virtual machine. The virtual device type and I/O address are defined in the z/VM directory entry for that virtual machine.

virtual console function. A CP command that the Diagnose Interface executes.

virtual console spooling. The writing of console I/O on disk as a printer spool file instead of, or in addition to, having it typed or displayed at the virtual machine console. The console data includes messages, responses, commands, and data from or to CP and the virtual machine operating system. The user can invoke or terminate console spooling at any time. When the console spool file is closed, it becomes a printer spool file.

virtual CPU time. The time required to execute the instructions of the virtual machine.

virtual device. The simulation of a device by CP.

virtual disk. See *minidisk*. See also *virtual disk in storage* and *virtual disk initialization program*.

virtual disk initialization program. The program that can initialize virtual as well as real disks for use by VSE, and OS/VS virtual machines running under z/VM. See also format program.

virtual interval timer assist. A hardware assist function, available only on a processor, that has ECPS. It provides, if desired, a hardware updating of each virtual machine's interval timer at location X'50'.

virtual local area network (VLAN). A mechanism described by IEEE standard 802.1q that enables groups of hosts to be logically connected into a single local area network (LAN) even though they are connected to different switches in different physical locations.

virtual machine. (1) A virtual data processing system that appears to be at the exclusive disposal of a particular user, but whose functions are accomplished by sharing the resources of a real data processing system. (T) (2) In z/VM, the virtual processors, virtual storage, virtual devices, and virtual channel subsystem that CP allocates to a single user. A virtual machine also includes any expanded storage dedicated to it. See also virtual machine type. (3) In z/VM, the functional equivalent of an ESA/390 or z/Architecture system that CP simulates, or an instantiation of the ESA/XC virtual machine architecture. See also virtual machine mode. (4) In z/VM, the platform that CP provides for running CMS, GCS, or a guest operating system.

Virtual Machine/VTAM Communications Network Application (VM/VCNA). A program that runs in the VTAM service machine. VM/VCNA controls the physical appearance of the screen when displaying output on a z/VM terminal attached to an SNA network.

virtual machine communication facility (VMCF). A CP function that provides a method of communication and data transfer between virtual machines operating under the same z/VM system.

virtual machine descriptor block (VMDBK). The primary control block for many activities related to a single virtual machine. This block contains, for each virtual machine, the following types of information: the dispatch and priority level of the virtual machine, the virtual machine's processor registers, preferred virtual machine options currently in effect, and information concerning all other significant activities.

virtual machine group. In GCS, two or more virtual machines associated with each other through the same named saved system (for example, GCS1). Virtual machines in a group share common read/write storage and can communicate with one another through facilities provided by GCS. See also single user group.

virtual machine mode. A designation that indicates the architecture of a virtual machine. See also ESA virtual machine, XA virtual machine, and XC virtual machine.

virtual machine operator. Any user who loads and runs an operating system in a virtual machine. Contrast with *real system operator*.

virtual machine operator's console. The virtual machine operator's logon terminal, which simulates the hardware system console functions for the guest operating system. Messages destined for the hardware system console are presented to the virtual machine operator's console.

virtual machine reset. A collective term for the simulation of the system-reset-normal or system-reset-clear processes defined by the hardware architectures. Among other things, virtual machine reset is an event that causes CP to recover many resources associated with a virtual machine, such as IUCV or APPC paths and data spaces. Virtual machine reset can result from issuing such CP commands as SYSTEM CLEAR, SYSTEM RESET, IPL or LOGOFF.

Virtual Machine Serviceability Enhancements Staged/Extended. See *VMSES/E*.

| **virtual machine type.** A designation that indicates the storage configuration of a virtual machine. Only V=V is
| supported. See virtual=virtual (V=V) virtual machine.

