z/VM

Glossary

version 6 release 1

GC24-6195-00

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Note:
Before using this information and the product it supports, read the information in “Notices” on page 107.

This edition applies to version 6, release 1, modification 0 of IBM z/VM (product number 5741-A07) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces GC24-6097-00.

Contents

About this document

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

Intended audience

This information 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 111.

Links to other online documents

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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.
- Internet Request for Comments: 1208, *Glossary of Networking Terms*
- Internet Request for Comments: 1392, *Internet Users' Glossary*
- *Information Technology—Portable Operating System Interface (POSIX),* from the POSIX series of standards for applications and user interfaces to open systems, copyrighted by the Institute of Electrical and Electronics Engineers (IEEE). Copies of all POSIX drafts and standards may be purchased from IEEE at 1-800-678-IEEE.
  - Definitions identified by *[POSIX.0]* are from *Part 0: Standards Project, Draft Guide to the POSIX Open System Environment,* P1003.0 Draft 15 (June 1992), an unapproved draft subject to change.
  - Definitions identified by *[POSIX.1]* are from *Part 1: System Application Program Interface (API) [C Language],* approved September 28, 1990, as IEEE Std 1003.1-1990 by the IEEE Standards Board, and adopted in 1990 as an International Standard (ISO/IEC 9945-1: 1990) by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).
  - Definitions identified by *[POSIX.2]* are from *Part 2: Shell and Utilities,* P1003.2.
- *CCITT Sixth Plenary Assembly Orange Book, Terms and Definitions* and working documents published by the International Telecommunication Union, Geneva, 1978. These are identified by the symbol *[CCITT/ITU]* after the definition.
- Open Software Foundation (OSF). These are identified by the symbol *[OSF]* after the definition. Copies of OSF documents may be obtained from Open Software Foundation, Inc., 11 Cambridge Center, Cambridge, MA 02142.

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.

Numerics

3215. Refers to an IBM family of line mode displays.

3270. Refers to an IBM family of display devices and printers.

3270 emulation. The use of software that enables a client to emulate an IBM 3270 display station or printer, and to use the functions of an IBM host system.

A

abend. See abnormal end of task.

abend dump. The contents of main storage, or part of main storage, and other items such as registers, written to an external medium for debugging an error condition that resulted in the termination of a task before its regular completion. See also hard abend dump, soft abend dump, and snap dump.

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. A BFS path name that begins with the root directory. The absolute path name must begin with a slash (/), which indicates that the path begins at the root. See also fully qualified path name and relative path name.

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 when an ESM is installed.

access list. See host access list.

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 access-list-entry token (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 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.

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-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.

ACF/SSP. See System Support Programs.

ACF/VTAM. See Virtual Telecommunications Access Method.

ACI. See access control interface.

active gateway. A gateway that is treated like a network interface in that it is expected to exchange routing information, and if it does not do so for a period of time, the route associated with the gateway is deleted.

active open. The state of a connection that is actively seeking a service. Contrast with passive open.

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

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.

ADCON. See address constant.

address constant (ADCON). A field containing an address, a length, or an offset, which is used in calculating storage addresses.

address mask. See subnet mask.

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. (2) The memory locations that can be referred to by a process. [POSIX.1]

address stop. See instruction address stop.

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.

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.

ADSTOP. See instruction address stop.

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 Print Services Facility™ (PSF)-controlled printer.

Advanced Interactive Executive (AIX®). IBM's licensed version of the UNIX® operating system.

advanced program-to-program communication (APPC). The general facility characterizing the LU 6.2 architecture and its various implementations in products.

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. See also APPC/VM VTAM Support.

AFP. See Advanced Function Printing.

AFPDS. See Advanced Function Printing Data Stream.

agent. (1) 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. (2) In Coordinated Resource Recovery (CRR) synchronization 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. (3) A task for a file pool server. The SFS file pool server and the CRR recovery server provide support for multitasking several agents. (4) As defined in the SNMP architecture, an agent, or an SNMP server is responsible for performing the network management functions requested by the network management stations.

AIX. See Advanced Interactive Executive.

AL. ANSI labeled tape without user label processing.

ALE. See host access-list entry.

alert. A message or other indication that signals an event or an impending event.

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 does need to be in the same file pool as the base file. See also base file, erased alias, revoked alias, and unresolved alias. (2) An alternative name for a shell command, which can be defined with options different than those for the command itself.

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

alternate console. A console assigned as a backup display 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 Standard Code for Information Interchange (ASCII). A standard code used for information exchange among data processing systems, data communication systems, and associated equipment. ASCII uses a coded character set consisting of 7-bit coded characters.

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.

APAR. See authorized program analysis report.

APAR number. An identifier that IBM assigns to an APAR.

APPC. See advanced program-to-program communication.

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

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

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

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- 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.

AR mode. See access-register mode.

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

ASCII. See American Standard Code for Information Interchange.

ASIT. See address-space-identification token.

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.

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.

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.

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* virtual machine, and programs running in that machine are *authorized* applications.

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

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 virtual machine.

automatic software re-IPL. The process by which CP 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.

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.

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

B

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.

basename. The part of a path name that remains after all directory names are removed. For example, for the path name **dir1/dir2/file.c**, the basename is **file.c**.

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

BFS. See byte file system.

BFS directory. A directory in the byte file system. BFS directories can be arranged to form a hierarchy in which one directory can contain one or more subdirectories as well as files. See also root directory and working directory.

BFS file. A file that resides in a byte file system and consists of a continuous stream of individual bytes of data. Such a file has no record format and no record attributes. See also character special file, external link, FIFO special file, and symbolic link.

big endian. A format for storage or transmission of binary data in which the most significant bit (or byte) comes first. The reverse convention is little endian.

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. The smallest unit of computer information, which has two possible states that are represented by the binary digits 0 or 1.

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

blank. (1) In EBCDIC, the character corresponding to X'40'. (2) One of the characters that belong to the *blank* character class as defined by the LC_CTYPE category in the current locale. In the POSIX locale, a <blank> is either a <tab> or a <space>. [POSIX.2]

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 4096 bytes. (5) In CMS multitasking, to stop the execution of a thread until a function has been completed or a condition is satisfied.

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.

block size. The length of a block in bytes. In CMS, block sizes are 512, 1024, 2048, or 4096 bytes.

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.

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.

blocking mode. If the execution of the program cannot continue until some event occurs, the operating system suspends the program until that event occurs.

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.

boxed. 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.

break tree processing. In Coordinated Resource Recovery (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.

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

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.

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*.

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

build ID. A 1- 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 requisite. 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 requisite. A product that must be installed before a certain product can run correctly.

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.

byte. A unit of storage, consisting of eight adjacent bits 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 ordering. The method of sorting bytes under specific machine architectures. Of the two common methods, little endian byte ordering places the least significant byte first. The second method, big endian byte ordering, places the most significant byte first.

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

C

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 recreated.

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.

canonical mode. A **tty** (typwriter terminal) input processing mode where input is collected and processed one line at a time. [OSF] There are three CLISTs associated with canonical mode drivers: store output to a terminal, store raw input, store cooked data. I/O processing is asymmetric. Synonymous with *cooked mode*, *line mode*. Contrast with noncanonical mode.

cascaded agent. In Coordinated Resource Recovery (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 Coordinated Resource Recovery (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.

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.

CCS. See console communication services.

CCW. See channel command word.

CECP. See country–extended code page.

central processing unit (CPU). A deprecated term for *processor*.

central processor (CP). The part of the computer that contains the sequencing and processing facilities for instruction execution, initial program loading, and other machine operations. Synonymous with *standard processor*.

central processor complex (CPC). A physical collection of hardware that consists of main storage, one or more central processors, timers, and channels.

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.

CFVM. See coupling facility service machine.

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

channel. The part of a channel subsystem that manages a single I/O interface between a channel subsystem and a set of control units.

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

channel command word (CCW). In zSeries® systems, an 8-byte command issued to the channel subsystem by a central processor and operating asynchronously with the issuing processor.

channel path. The interconnection between a channel and its associated control units.

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. See also I/O address.

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-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-to-channel adapter (CTCA). A device for connecting two channels on the same processor or on different processors.

character class. A named set of characters sharing an attribute associated with the name of the class. The classes and the characters that they contain are dependent on the value of the LC_CTYPE category in the current locale. [POSIX.2]

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.

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.

child process. A process created as a result of a spawn. The child process receives a copy of the parent's environment and inherits open files. See also parent process and process.

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

CHPID. See channel path identifier.

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 (CKPT) start.

class. See privilege class.

class A. The IBM-defined CP privilege class that corresponds to a system operator. See also privilege class and system operator.

Class A network. In IPv4, an internet network in which the high-order bit of the address is 0. The host number occupies the three, low-order octets.

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 B network. In IPv4, an internet network in which the high-order bit of the address is 1, and the next high-order bit is 0. The host number occupies the two low-order octets.

class C. The IBM-defined CP privilege class that corresponds to a system programmer. See also privilege class and system programmer.

Class C network. In IPv4, an internet network in which the two high-order bits of the address are 1 and the next high-order bit is 0. The host number occupies the low-order octet.

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 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 (CKPT) start, cold start, force start, and warm start.

clear connection. A standard connection to which no encryption algorithms have been applied; a non-secure connection.

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.

CLIST. See command list.

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.

CMMA. See Collaborative Memory Management Assist.

CMR. See conversation management routine.

CMS. See Conversational Monitor System.

CMS anchor facility. A facility that keeps a list of 16 anchor words and their associated anchor identifiers.

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.

CMS EXEC language. A general-purpose high-level programming language that can be used to write execs.

CMS EXEC procedure. A CMS file with a file type of EXEC that contains a procedure consisting of one or more executable statements to be processed by the CMS EXEC processor. The statements can be commands or execution control statements. If the SET IMPEX setting is ON, the exec is treated as a command, and the procedure is invoked by entering the file name of the file; otherwise, the EXEC command must be used.

CMS EXEC processor. The CMS facility that interprets and executes procedures written in the CMS EXEC language.

CMS file. A file used by the CMS file system. The CMS file management routines write CMS files in fixed physical blocks regardless of whether they have fixed-length or variable-length records. 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 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 shares a copy of the CMS nucleus when the user initially loads (IPLs) the CMS named saved system.

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

CMS search order. The order of file modes that CMS searches when looking for a file. The standard order of search is alphabetic, A through Z. See also file mode extension.

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

CMS-formatted disk. See CMS minidisk.

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.

CMS/DOS phase library. See DOSLIB library.

CMSDOS. The standard name of the CMS/DOS saved segment, which contains DOS simulation code used by VSE application programs.

CNTRL file. See control file.

code page. A particular assignment of code points to graphic characters. Within a given code page, a code point can have only one specific meaning. A code page also identifies how undefined code points are handled. See also code point and extended character.

code point. A unique bit pattern that represents a character in a code page.