Virtual Network Adapter. The collection of virtual I/O devices and logic connecting host programs to the network.

virtual print. An agent that lets the user define and use a printer not connected to the PC being used. The service that provides virtual print for the PC.

virtual printer. A printer simulated on disk by CP for a virtual machine. The virtual device type and I/O address are usually defined in the z/VM directory entry for that virtual machine.

virtual processor. A representation of a processor that is dispatched by CP on a real processor. It includes the contents of all registers and the state of the processor.

virtual punch. A card punch simulated on disk by CP for a virtual machine. The virtual device type and I/O address are usually defined in the z/VM directory entry for that virtual machine.

virtual reserve/release. A function that lets many operating systems such as MVS, SVS, VS1, and z/VM itself all run as virtual machines under the same z/VM operating system and have data protection on a minidisk. It prevents many users of the same data file from simultaneously accessing the same data, particularly when that data is being updated.

virtual screen. A functional simulation of a physical screen. A virtual screen is a *presentation space* where data is maintained. The user can view pieces of the virtual screen through a window on the physical screen.

virtual spooling device. Unit record devices simulated on disk by CP. The virtual device type and I/O addresses are defined in the z/VM directory or else by the CP DEFINE command. CP's spooling facilities let multiple virtual machines share the real unit record devices. In addition, z/VM has extended the concept of spooling to include the logging of all I/O to and from the virtual machine system console. See also *virtual card reader*, *virtual console spooling*, and *virtual printer (or punch)*.

virtual storage. Storage space that can be regarded as addressable main storage by the user of a computer system in which virtual addresses are mapped into real addresses. The size of virtual storage is limited by the addressing scheme of the computing system and by the amount of auxiliary storage available, not by the actual number of main storage locations. See *guest virtual storage*, *host virtual storage*, *virtual storage access method (VSAM)*, *virtual storage extended (VSE)*, and *virtual storage extended/priority output writers, execution processors, and input readers (VSE/POWER)*.

Virtual Storage Access Method (VSAM). An access method for direct or sequential processing of fixed and variable-length records on direct access devices. The records in a VSAM data set or file can be organized in logical sequence by a key field (key sequence), in the physical sequence in which they are written on the data set or file (entry-sequence), or by relative-record number.

Virtual Storage Extended (VSE). A system that consists of a basic operating system (VSE/Advanced Functions) and any IBM supplied and user-written programs required to meet the data processing needs of a user. VSE and the hardware that it controls form a complete computing system. Its current version is called Virtual Storage Extended/Enterprise Systems Architecture (VSE/ESA™). A predecessor version was called Disk Operating System/Virtual Storage Extended (DOS/VSE), and in certain cases the term DOS is still used as a generic term. For example, disk packs initialized for use with VSE are sometimes called DOS disks, and the VSE environment simulated by CMS continues to be called CMS/DOS.

virtual storage extended/priority output writers, execution processors, and input readers (VSE/POWER). An IBM licensed program that primarily spools input and output. The networking functions of the program enable a VSE/SP system to exchange files with or run jobs on another remote processor.

virtual supervisor state. A condition, controlled by a virtual machine's current PSW, during which the control program lets the virtual machine issue I/O and other privileged instructions. When these instructions are not emulated, the control program intercepts these instructions and simulates their functions for the virtual machine.

virtual switch. See [z/VM virtual switch](#).

Virtual Telecommunications Access Method (VTAM®). IBM software that controls communication and the flow of data in an SNA network by providing the SNA application programming interfaces and SNA networking functions.

virtual wait time. The period during which the control program suspends the processing of a program while a required resource is unavailable.

visual cue. A change in the appearance of a product's components that tell the user about an exception.

VLAN. See [virtual local area network](#).

VM. Virtual machine.

VM/Pass-Through Facility. A facility that lets VM users interactively access remote system and processor nodes.

VM/VCNA. Virtual Machine/VTAM Communications Network Application.

VM/VS handshaking. A communication interface between CP and a VSE operating system running a virtual machine that allows them to make each other aware of mutual capabilities and requirements.

VMCF. Virtual machine communication facility.

VM configuration token. A 64-byte token created by the software (z/VM) that is compared to a similar 64-byte token created by the hardware in an attempt to synchronize both views of the I/O configuration.

VM Data Spaces. A facility of z/VM that is provided when z/VM is running on an ESA/390 or z/Architecture processor. Using ESA/390 interpretive execution (SIE) enhancements, the VM Data Spaces facility provides the ESA/XC virtual machine architecture and allows virtual machines to create and access multiple host-managed address spaces. See *ESA/XC architecture*.

VMDBK. Virtual machine descriptor block.

VM domain controller. A part of the ISFC function of CP that allows user programs to connect to and communicate with resources on different VM systems in a Communication Services (CS) collection.