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 (CKPT) start, clean start, force start, and warm start.

Collaborative Memory Management Assist (CMMA). A machine feature that allows z/Architecture guests with the appropriate support to exchange memory usage and status information with z/VM.

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 statement used to initiate an action or start a service. A command consists of the command name and its parameters, arguments, flags, or other operands, if applicable. See also subcommand and user-written program.

command abbreviation. A valid short form of the command name, operand, or option. For example, MES and MSG are command abbreviations for the MESSAGE command.

command interpreter. A program that reads the commands that you type and then processes them. Synonymous with *command language interpreter*.

command line. The area of the screen where commands are displayed as they are typed.

command list (CLIST). A list of commands and statements designed to perform a specific function for the user.

command mode. A state of a system or device in which the user can enter commands. In an editing session, the mode wherein the editor is waiting for the user to enter a command.

command name. The first term in a command string that requests a specific action, and is usually followed by operands.

command operand. A part of a command string, delimited by white space, that specifies detailed behavior to a program.

command privilege class. See privilege class.

command processor. A program that performs an operation specified by a command.

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.

command substitution. In OpenExtensions, the ability to capture the output of any command as an operand to another command by placing that command line within grave accents (` `). The shell first runs the command or commands enclosed within the grave accents and then replaces the whole expression, including grave accents, with their output. This feature is often used in assignment statements.

commit. (1) In a CMS file pool, to permanently change a resource, such as a file. (2) In Coordinated Resource Recovery (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 when an error has been detected.

common dump receiver. In a GCS 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). An application protocol that 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 application programming interface (API) that 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. In GCS, 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.

communication link. See data link.

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

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

communications server. A virtual machine that routes communications on behalf of other virtual machines to other servers. The TSAF and AVS virtual machines are communications servers.

community name. A password used by hosts running Simple Network Management Protocol (SNMP) agents to access remote network management stations.

compare states. In Coordinated Resource Recovery (CRR), the function of conveying the state of the 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 recovery server.

component. (1) A collection of objects that together form a separate functional unit of a product. (2) Under VMSES/E, a product-defined subdivision in the product parameter file.

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.

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. See processor configuration token.

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 ASCII console, integrated 3270 console, Open Systems Adapter-Express Integrated Console Controller, 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. A storage area that contains information waiting to be processed by CMS, which includes the program stack and the terminal input buffer.

contention. A situation in which two programs or users are attempting to access the same system resources. For example, contention can occur when two LUs try to allocate a conversation over the same session at the same time, when two users attempt to edit the same SFS file, but only one is allowed, or when two programs attempt to lock a resource at the same time.

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 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.

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

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

control unit terminal (CUT). 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 mode.

controller. See control unit.

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.

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.

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).

conversion table. See translation table.

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.

corequisite. A change that must be applied to the system at the same time as another change. In VMSES/E at the system level, a product that must be installed with another product. In VMSES/E at the service level, a PTF that must be applied at the same time as another PTF. A corequisite PTF 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 (COR). Service that IBM supplies to correct a specific problem. See also preventive service.

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). See also extended count-key-data.

country–extended code page (CECP). An 8-bit code page that has a 93-character set on its nationally standardized code points but is extended to the multilingual character set for the national languages of some European countries.

coupling facility (CF). A special logical partition that provides high-speed caching, list processing, and locking functions in a sysplex. See also Internal Coupling Facility.

coupling facility service machine (CFVM). A special disconnected virtual machine that is set up to IPL the Coupling Facility Control Code (CFCC).

CP. See central processor or Control Program.

CP directory. See user directory.

CP dump. See hard abend dump, soft abend dump, and snap dump.

CP privilege class. See privilege class.

CP read. The state that exists when CP is waiting for a response or request for work from the user. 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.

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

CP-owned disk. See CP-owned volume.

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

CPC. See central processor complex.

CPI. See Common Programming Interface.

CPI Communications. See Common Programming Interface for Communications.

CPI Resource Recovery. See SAA Resource Recovery Interface.

CPI-C. See Common Programming Interface for Communications.

CPI-RR. See SAA Resource Recovery Interface.

CPRB. See connectivity program request block.

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 z/VM systems to participate in a multisystem environment, as though all participating systems were one complex.

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

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

CRR. See 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.

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.

CTCA. See channel-to-channel adapter.

CU. See control unit.

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.

current record. The record pointed to by the current line pointer. The record that is currently available to the program.

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 (CUT).

cylinder. 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.

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 storage access component.

data area. A location in virtual storage used 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.

data definition (DD). A program statement that describes the features of, specifies relationships of, or establishes the context of data. A data definition reserves storage and can provide an initial value.

data definition (DD) statement. A job control statement that is used to define a data set for use by a batch job step, started task or job, or an online user.

data definition name (ddname). The name of a data definition (DD) statement that corresponds to a data control block that contains the same name.

Data Facility Storage Management Subsystem for VM (DFSMS/VM). A tools suite that provides management of data and storage resources on z/VM. DFSMS/VM manages data in SFS storage groups by assigning management classes to SFS files and directories, which can then be automatically managed based on the criteria in each management class. DFSMS/VM manages CMS minidisks by facilitating the movement of minidisks from one location (DASD) to another. DFSMS/VM Removable Media Services (RMS) provides native z/VM support for the IBM 3494 and 3495 Tape Library Dataservers.

data link. The physical connection (communications lines, modems, controller, work stations, other communications equipment), and the rules (protocols) for sending and receiving data between two or more locations in a data network. See also link.

data link layer. In the Open Systems Interconnection (OSI) reference model, the layer (Layer 2) that provides services to transfer data between entities in the network layer over a communication link. The data link layer detects and possibly corrects errors that may occur in the physical layer.

data set. The major unit of data storage and retrieval in z/OS®, consisting of a collection of data in one of several prescribed arrangements and described by control information to which the system has access. Synonymous with *file* in z/VM.

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.

datagram. See IP datagram.

DBCS. See double-byte character set.

DCB. See data control block.

DCSS. See discontiguous saved segment.

DD. See data definition.

DD statement. See data definition (DD) statement.

ddname. See data definition name.

DDR. See DASD Dump Restore program.

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 user 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.

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

delimiter. A flag that is formed by a character or a sequence of characters to group or to separate items of data by marking the beginning and end of a unit of data. The delimiter is not a part of the flagged unit of data.

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.

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 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.

descriptor. An unsigned integer that a UNIX system uses to identify an object supported by the kernel. Descriptors can represent files, pipes, sockets, and other I/O streams. They are created, acted on, and deallocated by system calls specific to the object. [OSF]

destage. The asynchronous writing of new or updated data from cache or nonvolatile storage to DASD.

device address. See I/O address.

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

device driver. (1) A collection of subroutines that control the interface between I/O device adapters and the processor. (2) 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. See also I/O address.

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

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.

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.

DFSMS/VM. See Data Facility Storage Management Subsystem for VM.

DFT. See distributed function terminal mode.

DHCPD. See dynamic host configuration protocol daemon.

DIAGNOSE interface. A programming mechanism that lets any virtual machine 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) A type of file containing the names and controlling information for other files or other directories. See also BFS directory, path name, root directory, SFS directory, and working directory. (2) See also CMS minidisk file directory. (3) See also user 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. See also file control directory.

directory entry. (1) A set of statements in the 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. In OpenExtensions, synonymous with *link*. [POSIX.1]

directory identifier (dirid). The identification of an SFS directory in a command through either (a) the fully qualified directory name (in which the file pool ID and user ID can be allowed to default), (b) the file mode letter of the accessed directory, or (c) a plus (+) or minus (-) designation indicating a directory up or down 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 user directory for one or more z/VM systems.

directory name. A 1- 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 prevent CP from processing requests for functions or resources, such as commands or devices. (2) In SFS, to lock a file space or storage group.

disconnected 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 defines an area of virtual storage that is accessed by name and can be outside the address range of a virtual machine. A DCSS can contain code and data. See also saved segment.

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. See minidisk.

dispatch list. The list of virtual machines currently contending for real processor time. 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. Virtual machines in the dispatch list retain the transaction class they were assigned while waiting in the eligible list. When E0 virtual machines (virtual machines that do not wait in the eligible list for resources to become available) enter the dispatch list, they are included in the count of Q0 virtual machines. Thus, E0 virtual machines are called Q0 virtual machines while they are in the dispatch list. Similarly, Q1, Q2, and Q3 virtual machines are virtual machines that on entry to the dispatch list belonged to the E1, E2, and E3 transaction classes, respectively.

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

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.

display mode. See full-screen mode.

distributed function terminal (DFT) mode. (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 (CUT).

distributed processing. (1) Processing that takes place among 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, z/OS). 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 Programming Interface (DPI®). A programming interface that permits end users to add, delete, or replace management variables dynamically in the local Management Information Base (MIB) without requiring them to recompile the SNMP agent.

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

distribution code. A 1- to 8-character identification word, specified in the user directory, that is printed or punched with the user ID in the separator page (or punched card) to further identify the location or department of the user.

DLL. See dynamic link library.

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.

DNS. See Domain Name System.

domain. (1) That part of a computer network in which the data processing resources are under common control. (T) (2) The set of all possible communications partners. Each domain has a different set of possible partners, although they may overlap. (3) In an internet, a part of the naming hierarchy in which a domain name consists of a sequence of names (labels) separated by periods (dots).

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

Domain Name System (DNS). The distributed database system that maps domain names to IP addresses.

domain naming. A hierarchical system for naming network resources.

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 list. A list of virtual machines that are idle or waiting for completion of a long event, such as a tape read.

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

DOS simulation under CMS. See CMS/DOS.

DOSLIB library. A CMS library that contains the executable phases produced by the DOS Linkage Editor under CMS. These phases can be fetched and executed only under CMS/DOS.

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

dot-dot. A BFS path name component consisting of two dot characters (..) that 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.

dotted decimal notation. The syntactic representation for a 32-bit integer that consists of four 8-bit numbers, written in base 10 and separated by dots. Many internet application programs accept dotted decimal notations in place of destination machine names.

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.

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

DPA. See dynamic paging area.

DPI. See Distributed Programming Interface.

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 or copy, at a particular instant, data from one storage device onto another storage device to protect the data and debug the program. (2) To copy the contents of all or part of virtual storage for the purpose of collecting error information. (3) Data that is copied in a readable format from main or auxiliary storage to an external medium such as tape or disk. (4) A capture of storage information at the time of an error. (5) See also abend dump, DASD Dump Restore program, stand-alone dump, and virtual machine dump.

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.

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

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

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

dynamic host configuration protocol daemon (DHCPD). A daemon (server) that responds to client requests for boot information using information contained in a DHCP machine file. This information includes the IP address of the client, the IP address of the TFTP daemon, and information about the files to request from the TFTP daemon.

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 link library (DLL). A module containing dynamic link routines that is linked at load or run time.

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

dynamic resource allocation. An allocation technique in which the resources assigned for execution of computer programs are determined by criteria applied at the moment of need.

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.

E

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 macro. (1) A macro that executes in the XEDIT migration mode. (2) A CMS file whose file name starts with a dollar sign ($) character and whose file type is EXEC.

edit mode. The XEDIT 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. (1) 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. (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)

effective root directory. The point at which a byte file system starts when searching for a file. The path name of the effective root directory begins with a slash (/).

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)

EGP. See Exterior Gateway Protocol.

electronic envelope. In VMSES/E, an electronically-delivered container for recommended service upgrade (RSU) or corrective service (COR) service files.

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.

empty directory. A directory that contains, at most, directory entries for dot and dot-dot. [POSIX.1]

empty string. A character array whose first element is a null character. [POSIX.1]

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 Unit, or an IBM 2703 Transmission Control Unit.

encapsulation. A process used by layered protocols in which a lower-level protocol accepts a message from a higher-level protocol and places it in the data portion of the low-level frame. As an example, in Internet terminology, a packet would contain a header from the physical layer, followed by a header from the network layer (IP), followed by a header from the transport layer (TCP), followed by the application protocol data.

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. (3) When editing a file with XEDIT, the line below the file contents area.

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

end-of-tape marker (EOT). A marker on a magnetic tape used to indicate the end of the permissible recording area.

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

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

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. See electronic envelope.

environment. (1) The settings for shell variables and paths set when the user logs in. These variables can be modified later by the user. [OSF] (2) A block of information passed ("exported") to a command when the command is called. This block contains a number of environment variables. The environment provides information that the program can use in its operation, in a form that relieves you of the need to specify it with every command. (3) The set of all factors that can affect how a program behaves. (4) A named collection of logical and physical resources used to support the operation of a function. (5) See also environment variable.

environment variable. (1) A variable that describes the operating environment of the process and typically includes information about the home directory, command search path, the terminal in use, and the current time zone. (2) The name of a file that contains shell commands to customize a shell environment. (3) A variable included in the current software environment that is available to any called program that requests it.

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.

ERE. See extended regular expression.

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 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 defined during system generation that CP uses to record formatted outboard error recordings, machine check records, and channel check records.

ESA virtual machine. A virtual machine that simulates ESA/390 functions. An ESA virtual machine can also simulate z/Architecture, as determined by the program that is loaded into the virtual machine.

ESA/390. See Enterprise Systems Architecture/390.

ESA/XC. See Enterprise Systems Architecture/Extended Configuration.

escape character. (1) In XEDIT, a character used as a control character identifier; that is, when this character appears in the text, the next character is interpreted as a control character. The escape character is used in XEDIT input mode to allow the user to enter a subcommand without leaving input mode. (2) In shell programming and **tty** programming, the \ (backslash) character, which indicates that the next character is not intended to have the special meaning usually assigned to it.

escape sequence. (1) A sequence of characters that begins with a \ (backslash) and is interpreted to have a special meaning to the shell. (2) A sequence sent to a terminal to perform actions such as moving the cursor, changing from usual to reverse video, and clearing the screen.

escape symbol. See logical escape symbol.

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 and Fibre Connection.

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 packet-based networking technology for local area networks (LANs) that supports multiple access and handles contention by using Carrier Sense Multiple Access with Collision Detection (CSMA/CD) as the access method. Ethernet is standardized in the IEEE 802.3 specification.

event. (1) An occurrence of significance to a task; for example, the completion of an asynchronous operation, such as an input/output operation. (2) See also system event.

event control block (ECB). A control block used to represent the status of an event. Event control blocks are standard mechanisms used to synchronize multiple events. The process of turning on the event complete bit is referred to as posting the event control block. Asynchronous routines such as a timer or an external interrupt handler post event control blocks to signal completion.

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.

exchange log names. In Coordinated Resource Recovery (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.

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

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 also stable access.

exclusive segment. A range of pages within a saved system, member saved segment, or discontiguous 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. See also CMS EXEC procedure, EXEC 2 program, REXX exec, executable file, executable program, and GCS exec.

EXEC 2 exec. See EXEC 2 program.

EXEC 2 language. A general-purpose high-level programming language that can be used to write execs.

EXEC 2 processor. The CMS facility that interprets and executes procedures written in the EXEC 2 language.

EXEC 2 program. A CMS file with a file type of EXEC that contains a procedure consisting of one or more executable statements to be processed by the CMS EXEC 2 processor. The statements can be commands or execution control statements. If the SET IMPEX setting is ON, the exec is treated as a command, and the procedure is invoked by entering the file name of the file; otherwise, the EXEC command must be used.

exec function. One of a collection of functions that causes the running process to be completely replaced by the program passed as an argument to the function.

EXEC procedure. See CMS EXEC procedure.

executable file. A file that contains programs or commands that perform operations or actions to be taken. See also exec, executable program, and processable file.

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 constitue 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.

executable statement. (1) In an exec procedure or XEDIT macro, any statement processed by the REXX Interpreter, the EXEC 2 processor, or the CMS EXEC processor. This statement can be an execution control statement or assignment statement, a command, or a null line. (2) A statement that causes an action to be taken by the program. For example, to calculate, to test conditions, or to alter usual sequential processing. [OSF]

exit. A customer-written or customized procedure that, under certain conditions, receives control from the system. An exit consists of an exit point and an exit routine. See also installation-wide exit and user exit.

exit point. A specific point in a system function or program where control can be passed to one or more specified exit routines.

exit routine. A program that receives control from another program in order to perform specific functions.

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

explicit lock. A lock on a file pool file or directory that a user creates. See also implicit lock.

extended binary-coded decimal interchange code (EBCDIC). A set of 256 characters, with each character represented by 8 bits (1 byte).

extended character. (1) A character other than a 7-bit ASCII character. An extended character can be a 1-byte code point with the eighth bit set (ordinal 128 through 255). (2) A double-byte character that is stored in a DBCS font file, not in the hardware of a DBCS-capable work station. When displaying or printing extended characters, the work station receives them from the DBCS font table under control of the extended character processing function of the operating system.

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). An extension of the count-key-data (CKD) DASD data storage architecture that is 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.

extended regular expression (ERE). A pattern (sequence of characters or symbols) constructed according to the rules defined in POSIX.2 2.8.4. [POSIX.2]

Exterior Gateway Protocol (EGP). A reachability routing protocol used by gateways in a two-level internet.

eXternal Data Representation (XDR). A standard developed by Sun Microsystems, Incorporated for representing data in machine-independent format.

external link. A type of BFS file that points to and object outside of the byte file system (data residing on a CMS minidisk or in an directory), creates an implicit mount point, or contains 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

FAT. File Allocation Table.

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.

Fiber Optic Network. A network based on the technology and standards that define data transmission using cables of glass or plastic fibers carrying visible light. Fiber optic network advantages are: higher transmission speeds, greater carrying capacity, and lighter, more compact cable.

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. See first-in-first-out.

FIFO special file. A type of BFS file that is used to send data from one process to another and that persists beyond the life of the process. The receiving process reads the data first-in-first-out (FIFO). Also known as a *named pipe*. See also unnamed pipe.

file. A set of related records treated as a unit. A sequence of records. If the file is located in internal storage, it is an internal file; if it is on an input/output device, it is an external file. [OSF] A collection of related data that is stored and retrieved by an assigned name. [OSF] Linear data that can be opened, written, read, and closed. A file can also contain information about the file, such as authorization information. The name used to obtain a file includes the directories in the path to the file. Strings of characters with no additional structure. Structure is assumed only by the processing programs. Files can be located relative to the current directory or by an absolute path name. An object that can be written to, or read from, or both. A file has certain attributes, including access permissions and type. File types include regular file, character special file, block special file, FIFO special file, and directory. Other types of files may be defined by the implementation. [POSIX.1] In the OpenExtensions implementation, the file system does not support block special files, but it does support symbolic link files. A collection of information or data that is organized by some method (relative, indexed, or serial, for example) and stored on a device such as a disk.

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

File Allocation Table (FAT). A table used to allocate space on a disk for a file.

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.

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. A nonnegative 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. [OSF] A per-process unique, nonnegative integer used to identify an open file for the purpose of file access. [POSIX.1] A small nonnegative 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. See also *standard error (stderr), standard input (stdin), standard output (stdout).*

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. See also dot, dot-dot, and path name.

file owner. The user who has the highest level of access authority to a file, as defined by the file.

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 Transfer Access and Management (FTAM). An application service element that enables user application processes to manage and access a file system, which may be distributed.

File Transfer Protocol (FTP). In TCP/IP, an application protocol used for transferring files to and from host computers. FTP requires a user ID and possibly a password to allow access to files on a remote host system. FTP assumes that Transmission Control Protocol is the underlying protocol.

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.

FILECONTROL directory. See file control directory.

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 (FIFO). 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 last-in-first-out.

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.

fixed-length record. A record having the same length as all other records with which it is logically or physically associated. Contrast with *variable-length record.*

flag. A modifier that appears on a command line with the command name that defines the action of the command. [OSF] An indicator or parameter that shows the setting of a switch. [OSF] A variable indicating that a certain condition holds. [T] A character that signals the occurrence of some condition, such as the end of a word. [A] An internal indicator that describes a condition to the processor [OSF] Synonymous with *condition code*.

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.

fold. To translate the lowercase characters of a character string into uppercase.

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 (CKPT) start, clean start, cold start, and warm start.

foreign host. Any machine on a network that can be interconnected.

foreign network. In an internet, any other network interconnected to the local network by one or more intermediate gateways or routers.

foreign node. See *foreign host*.

form-feed. A character that shall cause printing to start on the next page of an output device. The <form-feed> shall be the character designated by the "\f" in the C language binding. If <form-feed> is not the first character on an output line, the result is unspecified. It is unspecified whether this character is the exact sequence transmitted to an output device by the system to accomplish the movement to the next page. [POSIX.2]

format. A defined arrangement of such things as characters, fields, and lines, usually used for displays, printouts, or files. [OSF] The pattern that determines how data is recorded. [OSF] To arrange such things as characters, fields, and lines. In programming languages, a language construct that specifies the representation, in character form, of data objects in a file. [I]

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.

formatted file. A file displayed and arranged with particular characteristics, such as line spacing, headings, and number of characters and lines per page. [OSF] Contrast with *unformatted file*.

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.

frame. The portion of a tape on a line perpendicular to the reference edge, on which binary characters can be written or read simultaneously.

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.

FTAM. File Transfer Access and Management.

FTP. File Transfer Protocol.

full path name. Synonym for *absolute path name*.

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-duplex. See duplex protocol.