VM Dump Tool. A CP facility that assists in analyzing data from CP stand-alone dumps, CP ABEND dumps, and virtual machine dumps of a CP system. It allows the user to interactively display, locate, and format CP dump data. Analysis of virtual machine dumps is performed by the Dump Viewing Facility. See also [Dump Viewing Facility](#).

VM hardware assist. A general term that represents any or all of the following hardware assist functions: expanded virtual machine assist, ECPS, virtual interval timer assist, and VMA.

VM LAN. In VM, a LAN (local area network) that is simulated by the operating system. A VM LAN connects virtual machines in a VM system environment using virtual network adapters instead of dedicated hardware.

VMLIB. The name of the CSL supplied with z/VM and that contains routines to do various VM functions.

VM part catalog table. A table that identifies the product or component that owns all files residing on a disk and the VMSES/E command that last modified or created the file. It is modified each time VMSES/E modifies or creates a file on a disk identified in the :MDA section of the product parameter file.

VM READ screen status. For a display terminal used as a virtual console under z/VM, an indicator located in the lower right of the screen that displays when the user's virtual machine is not executing, but is waiting for a response or a request for work from the user.

VMSES/E (Virtual Machine Serviceability Enhancements Staged/Extended). A component of z/VM that provides the tools for installing and servicing the various components of the z/VM product (all releases). It is also the strategic installation and service tool for all of the other products that run on those z/VM platforms.

VMSES/E installation/service tool. Two VMSES/E user interfaces, VMFINS and VMFSIM, all of the VMSES/E commands, and the service-level and system-level software inventories. Usually referred to as *VMSES/E*.

VM user directory. A CP disk file that describes the configuration and operating characteristics of each virtual machine, including the VM user ID, password, regular and maximum allowable virtual storage, minidisks, privilege class or classes allowed, dispatching priority, logical editing symbols to be used, account number, and CP options desired.

VM user ID. A string of one to eight characters that uniquely identifies a VM user to the system. It is defined in a VM user directory entry. The user ID is used to control the functions and information the user can use.

void. Volume identifier.

volume identifier (void). The volume identification label for a disk.

volume table of contents (VTOC). A table on a direct access volume that describes each data set on the volume. An area on a disk or diskette that describes the location, size, and other characteristics of each file and library on the disk or diskette.

VSAM. See Virtual Storage Access Method.

vscreen. Virtual screen.

VSCS. VTAM SNA Console Support.

VSE. See Virtual Storage Extended.

VSE/POWER. Virtual Storage Extended/Priority Output Writers, Execution Processors, and Input Readers.

VSM. VTAM service machine.

VTAM. See Virtual Telecommunications Access Method.

VTAM service machine (VSM). A virtual machine that contains an operating system (OS/VS1 or DOS/VSE), an access method (ACF/VTAM or ACF/VTAME), and VM/VCNA. VSM forms the interface for SNA communication in z/VM.

VTOC. Volume table of contents.

W

wait pointer. A visual cue that indicates the computer is performing a process and that the users cannot interact with the part of the underlying window over which the wait pointer is positioned.

WAN. Wide area network.

warm start. A z/VM system restart that does not erase previous system data. The automatic reinitialization of the z/VM control program that occurs if the control program cannot continue processing. Closed spool files and the z/VM accounting information are not lost. See also checkpoint start, clean start, cold start, and force start.

wide area network (WAN). A network that provides communication services to a geographic area larger than that served by a local area network, and that may use or provide public communication facilities. (T) See also local area network.

wild-card character. A symbol used in a command to represent one or more characters. In z/VM, the wild-card characters are the asterisk (*) and the percent symbol (%).

window. An area on the physical screen where virtual screen data can be displayed. Windowing lets the user do such functions as defining, positioning, and overlaying windows; scrolling backward and forward through data; and writing data into virtual screens. In a GUI environment, an area with visible boundaries that presents a view of an object or with which a user interacts.

windowing. A set of functions that allow the user to view and manipulate data in user-defined areas of the physical screen called *windows*. Windowing support lets the user define, position, and overlay windows; scroll backward and forward through data; and write data into virtual screens.

window list. A window that contains a list of the windows associated with the window from which the window list choice was selected.

window title. The area on a title bar that contains the name of the object or a short description of the contents of the window.