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

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. 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.

fullword. A computer word: 32 bits or 4 bytes.

fully qualified directory name (dirname). 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 includes the identification of the byte file system. The path name starts with `/../VMBFS:`*`filepoolid:filespaceid`*`/`, in which `/../VMBFS:` is a keyword string (not case sensitive). (2) A path name that identifies a file system or directory exported by a remote NFS server. The path name starts with `/../NFS:`*`foreign_host/directory_name`*, in which `/../NFS:` is a keyword string (not case sensitive).

function key. A key that causes a specified sequence of operations to be performed when it is pressed. Generally used to refer to keys labeled <F*n*>, for example, <F1>. A key that requests actions but does not display or print characters. This definition includes a key that usually produces a printed character, but produces a function instead when used with the code key. [OSF]

G

gadget. A windowless graphical object that looks like its equivalent like-named widget but does not support the translations, actions, or pop-up widget children supplied by that widget.

gateway. (1) 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. (2) A functional unit that interconnects a local data network with another network having different protocols. A host that connects a TCP/IP network to a non-TCP/IP network at the application layer. See also router.

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

gather and scatter data. Two related operations. During the gather operation, data is taken from multiple buffers and transmitted. In the scatter operation, data is received and stored in multiple buffers.

GB. See gigabyte.

GC. Graphics Context.

GContext. See *Graphics Context*.

GCS. See Group Control System.

GCS command file. See GCS exec.

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 REXX statements and functions. 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.

GDF file. See graphics data format file.

general purpose register (GPR). An explicitly addressable register that can be used for a variety of purposes (for example, as an accumulator or an index register).

general register. 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 who controls functions associated with a particular virtual machine. This user type corresponds to IBM-defined CP privilege class G. 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.

GID. 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.

Graphics Context (GC). The storage area for graphics output. Also known as *GC* and *GContext*. Used only with graphics that have the same root and depth as the graphics content.

graphics data format file (GDF file). A picture definition in a coded order format used internally by the GDDM function and, optionally, providing the user with a lower-level programming interface than the GDDM application programming interface.

group. (1) A collection of users who can share access authorities for protected resources. [OSF] A list of names that are known together by a single name. A set of related records that have the same value for a particular field in all records. A series of records logically joined together. (2) 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 operating system.

guest coupling simulation. Software that simulates the hardware and software required to run a sysplex environment as second-level guests under z/VM.

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.

H

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

halfword. A contiguous sequence of bits or characters that constitutes half a fullword and can be addressed as a unit.

handle. A temporary data representation that identifies a file.

handshaking. See VM/VS handshaking.

hard abend dump. An automatic dump of the storage directly owned by CP. The dump is generated by CP during an abend that results in system termination and possibly a restart.

hard link. (1) A mechanism that allows the **ln** 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 **ln** 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.

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

HASP. Houston automatic spooling priority system.

HDLC. See high-level data link control.

header file. A file that contains constant declarations, type declarations, and variable declarations and assignments. Header files are supplied with all programming interfaces.

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 synchronization 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.

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 Performance File System (HPFS). An OS/2 file management system that supports high-speed buffer storage, long file names, and extended attributes.

high private storage. GCS private storage that resides above the 16MB line. See also private 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-order. Most significant; leftmost. [OSF]

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 file. A file that lists the shell commands that are processed. The default history file is **.sh_history**.

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.

home directory. The current directory associated with the user at the time of login. [POSIX.2] A directory associated with an individual user. The user's current directory on login or after issuing the **cd** command with no operand.

hop count. The number of gateways or routers through which a packet passes on its way to its destination.

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 operating system. (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 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.

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.

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.

Houston automatic spooling priority system (HASP). A computer program that provides supplementary job management, data management, and task management functions such as control of job flow, ordering of tasks, and spooling.

HPFS. High Performance File System.

HSA. See hardware system area.

HYPERchannel Adapter. A network interface used to connect a TCP/IP for z/VM or z/OS host into an existing TCP/IP HYPERchannel network, or to connect TCP/IP hosts together to create a TCP/IP HYPERchannel network.

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. (1) See Internet Activities Board.. (2) See Internet Architecture Board.

ICF. See Internal Coupling Facility.

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. See Institute of Electrical and Electronic Engineers.

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. Internet Group Management Protocol (IGMP).

IGMP. See Internet Group Management Protocol.

IGP. Interior Gateway 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.

IMAP. See Internet Message Access Protocol.

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 IMMCMD 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 (CKPT) start and force start.

IMS™. Information Management System.

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.

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

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

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.

include file. A file that contains preprocessor text, which is called by a program, using a standard programming call. Synonymous with *header file*.

index. A list of the contents of a file or of a document, together with keys or references for locating the contents. [I][A] A table used to locate records in an indexed file. A table containing the key value and location of each record in an indexed file. [OSF] A computer storage position or register whose contents identify a particular element in a set of elements. [OSF]

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.

Information Management System (IMS). A database/data communication (DB/DC) system that can manage complex databases and networks.

inherit. To copy resources or attributes from a parent to a child.

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.

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.

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.

initiator. In Coordinated Resource Recovery (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.

inode. The internal structure that describes the individual files in the operating system; there is one inode for each file. An inode contains the node, type, owner, access times, number of links, and location of a file. A table of inodes is stored near the beginning of a file system.

inode number. A number specifying a particular inode file in the file system. Synonymous with *inumber*. See also *inode*.

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 XEDIT environment in which a user can enter new lines of data. See also edit mode.

input redirection. The specification of an input source other than standard input/output.

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.

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.

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

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.

instance. Indicates a label that is used to distinguish among the variations of the *principal name*. An instance allows for the possibility that the same client or service can exist in several forms that require distinct authentication.

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

instruction address stop (ADSTOP). 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 3270 console. A 3270 console device, provided through a Hardware Management Console, that can be used as a z/VM system operator console.

integrated ASCII console. An ASCII console device, provided through a Hardware Management Console, that can be attached to a z/VM virtual machine.

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 Services Digital Network (ISDN). A digital, end-to-end telecommunication network that supports multiple services including, but not limited to, voice and data.

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.

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.

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. A classification given to a virtual machine that uses less than its allocation time slice because of terminal I/O. See also noninteractive.

Interactive System Productivity Facility (ISPF). An IBM licensed program that serves as a full-screen editor and dialog manager. Used for writing application programs, it provides a means of generating standard screen panels and interactive dialogs between the application programmer and terminal user.

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.

Interior Gateway Protocol (IGP). The protocol used to exchange routing information between collaborating routers in the Internet. RIP is an example of an IGP.

intermediate server. A program that handles communications requests to a resource manager program on behalf of a user program. The TSAF and AVS virtual machines are special types of intermediate servers called *communications servers*.

Internal Coupling Facility (ICF). A hardware feature for use in coupling facility logical partitions. With this feature, the coupling facility runs on special ICF CPs that no customer software can utilize, allowing the coupling facility function to be performed on the CPC without affecting the model group and thus without impacting software licensing costs for the CP resources utilized by the coupling facility.

internal trace table. See CP trace table.

International Organization for Standardization (ISO). An organization of national standards bodies from various countries established to promote development of standards to facilitate international exchange of goods and services, and develop cooperation in intellectual, scientific, technological, and economic activity.

internationalization. The process of generalizing programs or systems so that they can handle a variety of languages, character sets, and national customs. [OSF] The process of designing and developing a product with a set of features, functions, and options intended to facilitate the adaptation of the product to satisfy a variety of cultural environments. [POSIX.0]

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

Internet Activities Board (IAB). The technical body that oversees the development of the Internet suite of protocols (commonly referred to as TCP/IP). It has two task forces (the IRTF and the IETF) each charged with investigating a particular area.

Internet address. A 32-bit address assigned to hosts using TCP/IP. An internet address consists of a network number and a local address. Internet addresses are represented in a dotted decimal notation and are used to route packets through the network.

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 Message Access Protocol (IMAP). A protocol that allows a client to retrieve and manipulate mail messages that are stored on a server.

internet or internetwork. A collection of packet switching networks interconnected by gateways, routers, bridges, and hosts to function as a single, coordinated, virtual network.

Internet Protocol (IP). The TCP/IP layer between the higher level host-to-host protocol and the local network protocols. IP uses local area network protocols to carry packets, in the form of datagrams, to the next gateway, router, or destination host.

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).

interoperability. The capability of different hardware and software by different vendors to effectively communicate together.

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.

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

intrinsics X-Toolkit. A set management mechanism that provides for constructing and interfacing between composite X Window widgets, their children, and other clients. Also, intrinsics provide the ability to organize a collection of widgets into an application.

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.

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.

IPC. See interprocess communication.

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.

ISDN. Integrated Services Digital Network.

ISFC. See Inter-System Facility for Communication.

ISO. International Organization for Standardization.

ISPF. Interactive System Productivity Facility.

ISPF/PDF. Interactive System Productivity Facility/Program Development Facility.

IUCV. See inter-user communication vehicle.

IUP. See installed user program.

IVP. See installation verification program.

J

JCL. Job Control Language.

JES. Job Entry Subsystem.

JES. See Job Entry Subsystem.

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

JIS. Japanese Institute of Standards.

job control. Facilities for monitoring and accessing background processes. [OSF] A facility that allows users to selectively stop (suspend) the processing of processes and continue (resume) their processing at a later point. The user typically employs this facility by the interactive interface jointly supplied by the terminal I/O driver and a command interpreter. Conforming implementations may optionally support job control facilities; the presence of this option is indicated to the application at compile time or run time by the definition of the [_POSIX_JOB_CONTROL] symbol. [POSIX.1]

Job Control Language (JCL). A problem-oriented language designed to express statements in a job that are used to identify the job or describe its requirements to an operating system.

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

JUNET. The Japanese Academic and Research Network that connects various UNIX operating systems.

justify. To control the printing positions of characters on a page so that both the left-hand and right-hand margins of the printing are regular. [I][A] To shift the contents of a register or field so that the significant character at the specified end of the data is at the specified position. [T] To align characters horizontally or vertically to fit the positioning constraints of a required format. [A] To print a document with even right margins, even left margins, or both. See *left-justify, right-justify.*

K

Kanji. A graphic character set consisting of symbols used in Japanese ideographic alphabets. Each character is represented by 2 bytes.

katakana. A character set of symbols used on one of the two common Japanese phonetic alphabets, which is used primarily to write foreign words phonetically. See also 44.

KB. See kilobyte.

Kerberos. A system that provides authentication service to users in a network environment.