working directory. (1) The directory that is currently in use by an operating system or application. If no path is specified, this is the directory to which data is written, from which data is deleted, or in which data is searched. (2) The active directory used to resolve path names that do not begin with a slash. (3) See also root directory.

working set. The estimated number of pages of real storage that the virtual machine needs to execute.

workstation. An I/O device from which jobs can be submitted to a host system for processing, or to which output can be returned, or both.

work unit. In CMS, a group of related operations that can be either committed or rolled back as a unit. When the operations associated with a work unit are committed or rolled back, new operations can be associated with the same work unit. These operations can also be committed or rolled back. (The work unit is, in a sense, reusable.) Multiple work units may be active. See *active work unit*, *inactive work unit*, and *logical unit of work*.

work unit ID. A nonnegative integer value, unique within a virtual machine, that identifies a work unit.

wrap spool file. A wrap spool file is established when the CPTRAP invoker issues CPTRAP START with the WRAP option. The size of the wrap spool file is determined by the file size information provided with the CPTRAP START WRAP nnnnn command (*nnnnn* is the number of 4K blocks of records). Records will be added to the spool file until the specified SPOOL size limit is reached. Then, newer records replace older records in the spool file thereby using the same spool area over again.

write authority. The authority to read or change the contents of a file or directory. Write authority implies read authority.

write-only rule. A requirement that the security label of the object dominate that of the subject. This prevents a subject from writing down. See also *read-only rule* and *read/write rules*.

writing down. An event in which a subject with a given security label writes in an object whose security label it does not dominate. A B1 trusted computing base does not allow writing down. Contrast *reading up*. See also *domination rule*.

X

XA mode. A GCS mode of operation on ESA that uses the full capabilities of the Extended Systems Architecture.

XA virtual machine. A virtual machine designation, supported for compatibility with previous versions of VM, that is functionally equivalent to an ESA virtual machine.

XC virtual machine. A virtual machine that provides Enterprise Systems Architecture/Extended Configuration (ESA/XC) functions. See also Enterprise Systems Architecture/Extended Configuration.

XEDIT. The CMS facility that provides the editor environment in which a user can create, change, and manipulate CMS files.

XEDIT macro. A procedure defined by a frequently used command sequence to do a commonly required editing function. A user creates the macro to save repetitious reentering of the sequence, and invokes the entire procedure by entering a command (that is, the macro file's file name). The procedure can consist of a long sequence of XEDIT

commands and subcommands or both, and CMS and CP commands or both, along with REXX or EXEC 2 control statements to control processing within the procedure. A CMS file with a file type of *XEDIT*.

XEDIT profile macro. A special XEDIT macro with a file name of PROFILE and a file type of XEDIT that a user can create. It is automatically executed when an XEDIT command (or subcommand) is entered.

X-Windows. A network-based graphics windowing system.

Y

Y-STAT. A block of storage that contains the FSTs associated with file mode Y. The FSTs are sorted so that a binary search can search for files. The Y-STAT usually resides in the CMS nucleus so it can be shared. Only files with file mode of 2 will have their associated FSTs in the Y-STAT.

Z

z/Architecture™. An IBM mainframe computer and operating system architecture that includes most of the facilities of ESA/390 and provides significant extensions such as 64-bit registers and addressing.

z/VM virtual switch. A virtualized representation of a hardware LAN switch. A virtual switch is capable of bridging a z/VM Guest LAN to an associated real LAN connected by an OSA-Express adapter.

zap. To modify or dump an individual text file, using the ZAP or ZAPTEXT command.

zone setting. In the CMS editor, a number range that specifies the positions within each data line that can be scanned and edited. In the XEDIT editor, the starting position and ending position (columns) of each record within which the editor searches for targets.

Numerics

2741. Refers to the IBM 2741 Terminal. Information on the 2741 also applies to the IBM 3767 Terminal, unless otherwise noted.

3088. Refers to the IBM 3088 Multisystem Channel Communications Unit, Models 1 and 2.

3262. Refers to the IBM 3262 Printer, Models 1 and 11.

3270. Refers to a series of IBM display devices, for example, the IBM 3275, 3276 Controller Display Station; 3277, 3278, and 3279 Display Stations; the 3290 Information Panel; and the 3287 and 3286 printers. A specific device type is used only when a distinction is required between device types. Information about display terminal usage also refers to the IBM 3138, 3148, and 3158 Display Consoles when used in display mode, unless otherwise noted.