Kerberos Authentication System. An authentication mechanism used to check authorization at the user level.

kernel. The part of the OpenExtensions component containing programs for such tasks as I/O, management, and communication. The part of the system that is an interface with the hardware and provides services for other system layers such as system calls, file system support, and device drivers. The part of an operating system that performs basic functions such as allocating hardware resources. A program that can run under different operating system environments. See also *shell*. A part of a program that must be in central storage in order to load other parts of the program.

keyword. A name or symbol that identifies a parameter. A part of a processing statement or command operand that consists of a specific character string. A part of a command operand that consists of a specific character string (such as **DSNAME=**). A predefined word in a programming language. [OSF] A reserved word. [OSF] In programming languages, a lexical unit that characterizes some language construct. A keyword usually has the form of an identifier. [I]

kill. An operating system command that stops a process. [OSF]

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.

KornShell. A command interpreter developed on UNIX, which forms the basis for the OpenExtensions shell.

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. (I) (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.

LaMail. The client that communicates with the OS/2 Presentation Manager to manage mail on the network.

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.

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

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.

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

LCU. See logical control unit.

LDAP. See Lightweight Directory Access Protocol.

left-justify. To shift the contents of a register or field so that the character at the left-hand end of the data is at a specific position. [T] To control the printing positions of characters on a page so that the left-hand margin of the printing is regular. [I][A]

library. A collection of functions, calls, subroutines, or other data. A named area on disk that can contain programs and related information (not files). A library consists of different sections, called library members. A data file that contains copies of a number of individual files and control information that allows them to be accessed individually. A collection of related files. For example, one line of an invoice may form an item, a complete invoice may form a file, the collection of inventory control files may form a library, and the libraries used by an organization are known as its data bank. A repository for demountable recorded media, such as magnetic disk packs and magnetic tapes. [A] The set of publications for a product.

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. See last-in-first-out.

Lightweight Directory Access Protocol (LDAP). A protocol that provides an easy way to maintain directory information in a central location for storage, update, retrieval, and exchange.

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

line. A string of characters accepted by a system as a single block of input from a terminal, such as all characters entered before a carriage return. A sequence of text consisting of zero or more non-<newline> characters plus a terminating <newline> character. [POSIX.2] In terminal-oriented programs, a stream of bytes terminated by <newline>. A horizontal display on a screen. [OSF]

line delete symbol. See logical line delete symbol.

line editor. An editor that displays data one line at a time and that allows data to be accessed and modified only by entering commands. [OSF]

line end symbol. See logical line end symbol.

line mode. (1) A form of screen presentation in which the information is presented one line at a time in the message area of the terminal screen, equivalent to using a typewriter-like terminal. See also full-screen mode. (2) Synonymous with *canonical 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 Printer Client (LPR). A client command that allows the local host to submit a file to be printed on a remote print server.

Line Printer Daemon (LPD). The remote printer server that allows other hosts to print on a printer local to your host.

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

link. (1) A connection that provides the physical transfer of data from one node to another. (2) In a file system, a connection between a directory and an object. The link is established when the object is created. (3) In SNA, the combination of the link connection (the transmission medium) and two link stations (one at each end of the link connection). (4) In TCP/IP, a term for a communications line. A TCP/IP link may share the use of a communications line with SNA. (5) In RSCS, a connection, or ability to communicate, between two adjacent nodes in a network. (6) In TSAF, the physical connection between two systems. (7) 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.

link-attached. Pertaining to devices that are connected to a controlling unit by a data link. See also channel-attached.

link-edit. To create a loadable computer program by means of a linkage editor.

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.

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] A program that resolves cross-references between separately compiled object modules and then assigns final addresses to create a single relocatable load module. If a single object module is linked, the linkage editor simply makes it relocatable. [OSF] Synonymous with *binder*.

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.

Linux virtual server. The complete Linux system (virtual machine hardware and the Linux operating system as a whole) running on z/VM.

list. A sequence of one or more pipelines. A data object consisting of a collection of related records.

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.

literal. A symbol or a quantity in a source program that is itself data, rather than a reference to data. In programming languages, a unit that directly represents a value. For example, **14** represents the integer **14**.

little endian. A format for storage or transmission of binary data in which the least significant bit (or byte) comes first. The reverse convention is big endian.

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.

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

load module. A computer program in a form suitable for loading into central storage for processing. [T] 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 processing routine. The output of the linkage editor.

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.

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 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.

local host. In an internet, the computer to which a user's terminal is directly connected without using the internet.

local modification. See *local service*.

local network. The portion of a network that is physically connected to the host without intermediate gateways or routers.

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.

locale. A description of a cultural environment. [POSIX.0] The definition of the subset of a user's environment that depends on language and cultural conventions. [POSIX.2] A tuple generally consisting of a language, territory, and codeset specification and used in internalization configuration. [OSF]

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.

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 *explicit lock* and *implicit 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.

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.

log minidisks. (1) 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. (2) In Coordinated Resource Recovery (CRR), two duplicate minidisks that contain information about the states of various logical units of work during synchronization 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 synchronization point processing.

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

logarithm. A mathematical operation related to the base of a numbering system. [OSF] Given a positive real number *x* and a positive real number **3**, the logarithm of *x* to the base **3**, written $\log_3 x$ (for example), is the exponent to which **3** must be raised to produce *x*.

logger. A functional unit that records events and physical conditions, usually with respect to time. [I][A] A program that enables a user entity to log in (for example, identify itself, its purpose, and time of entry) and log out with the corresponding data. This enables the appropriate accounting procedures to be carried out in accordance with the operating system.

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.

logical operator. (1) 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. (2) A symbol that represents an operation, such as AND, OR, or NOT, on logical expressions. [OSF]

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 Coordinated Resource Recovery (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 synchronization 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.

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).

logically sparse file. A file that contains sparse records.

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. [POSIX.1] In 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. [POSIX.1]

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

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

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

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

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*.

low-order. Least significant; rightmost. For example, in a 32-bit register (0–31), bit 31 is the low-order bit. [OSF]

LPAR. See logical partition.

LPD. Line Printer Daemon.

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.

LPR. Line Printer Client.

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. In SNA, the classification of an LU-LU session in terms of the specific subset of SNA protocols and options supported by the logical units (LUs) for that session.

LU type 6.2. A set of protocols and services defined by IBM's SNA for communication between application programs.

LU-LU session. In SNA, a session between two logical units (LUs). It provides communication between two end users, or between an end user and an LU services component.

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.

MAC. Media 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*.

macro library. A library of macrodefinitions.

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.

mail gateway. A machine that connects two or more electronic mail systems (often different mail systems on different networks) and transfers messages between them.

main storage. The part of internal storage into which instructions and other data must be loaded for running or processing.

Management Information Base (MIB). A standard used to define SNMP objects, such as packet counts and routing tables, that are in a TCP/IP environment.

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 the security label of the subject, the security label of the object, and the type of access the subject wants. See also discretionary access control.

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.

mapping. (1) The process of relating internet addresses to physical addresses in the network. (2) To show relationships between objects.

mask. A pattern of characters used to control retention or elimination of portions of another pattern of characters. To use a pattern of characters to control retention or elimination of another pattern of characters. A pattern of characters that controls the keeping, deleting, or testing of portions of another pattern of characters.

master console. In a system with multiple consoles, the basic console used for communication between the operator and the system.

master file directory. See CMS minidisk file directory.

Maximum Transmission Unit (MTU). The largest possible unit of data that can be sent on a given physical medium.

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.

media access control (MAC). The method used by network adapters to determine which adapter has access to the physical network at a given time.

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. A data object in a structure, a union, or a library. A partition of a partitioned data set. A part of a partitioned data set that can be used independently of other members of the data set. Synonym for *element*.

member saved segment. A special type of discontiguous 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 choice. A graphical or textual item on a menu. A user selects a menu choice to work with an object in some way.

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.

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 Handling System (MHS). The system of message user agents, message transfer agents, message stores, and access units that together provide OSI electronic mail.

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.

MHS. Message Handling System.

MIB. Management Information Base.

microcode. A code, representing the instructions of an instruction set, which is implemented in a part of storage that is not program-addressable.

MIF. See Multiple Image Facility.

MIH. Missing interrupt handler.

Military Network (MILNET). Originally part of the ARPANET, MILNET was partitioned in 1984 to make it possible for military installations to have reliable network service, while the ARPANET continued to be used for research.

MILNET. Military Network.

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. See CMS minidisk, CMS system disk, control minidisk, full-pack minidisk, and log minidisks.

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.

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. [POSIX.1]

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.

modem (modulator/demodulator). A device that converts digital data from a computer to an analog signal that can be transmitted on a telecommunication line, and converts the analog signal received to data for the computer.

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.

Motif. See OSF/Motif.

mount. To make a file system accessible. [OSF] To logically mount a file system in another file system with the CMS command **OPENVM MOUNT**. The mount point is in a directory. See also *file system, mount point*.

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.

mountable file system. A file system stored in an BFS and, therefore, able to be logically mounted in another file system.

mouse. An input device that is used to move a pointer on the screen and select items.

MP. Multiprocessor.

MPLF. See Multi-Path Lock Facility.

MPRoute. Multiple Protocol Routing. Implements the OSPF protocol described in RFC 1583, 1058, and 1723.

MTU. Maximum Transmission Unit.

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.

multiconnection server. A server that is capable of accepting simultaneous, multiple connections.

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 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.

multiple-access virtual machine. A virtual machine running under z/VM that supports teleprocessing terminals.

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.

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. A mode of operation that provides for the concurrent performance execution of two or more tasks.

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.

MVS. Multiple Virtual Storage.

N

N/A. Not applicable. Not available.

name server. The server that stores resource records about hosts.

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.

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.

National Science Foundation (NSF). Sponsor of the NSFNET.

National Science Foundation Network (NSFNET). A collection of local, regional, and mid-level networks in the U.S. tied together by a high-speed backbone. NSFNET provides scientists access to a number of supercomputers across the country.

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.

NDIS. Network Driver Interface Specification.

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.

NetView®. A system 390-based, IBM-licensed program used to monitor, manage, and diagnose the problems of a network.

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 adapter. A physical device, and its associated software, that enables a processor or controller to be connected to a network.

network administrator. The person responsible for the installation, management, control, and configuration of a network.

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 Driver Interface Specification (NDIS). An industry-standard specification used by applications as an interface with network adapter device drivers.

network elements. As defined in the SNMP architecture, network elements are gateways, routers, and hosts that contain management agents responsible for performing the network management functions requested by the network management stations.

network file system (NFS). A protocol developed by Sun Microsystems, Inc., that allows computers in a network to access each other's file systems. Once accessed, the file system appears to reside on the local host.

Network Information Center (NIC). Originally there was only one, located at SRI International and tasked to serve the ARPANET (and later DDN) community. Today, there are many NICs operated by local, regional, and national networks all over the world. Such centers provide user assistance, document service, training, and more.

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.

network layer. Layer 3 of the Open Systems Interconnection (OSI) model; it defines protocols governing data routing.

network management stations. As defined in the SNMP architecture, network management stations, or SNMP clients, execute management applications that monitor and control network elements.

newline. A cursor-movement function that moves the cursor to the first entry field on the next line that contains an entry field. The line terminator in text files and keyboard input. On the keyboard, this is generated by the <Enter> key. See also *newline character*.

newline character (NL or <newline>). A control character that causes the print or display position to move to the first position on the next line. This character is often represented by "\n". [OSF] A character that in the output stream causes printing to start at the beginning of the next line. The <newline> is the character designated by the "\n" in the C language binding. It is unspecified whether this character is the exact sequence transmitted to an output device by the system to accomplish the movement to the next line. [POSIX.2]

NFS. Network File System.

NIC. See Network Interface Card.

NIC. Network Information Center.

NJE. Network job entry.

node. In a network, a point at which one or more functional units connect channels or data circuits. In a network topology, the point at an end of a branch.

node ID. Node identifier.

node identifier (node ID). The name by which a node is known to all other nodes in a network.

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.

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.

nonblocking mode. If the execution of the program cannot continue until some event occurs, the operating system does not suspend the program until that event occurs. Instead, the operating system returns an error message to the program.

noncanonical mode. A **tty** input processing mode where input character erase and killing are eliminated, making input characters available to the user program as they are typed. [OSF] Synonymous with *character mode*, *raw mode*. Contrast with canonical mode.

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.

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.

NSF. National Science Foundation.

NSFNET. National Science Foundation Network.

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 character. A character with all bits set to zero [POSIX.2].

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 character string with a length of zero. (2) In CMS Pipelines, a delimited string formed by two adjacent delimiters. See also delimited string.

null value. A parameter position for which no value is specified. When used with a relational database, an indication that no data value has been assigned to the intersection of a row and a column in a relational table.

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.

octet. A byte composed of eight binary elements.

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.

open file. A file that is currently associated with a file descriptor. [POSIX.1]

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)

Open Systems Adapter-Express Integrated Console Controller (OSA-ICC). An OSA-Express function that provides 3270 console sessions that can be used to IPL logical partitions or as system operator/master consoles for System z® operating systems. The OSA-ICC also provides 3215 console sessions with the z/TPF master console.

Open Systems Interconnection (OSI). The interconnection of open systems in accordance with specific ISO standards. The use of standardized procedures to enable the interconnection of data processing systems.

OpenExtensions. The implementation of certain POSIX (Portable Operating System Interface for Computer Environments) 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.

operand. The portion of a command that is generally used as an object supplying information to a utility necessary to complete its processing. Operands generally follow the options in a command line. [POSIX.2] An instruction field that represents data (or the location of data) to be manipulated or operated upon. Not all instructions require an operand field. [OSF] An identifier, constant, or expression that is grouped with an operator. [OSF] An entity on which an operation is performed. [T][A] Information entered with a command name that defines the data on which a command processor operates and that controls the processing of the command processor. Information entered with a macro. See also *keyword, parameter*. Any value of an independent variable, for example, a search key; a number identifying the location of an item in a table. [I][A] A parameter passed between a calling and a called program. A parameter passed to a utility as the equivalent of a single string in the *argv* array created by one of the POSIX.1 **exec** functions. An operand is one of the options, option-operands, or operands following the command name. [POSIX.2] Numbers, letters, or words that expand or change the way a command works. [OSF]

operand list. A string of operands.

operator console. See system operator console.

optimized last agent. See *last agent optimization*.

option. A specification in a statement that can influence the processing of the statement. A portion of a command that is generally used to specify changes in the *invoked program's* default behavior. [POSIX.2]

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.

OS simulation under CMS. The environment of CMS that permits the simulation of OS functions. Contrast with *CMS/DOS*.

OSA. Open systems adapter.

OSA-ICC. See Open Systems Adapter-Express Integrated Console Controller.

OSF/Motif. OSF/Motif is an X Window System toolkit defined by Open Software Foundation, Inc. (OSF), which enables the application programmer to include standard graphic elements that have a 3-D appearance. Performance of the graphic elements is increased with gadgets and windowless widgets.

OSI. Open Systems Interconnection.

OSPF. Open Shortest Path First. An Interior Gateway Protocol that distributes routing information within a single Autonomous System.

out-of-band data. Data that is placed in a secondary channel for transmission. Primary and secondary communication channels are created physically by modulation on a different frequency, or logically by specifying a different logical channel. A primary channel can have a greater capacity than a secondary one.

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 file. A file that a program opens so that it can write to that file. A file that contains the results of processing.

output redirection. The specification of an output destination other than the standard one. [OSF]

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.

owner. The user who has the highest level of access authority to a data object or action, as defined by the object or action. [OSF]

P

P1003.2. POSIX.2

pack. A set of flat, circular recording surfaces that a disk storage device uses. Sometimes called a “disk pack”.

packet. A sequence of binary digits, including data and control signals, that is transmitted and switched as a composite whole.

Packet Switching Data Network (PSDN). A network that uses packet switching as a means of transmitting data.

page. A fixed-length block that has a virtual address and can be transferred between real storage and auxiliary storage. See *inactive page*, *locked page*, *nonresident pages*, *page-aligned*, *page frame*, *page frame table*, *page locking*, *page number*, *page reclamation*, *page table*, *page zero*, *pseudo page fault*, *reserved page frame performance option*, *shadow page table*.

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.

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.

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. See also guest coupling simulation.

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. A variable that is given a constant value for a specified application and that may denote the application. [I][A] A name in a procedure that refers to an operand passed to that procedure. An operand the user supplies to a command or function. [OSF] Data passed between programs or procedures. See also *operand*.

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. [POSIX.1] When discussing other types of files, a directory containing a directory entry for the file under discussion. [POSIX.1]

parent process. A process created to carry out a program. The parent process in turn creates child processes to process requests. See also child process and process.

parent process ID. An attribute of a new process after it is created by a currently active process. The parent process ID of a process is the process ID of its creator, for the lifetime of the creator. After the creator's lifetime has ended, the parent process ID is the process ID of an implementation-defined system process. [POSIX.1] In the OpenExtensions implementation, the parent process ID of the children of an ended process is set to the process ID of the INIT process, or 1.

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.

parse. To analyze the operands entered with a command and build from those operands a parameter list for the command processor.

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*.

Partitioned data set (PDS). A data set in direct access storage that is divided into partitions, called members, each of which can contain a program, part of a program, or data.

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.

passive open. The state of a connection that is prepared to provide a service on demand. Contrast with active open.

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.

password phrase. A string consisting of mixed-case letters, numbers, and special characters, including blanks, that is used to control access to data and systems.

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) The identification of an object (such as a file or directory) in the OpenExtensions byte file system (BFS). The path name identifies the object within the BFS hierarchy by specifying the directories leading to the object. See also absolute path name, fully qualified path name, and relative path name. (2) The identification of a file system or directory that can be exported by a remote Network File System (NFS) server and mounted on the local z/VM system. See also fully qualified path name.

path name component. The name of a BFS object, as specified in a path name.

pattern. A regular expression or series of regular expressions that define a search pattern. A sequence of characters used either with regular expression notation or for path name expansion, as a means of selecting various character strings or path names, respectively. The syntaxes of the two patterns are similar, but not identical; the standard always indicates the type of pattern being referred to in the immediate context of the use of the term. [POSIX.2] A sequence of characters used by commands that search for strings. Some characters have special meanings in patterns; for example, `$` stands for the end of a line and `abc$` refers to the sequence *abc* appearing at the end of a line. Some patterns can be matched by many different strings.

pattern matching. The identifying of one of a predetermined set of items which has the closest resemblance to a given object, by comparing its coded representation against the representation of all the items. [T] Specifying a pattern of characters that the system should find. [OSF] The process of searching for strings of characters that conform to the pattern of characters in a regular expression.

PC. Personal computer.

PC Network. A low-cost, broadband network that allows attached IBM personal computers, such as IBM 5150 Personal Computers, IBM Computer ATs, IBM PC/XTs, and IBM Portable Personal Computers to communicate and to share resources.

PCE. Processor controller.

PDI. Parameter driven installation.

PDN. Public Data Network.

PDS. Partitioned data set.

PDU. Protocol data unit.

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.

peer-to-peer. In network architecture, any functional unit that resides in the same layer as another entity.

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]

Personal Computer (PC). A microcomputer primarily intended for stand-alone use by an individual.

petabyte. 2**50 bytes.

PF (programmed function) key. A key on the keyboard of a display device that passes a signal to a program to call for a particular program operation.

PF key. Programmed function key.

PGR. Presentation graphics routines.

physical file. A database file that describes how data is to be presented or received from a program and how data is actually stored in the database. A physical file contains one record format and one or more members.

physical layer. Layer 1 of the Open Systems Interconnection (OSI) model; it details protocols governing transmission media and signals.

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 (PU). In SNA, the component that manages and monitors the resources, such as attached links and adjacent link stations, associated with a node, as requested by an SSPC via an SSPC-PU session. An SSPC activates a session with the physical unit in order to indirectly manage, through the PU, resources of the node such as attached links.

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.

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*.

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. The command that sends an ICMP Echo Request packet to a host, gateway, or router with the expectation of receiving a reply.

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. [POSIX.1] 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 also 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.

PM. Presentation Manager.

PMA. Preferred machine assist.

PMANT. In OS/2, the 3270 client terminal emulation program that is invoked by the PMANT command.

POD. See Ping-o-Death.

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*.

pointer. In the C language, a variable that holds the address of a data object or a function. A physical or symbolic identifier of a unique target. An identifier that indicates the location of an item of data. [A] A data element that indicates the location of another data element. [T] In computer graphics, a manually operated functional unit used to specify an addressable point. A pointer may be used to conduct interactive graphic operations, such as selection of one member of a predetermined set of display elements, or indication of a position on a display space while generating coordinate data. [T]

pointing device. A device, such as a mouse, trackball, or joystick, used to move a pointer on the screen.

polling. On a multipoint connection or a point-to-point connection, the process whereby data stations are invited one at a time to transmit. Interrogation of devices for such purposes as to avoid contention, to determine operational status, or to determine readiness to send or receive data.

pool-relative block number. A 4K record contained within a minidisk-pool with its origin relative to zero.

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.

POP. Post Office Protocol.

POR. Power-on reset.

port. An endpoint for communication between devices, generally referring to a logical connection. A 16-bit number identifying a particular Transmission Control Protocol or User Datagram Protocol resource within a given TCP/IP node.

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.

portability. The ability of a program to run on more than one kind of 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 2.4 that is supported on all conforming systems. See also *portable file name character set.* [POSIX.2]

portable file name character set. The set of characters from which portable file names are constructed. For a file name to be portable across conforming implementations of POSIX.1, it shall consist only of the uppercase and lowercase characters of the alphabet (*A* through *Z* and *a* through *z*), the digits *0* through *9,* the period (**.**), the underscore (_), and the hyphen (**-**). The hyphen shall not be used as the first character of a portable file name. Uppercase and lowercase letters shall retain their unique identities between conforming implementations. In the case of a portable path name, the slash character may also be used. [POSIX.1]

Portable Operating System Interface for Computer Environments (POSIX). An interface standard governed by the IEEE and based on UNIX. See also OpenExtensions.