3289. Refers to the IBM 3289 Model 4 Printer.

| **3380.** Refers to the IBM 3380 Direct Access Storage Device. Only emulated 3380 devices are supported.

3390. Refers to the IBM 3390 Direct Access Storage Device.

3480. Refers to the IBM 3480 Magnetic Tape Subsystem.

3490. Refers to the IBM 3490 Magnetic Tape Subsystem.

3725. Refers to the IBM 3725 Communication Controllers.

3800. Refers to the IBM 3800 Printing Subsystems. A specific device type is used only when a distinction is required between device types.

3990. Refers to the IBM 3990 DASD storage control units.

4245. Refers to the IBM 4245 Printer.

4248. Refers to the IBM 4248 Printer.

6262. Refers to the IBM 6262 Printer.

9032. Refers to the IBM Enterprise Systems Connection (ESCON) Director, Model 2.

9033. Refers to the IBM Enterprise Systems Connection (ESCON) Director, Model 1.

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Bibliography

This bibliography lists the books in the z/VM product library. For abstracts of these books and information about current editions and available media, see *z/VM: General Information*.

Where to Get z/VM Books

z/VM books are available from the following sources:

- IBM Publications Center at www.ibm.com/shop/publications/order/
- z/VM Internet Library at www.ibm.com/eserver/zseries/zvm/library/
- IBM eServer zSeries Online Library: z/VM Collection CD-ROM, SK2T-2067

z/VM Base Library

The following books describe the facilities included in the z/VM base product.

System Overview

- z/VM: General Information*, GC24-6095
- z/VM: Glossary*, GC24-6097
- z/VM: License Information*, GC24-6102
- z/VM: Migration Guide*, GC24-6103

Installation and Service

- z/VM: Guide for Automated Installation and Service*, GC24-6099
- z/VM: Service Guide*, GC24-6117
- z/VM: VMSES/E Introduction and Reference*, GC24-6130

Planning and Administration

- z/VM: CMS File Pool Planning, Administration, and Operation*, SC24-6074
- z/VM: CMS Planning and Administration*, SC24-6078
- z/VM: Connectivity*, SC24-6080
- z/VM: CP Planning and Administration*, SC24-6083
- z/VM: Getting Started with Linux on zSeries*, SC24-6096
- z/VM: Group Control System*, SC24-6098
- z/VM: I/O Configuration*, SC24-6100
- z/VM: Performance*, SC24-6109

z/VM: Running Guest Operating Systems, SC24-6115

z/VM: Saved Segments Planning and Administration, SC24-6116

z/VM: Secure Configuration Guide, SC24-6138

z/VM: TCP/IP Planning and Customization, SC24-6125

eServer zSeries 900: Planning for the Open Systems Adapter-2 Feature, GA22-7477

eServer zSeries: Open Systems Adapter-Express Customer's Guide and Reference, SA22-7935

eServer zSeries: Open Systems Adapter-Express Integrated Console Controller User's Guide, SA22-7990

z/OS and z/VM: Hardware Configuration Manager User's Guide, SC33-7989

Customization

z/VM: CP Exit Customization, SC24-6082

Operation

- z/VM: System Operation*, SC24-6121
- z/VM: Virtual Machine Operation*, SC24-6128

Application Programming

- z/VM: CMS Application Development Guide*, SC24-6069
- z/VM: CMS Application Development Guide for Assembler*, SC24-6070
- z/VM: CMS Application Multitasking*, SC24-6071
- z/VM: CMS Callable Services Reference*, SC24-6072
- z/VM: CMS Macros and Functions Reference*, SC24-6075
- z/VM: CP Programming Services*, SC24-6084
- z/VM: CPI Communications User's Guide*, SC24-6085
- z/VM: Enterprise Systems Architecture/Extended Configuration Principles of Operation*, SC24-6094
- z/VM: Language Environment User's Guide*, SC24-6101
- z/VM: OpenExtensions Advanced Application Programming Tools*, SC24-6104