PORTMAP. Synonymous with *Portmapper*.

Portmapper. A program that maps client programs to the port numbers of server programs. Portmapper is used with Remote Procedure Call (RPC) programs.

positional parameter. A shell facility that assigns values from the command line to variables in a program. [OSF]
A parameter that must appear in a specified location relative to other positional parameters. One of the command line operands to a shell file. Positional parameters are referenced by $1, $2, and so on.

POSIX. See Portable Operating System Interface for Computer Environments.

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 z/VM 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.

Post Office Protocol (POP). A protocol used for exchanging network mail.

PostScript®. A standard that defines how text and graphics are presented on printers and display devices.

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.

presentation layer. Layer 6 of the Open Systems Interconnections (OSI) model; it defines protocols governing data formats and conversions.

Presentation Manager (PM). A component of OS/2 that provides a complete graphics-based user interface, with pull-down windows, action bars, and layered menus.

preventive service. The application of all program temporary fixes (PTFs) from a recommended service upgrade (RSU). See also selective preventive service.

primary. An irreducible unit of data. For example, a single constant, variable, or array element.

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 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.

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.

principal name. Specifies the unique name of a user (client) or service.

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.

printer universal character set. A printer feature that permits a variety of character arrays.

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. Synonymous with *class*.

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 function being performed or waiting to be performed. An processing function, or one waiting to process. A function, created by a **spawn()** request, with three logical sections:

- Text, which is the function's instructions.
- Data, which the instructions use but do not change.
- Stack, which is a push-down, pop-up save area of the dynamic data that the function operates upon.

A program using OpenExtensions services. The program can be created by a **spawn()** function or spawn callable service, or the program can be dubbed because it requested OpenExtensions services. The three types of processes are:

- User processes, which are associated with a user at a workstation
- Daemon processes, which do systemwide functions in user mode, such as printer spooling
- Kernel processes, which do systemwide functions in kernel mode, such as paging

An address space and single thread of control that processes within that address space, and its required system resources. A sequence of actions required to produce a desired result. [OSF] An entity receiving a portion of the processor's time for processing a program. [OSF] An activity within the system that is started by a command, a shell program, or another process. Any running program is a process. A unique, finite course of events defined by its purpose or by its effect, achieved under given conditions. Any operation or combination of operations on data. The current state of a program that is running—including a memory image, the program data, the variables used, the general register values, the status of opened files used, and the current directory. Programs running in a process must be either operating system programs or user programs. [OSF] A running program, including the memory occupied, the open files, the environment, and other attributes specific to a running program.

process group. A collection of processes that permits the signaling of related processes. Each process in the system is a member of a process group that is identified by a process group ID. A newly created process joins the process group of its creator. [POSIX.1]

process group ID. The unique identifier representing a process group during its lifetime. A process group ID is a positive integer that can be contained in a data item of type *pid_t*. It shall not be reused by the system until the process group lifetime ends. [POSIX.1]

process ID (PID). A unique number assigned to a process that is running. [OSF] The unique identifier representing a process. A process ID is a positive integer that can be contained in a data item of type *pid_t*. A process ID shall not be reused by the system until the process lifetime ends. In addition, if there exists a process group whose process group ID is equal to that process ID, the process ID shall not be reused by the system until the process group lifetime ends. A process that is not a system process shall not have a process ID of 1. [POSIX.1]

processable file. (1) A file that contains either a compiled and link-edited program or a shell script. (2) A regular file acceptable as a new process image file by the equivalent of the POSIX.1 exec family of functions, and thus usable as one form of a utility. The standard utilities described in POSIX.1 as compilers can produce processable files, but other unspecified methods of producing processable files can also be provided. The internal format of a processable file is unspecified, but a conforming application shall not assume a processable file is a text file. [POSIX.2]

processable program. A program suitable for processing by a computer. The program can be an application or a shell script.

processable statement. A statement that causes an action to be taken by the program. For example, to calculate, to test conditions, or to alter usual sequential processing. [OSF]

processor. See central processing unit.

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 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.

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.

processor storage. The storage available to the central processors (central storage, and, if installed, expanded storage).

prodid. See product identifier.

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.

Professional Office Systems (PROFS™). IBM's proprietary, integrated office management system used for sending, receiving, and filing electronic mail, and a variety of other office tasks.

profile. A file containing customized settings for a system or user. [OSF] Data that describes the significant characteristics of a user, a group of users, or one or more computer resources. A set of instructions to initialize a user's shell session. The shell automatically reads and processes these commands if this file is in the user's home directory. In computer security, a description of the characteristics of an entity to which access is controlled. A set of one or more base standards, and, where applicable, the identification of chosen classes, subsets, options, and parameters of those base standards, necessary for accomplishing a particular function. [POSIX.0]

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).

PROFS. Professional Office Systems.

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.

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.

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 symbol or message that requests information or operator action. [OSF] A message issued to a terminal user requesting information necessary to continue processing. A common action that users request while the cursor is in an entry field. A prompt produces a menu of available choices for that entry field. Users can select a choice from the menu to insert in the entry field.

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 semantic and syntactic rules that determines the behavior of functional units in achieving communication. Protocols can determine low-level details of machine-to-machine interfaces, such as the order in which bits from a byte are sent; they can also determine high-level exchanges between application programs, such as file transfer.

Protocol data unit (PDU). A set of commands used by the SNMP agent to request management station data.

protocol suite. A set of protocols that cooperate to handle the transmission tasks for a data communication system.

PSA. Prefix storage area.

PSDN. Packet Switching Data Network.

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.

PU. Physical unit.

PUB. Physical unit block.

PUBLIC. In a file pool, all valid users of the system.

Public Data Network (PDN). A network established and operated by a telecommunication administration or by a Recognized Private Operating Agency (RPOA) for the specific purpose of providing circuit-switched, packet-switched, and leased-circuit services to the public.

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.

PUT. Program update tape.

PVM. See VM/Pass-Through Facility.

Q

QDIO. See queued direct I/O.

QSAM. Queued sequential access method.

qualifier. A unique name used to identify another name. [OSF] A modifier that makes a name unique. All names in a qualified name other than the rightmost, which is called the simple name.

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 slice. The maximum amount of time that a virtual machine can stay in the run list.

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.

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 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.

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.

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.

quote. To mask the special meaning of certain characters, causing them to be taken literally. [OSF]

R

R/O. Read-only.

R/W. Read/write.

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.

RACF®. See Resource Access Control Facility.

RARP. Reverse Address Resolution Protocol.

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 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.

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*.

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*.

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*.

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.

realm. One of the three parts of a Kerberos name. The realm specifies the network address of the principal name or instance. This address must be expressed as a fully qualified domain name, not as a "dot numeric" internet address.

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.

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.

record. In programming languages, an aggregate that consists of data objects, possibly with different attributes, that usually have identifiers attached to them. [I] A set of data treated as a unit. [T] A collection of fields treated as a unit. [OSF] A self-contained collection of information about a single object. A record is made up of a number of distinct items, called fields. A number of shell programs (for example, **awk**, **join**, and **sort**) are designed to process data consisting of records separated by newlines, where each record contains a number of fields separated by spaces or some other character. **awk** can also handle records separated by characters other than newlines. See *fixed-length record, variable-length record.* Using a function to define itself. [OSF]

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.

recursion. A process involving numerous steps, in which the output of each step is used for the successive step.

redirect. To divert data from a process to a file or device to which it would not usually go. [OSF]

redirection. A system profile construction method of starting at a base platform and adding new services by allowing a service component to ask the base platform to redirect all requests for that type of service to the service component. [POSIX.0] Changing the association between files and file descriptors for a program. A process inherits file descriptors from the process that created the program (usually the shell). A file descriptor's standard input and standard output are usually associated with the keyboard and display screen, respectively. The shell can arrange for these descriptors (or any others) to be associated with other files before creating the new process. In particular, `<infile` redirects the standard input from **infile**, while `>outfile` redirects the standard output to **outfile**.

reduced instruction-set computer (RISC). A computer that uses a small, simplified set of frequently used instructions for rapid execution.

reentrant. The attribute of a program or routine that allows the same copy of a program or routine to be used concurrently by two or more tasks.

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. An internal computer component capable of storing a specified amount of data and accepting or transferring this data rapidly. See also general-purpose register, access register, and floating point 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 expression. A pattern (sequence of characters or symbols) constructed according to the rules defined in POSIX.2 2.8. [POSIX.2] A set of characters, metacharacters, and operators that define a string or group of strings in a search pattern. [OSF] A string containing wildcard characters and operations that define a set of one or more possible strings. [OSF] A more technical term for *pattern*.

regular file. A BFS file that is a randomly accessible sequence of bytes, with no further structure imposed by the system. [POSIX.1]

relative path name. A BFS path name that does not begin with a slash (/), which means that the path name is relative to the working directory. 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 Execution Protocol (REXEC). A protocol that allows the execution of a command or program on a foreign host. The local host receives the results of the command execution. This protocol uses the REXEC command.

remote host. A machine on a network that requires a physical link to interconnect with the network.

remote logon. The process by which a terminal user establishes a terminal session with a remote host.

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 Procedure Call (RPC). A facility that a client uses to request the execution of a procedure call from a server. This facility includes a library of procedures and an eXternal data representation.

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.

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.

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.

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).

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.

resolver. A program or subroutine that obtains information from a name server or local table for use by the calling program.

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 IBM-licensed program that provides for access control by identifying and by 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 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 (Coordinated Resource Recovery).

resource records. Individual records of data used by the Domain Name System. Examples of resource records include the following: a host's Internet Protocol addresses, preferred mail addresses, and aliases.

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.

response unit (RU). In SNA, a message unit that acknowledges a request unit. It may contain prefix information received in a request unit. If positive, the response unit may contain additional information such as session parameters in response to BIND SESSION. If negative, it contains sense data defining the exception condition.

restricted saved segment. A segment space or discontiguous 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 discontiguous 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 synchronization 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. A code used to influence the execution of succeeding instructions. A value returned to a program to indicate the results of an operation requested by that program.

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 Address Resolution Protocol (RARP). A protocol that maintains a database of mappings between physical hardware addresses and IP addresses.

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.

REXEC. Remote Execution Protocol.

REXX. Restructured Extended Executor language.

REXX exec. A CMS file with a file type of EXEC that contains a procedure consisting of one or more executable statements to be processed by the REXX/VM interpreter. The statements can be CMS or CP commands or REXX statements. If the SET IMPEX setting is ON, the exec is treated as a command, and the procedure is invoked by entering the file name of the file; otherwise, the EXEC command must be used.