z/VM: OpenExtensions Callable Services Reference, SC24-6105

z/VM: OpenExtensions Commands Reference, SC24-6106

z/VM: OpenExtensions POSIX Conformance Document, GC24-6107

z/VM: OpenExtensions User's Guide, SC24-6108

z/VM: Program Management Binder for CMS, SC24-6110

z/VM: Reusable Server Kernel Programmer's Guide and Reference, SC24-6112

z/VM: REXX/VM Reference, SC24-6113

z/VM: REXX/VM User's Guide, SC24-6114

z/VM: Systems Management Application Programming, SC24-6122

z/VM: TCP/IP Programmer's Reference, SC24-6126

Common Programming Interface Communications Reference, SC26-4399

Common Programming Interface Resource Recovery Reference, SC31-6821

OS/390: DFSMS Program Management, SC27-0806

z/OS: Language Environment Concepts Guide, SA22-7567

z/OS: Language Environment Debugging Guide, GA22-7560

z/OS: Language Environment Programming Guide, SA22-7561

z/OS: Language Environment Programming Reference, SA22-7562

z/OS: Language Environment Run-Time Messages, SA22-7566

z/OS: Language Environment Writing ILC Applications, SA22-7563

End Use

z/VM: CMS Commands and Utilities Reference, SC24-6073

z/VM: CMS Pipelines Reference, SC24-6076

z/VM: CMS Pipelines User's Guide, SC24-6077

z/VM: CMS Primer, SC24-6137

z/VM: CMS User's Guide, SC24-6079

z/VM: CP Commands and Utilities Reference, SC24-6081

z/VM: Quick Reference, SC24-6111

z/VM: TCP/IP User's Guide, SC24-6127

z/VM: XEDIT Commands and Macros Reference, SC24-6131

z/VM: XEDIT User's Guide, SC24-6132

CMS/TSO Pipelines Author's Edition, SL26-0018

Diagnosis

z/VM: Diagnosis Guide, GC24-6092

z/VM: Dump Viewing Facility, GC24-6093

z/VM: System Messages and Codes - AVS, Dump Viewing Facility, GCS, TSAF, and VMSES/E, GC24-6120

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z/VM: System Messages and Codes - CP, GC24-6119

z/VM: TCP/IP Diagnosis Guide, GC24-6123

z/VM: TCP/IP Messages and Codes, GC24-6124

z/VM: VM Dump Tool, GC24-6129

z/OS and z/VM: Hardware Configuration Definition Messages, SC33-7986

Books for z/VM Optional Features

The following books describe the optional features of z/VM.

Data Facility Storage Management Subsystem for VM

z/VM: DFSMS/VM Customization, SC24-6086

z/VM: DFSMS/VM Diagnosis Guide, GC24-6087

z/VM: DFSMS/VM Messages and Codes, GC24-6088

z/VM: DFSMS/VM Planning Guide, SC24-6089

z/VM: DFSMS/VM Removable Media Services, SC24-6090

z/VM: DFSMS/VM Storage Administration, SC24-6091

Directory Maintenance Facility

z/VM: Directory Maintenance Facility Commands Reference, SC24-6133

z/VM: Directory Maintenance Facility Messages, GC24-6134

z/VM: Directory Maintenance Facility Tailoring and Administration Guide, SC24-6135

Performance Toolkit for VM™

z/VM: Performance Toolkit, SC24-6136

Resource Access Control Facility

External Security Interface (RACROUTE)

Macro Reference for MVS and VM,

GC28-1366

Resource Access Control Facility: Auditor's Guide, SC28-1342

Resource Access Control Facility: Command Language Reference, SC28-0733

Resource Access Control Facility: Diagnosis Guide, GY28-1016

Resource Access Control Facility: General Information, GC28-0722

Resource Access Control Facility: General User's Guide, SC28-1341

Resource Access Control Facility: Macros and Interfaces, SC28-1345

Resource Access Control Facility: Messages and Codes, SC38-1014

Resource Access Control Facility: Migration and Planning, GC23-3054

Resource Access Control Facility: Security Administrator's Guide, SC28-1340

Resource Access Control Facility: System Programmer's Guide, SC28-1343

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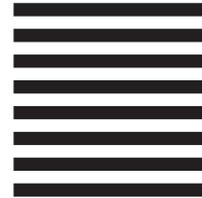
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