REXX language. Restructured Extended Executor language.

REXX program. See REXX exec.

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.

RFC. See Request for Comments.

right-justify. To control the positions of characters on a page so that the right-hand margin of the printing is regular. [I][A] To shift the contents of a register or field so that the character at the right-hand end of the data is at a specific position. [T] To align characters horizontally so that the rightmost character of a string is in a specified position. [A]

ring of files. The arrangement of files in virtual storage when multiple files are being edited by XEDIT.

RIP. Routing Information Protocol.

RISC. Reduced instruction-set computer.

ROCF. Remote operator console facility.

rollback. In CRR (Coordinated Resource Recovery), 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 directory in the BFS file system hierarchy. It is referred to as "/". (2) The directory used to resolve path names that begin with a slash (/). (3) See also working directory.

root file system. The basic file system, onto which all other file systems can be mounted. The root file system contains the operating system files that get the rest of the system running.

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.

RouteD. Routing daemon.

router. (1) An enhanced connectivity program that interprets requests for services and directs them to the applicable server. (2) A device that connects networks at the ISO Network Layer. A router is protocol-dependent and connects only networks operating the same protocol. Routers do more than transmit data; they also select the best transmission paths and optimum sizes for packets. In TCP/IP, routers operate at the Internetwork layer. See also gateway.

Routing Information Protocol (RIP). The protocol that maintains routing table entries for gateways, routers, and hosts.

routing table. (1) A Conversational Monitor System (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. (2) A list of network numbers and the information needed to route packets to each.

row. A horizontal arrangement of characters or other expressions. [A] Contrast with *column.*

RPC. Remote Procedure Call.

RPS. Rotational position sensing.

RSCS. Remote Spooling Communications Subsystem Networking.

RSU. See recommended service upgrade tape.

RU. Response unit.

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.

S

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.

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 storage access component.

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 discontiguous 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, discontiguous 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.

SBCS. Single Byte Character Set.

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.

SCRIPT/VS. A component of the IBM Document Composition Facility program product available from IBM for a license fee.

scroll. To move a display image vertically or horizontally to view data that otherwise cannot be observed within the boundaries of the display screen. To move the representation of data vertically or horizontally relative to the terminal screen. There are two types of scrolling: (a) the cursor moves with the data; or (b) the cursor remains stationary while the data moves. [POSIX.2]

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.

SDLC. Synchronous data link control.

SDO. System delivery offering.

search order. See CMS search order.

search path. The sequence of directories that a command interpreter should search to find the program that the user wants to run.

SECLABEL. Security label.

second-level storage. The storage that appears real to a virtual machine. Contrast with *first-level storage* and *third-level storage*.

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.

Secure Sockets Layer (SSL). A security protocol that provides communication privacy. With SSL, client/server applications can communicate in a way that is designed to prevent eavesdropping, tampering, and message forgery.

security administrator. A programmer who manages, protects, and controls access to sensitive information.

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 special type of discontiguous 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.

semantics. The relationships of characters or groups of characters to their meanings, independent of the manner of their interpretation and use. The relationships between symbols and their meanings.

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*.

Sendmail. The OS/2 mail server that uses Simple Mail Transfer Protocol to route mail from one host to another host on the network.

separator. A punctuation character that separates parts of a command or file. A punctuation character used to delimit character strings.

serial line. A network media that is a de facto standard, not an international standard, commonly used for point-to-point TCP/IP connections. Generally, a serial line consists of an RS-232 connection into a modem and over a telephone line.

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 server, and trusted server.

service. Changing a product after installation. See *access method services (AMS)*, *callable services library (CSL)*, *circumventive service*, *console communication services (CCS)*, *corrective service*, *local service*, *preventive service*, *program update service*, *replacement service*, *selective preventive service*, *serviceable part*, *service level*, *service machine*, *service pool*, *service pool virtual machine*, *service routines*, *service tape*, *service virtual machine*, *system service program (SSP)*, *system services control point (SSCP)*, *update service*, *VMSES/E installation/service tool*, *VTAM service machine (VSM)*.

service level. The PTF or preventive service level that is associated with the testing level and support level of an orderable product function.

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 who is permitted to set or change the level of detail of I/O device error recording. This user type corresponds to IBM-defined CP privilege class F. This privilege class is reserved for IBM use only. See also privilege class.

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, or monitoring.

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 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*.

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.

session. The period of time during which a user of a terminal can communicate with an interactive system—usually, the elapsed time between logon and logoff. The period of time during which programs or devices can communicate with each other. [OSF] A collection of process groups established for job control purposes. Each process group is a member of a session. Each process is considered to be a member of the session of which its process group is a member. A newly created process joins the session of its creator. A process can alter its session membership. Implementations that support the **setpgid()** function can have multiple process groups in the same session. [POSIX.1] Every process group, and associated process, belongs to a session. Any new process also belongs to the session of the process that created it. In network architecture, an association of facilities that establish, maintain, and release connections for communication between stations. [OSF] In SNA, a logical connection established between two network addressable units (NAUs) that allows them to communicate. For routing purposes each session is identified by the local or network addresses of the session partners.

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.

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 processing. Synonymous with *S_ISGID 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 processing. Synonymous with *S_ISUID bit*.

setgid bit. Deprecated term for *set-group-ID mode bit*.

setuid bit. Deprecated term for *set-user-ID mode bit*.

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 directory in the CMS 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.

sh_history. See *history file*.

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 *named saved system*.

shared segment. One or more segments of real storage, saved in a named saved system, member saved segment, or discontiguous 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 *named 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. [POSIX.2] Synonymous with *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 processes them. The shell command language interpreter, a specific instance of a shell. [POSIX.2] 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. See also *interface, shell program, KornShell*.

shell procedure. See *shell script*.

shell procedure. See *shell script*.

shell program. A program that accepts and interprets commands for the operating system. See also *shell*.

shell prompt. The character string on the command line indicating that the system can accept a command.

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 the **sh** utility. [POSIX.2]

shell variables. Facilities of the shell program for assigning variable values to constant names.

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. A means of informing processes of asynchronous events. A mechanism by which a process may be notified of, or affected by, an event occurring in the system. Examples of such events include hardware exceptions and specific actions by processes. The term *signal* is also used to refer to the event itself. [POSIX.1] An indication that an asynchronous event completed. A signal is sent to a process. Signals are simulations of *interrupts*. A simple method of communication between two processes. One process can inform the other process when an event occurs. [OSF] A method of interprocess communication that simulates software interrupts. Contrast with *interrupt*.

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.

Simple Mail Transfer Protocol (SMTP). A TCP/IP application protocol used to transfer mail between users on different systems. SMTP specifies how mail systems interact and the format of control messages they use to transfer mail.

Simple Network Management Protocol (SNMP). A protocol that allows network management by elements, such as gateways, routers, and hosts. This protocol provides a means of communication between network elements regarding network resources.

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 quotation mark. The character ' —also known as *apostrophe*. [POSIX.2]

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.

single-byte character set (SBCS). A character set in which each character is represented by a one-byte code. Contrast with double-byte character set.

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-precision. The use of one computer word to represent a number, in accordance with the required precision. The specification that causes a floating-point value to be stored in the short format.

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.

S_ISGID bit. See *set-group-ID mode bit*.

S_ISUID bit. See *set-user-ID mode bit*.

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.

small programming enhancement (SPE). For mainframes, any new function being shipped in the service stream as an APAR, including rollback to lower releases of new release line items.

SMI. Structure for Management Information.

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*.

SMTP. Simple Mail Transfer Protocol.

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.

snap dump. A dump, initiated by a command or macro, of the storage directly owned by CP. A snap dump is very similar to a hard abend dump but does not result in system termination.

SNMP. Simple Network Management Protocol.

SOA. Start of authority record.

socket. A method of communication between two processes. Sockets allow communication in two directions, in contrast to pipes, which allow communication in only one direction. The processes using a socket can be on the same system or on systems in the same network. A unique host identifier created by the concatenation of a port identifier with a TCP/IP address. An interface, linked with TCP/IP or other protocols, that allows processes on different machines to communicate. Sockets are similar to APPC, but the communication mechanism is transparent: It consists of three layers (socket layer, protocol layer, and device layer). There are two types of sockets: stream sockets and datagram sockets. A port on a specific host; a communication endpoint that is accessible through a protocol family's addressing mechanism. In TCP/IP, the Internet address of the host computer on which the application runs, and the port number it uses. In interprocess communication, an endpoint of communication. The system call that creates a socket and its associated data structure. A port identifier. Synonym for *port*.

socket address. An address that results when the port identification number is combined with an internet address.

socket interface. An application interface that allows users to write their own applications to supplement those supplied by TCP/IP.

soft abend dump. An automatic dump of a small amount of the storage directly owned by CP. The dump is created when CP encounters a problem for which system integrity is not jeopardized by the error, or when CP can isolate an error to a virtual machine. The dump does not result in a system termination.

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*.

SPE. See small programming enhancement.

special character. A character other than a letter or number. For example, *, +, and % are special characters.

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 system. A Control Program (CP) file system that manages special files for unit record devices (called spool files) in a temporary storage area.

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 who controls spool files and the z/VM system's real unit record devices allocated to spooling use. This user type corresponds to IBM-defined CP privilege class D. See also privilege class.

spooling unit record I/O. See *spooling* and *virtual spooling device*.

SQL. Structured Query Language.

SQL/DS. Structured Query Language/Data System.

SR. Symptom record.

SSCP. System services control point.

SSL. See Secure Sockets Layer.

SSP. See System Support Programs.

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. (1) See *console stack* and *program stack*. (2) An area in storage that stores temporary register information and returns addresses of subroutines. A list constructed and maintained so that the last data element stored is the first data element retrieved. [OSF]

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*.

stage command. See *stage*. See also *filter*, *device driver*. See *built-in 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).

standard error (stderr). The place where many programs place error messages: the display screen unless another place is specified with redirection. [OSF] An output stream usually intended to be used for diagnostic messages. [POSIX.2] The conventional name for file descriptor 2. By convention, programs write diagnostics and error messages to this descriptor. Usually, the descriptor refers to the display screen, but it may be changed by redirection. This descriptor is separate from standard output so that error diagnostics are still visible when the output is redirected.

standard input (stdin). The primary source of data going into a command. Standard input comes from the keyboard unless redirection or piping is used, in which case standard input can be from a file or the output from another command. An input stream usually intended to be used for primary data input. [POSIX.2] The conventional name for file descriptor 0. By convention, programs read input from this descriptor. Usually, the descriptor refers to the keyboard, but it may be changed by redirection.

standard output (stdout). The primary destination of data coming from a command. Standard output goes to the display unless redirection or piping is used, in which case standard output can be to a file or another command. An output stream usually intended to be used for primary data output. [POSIX.2] The conventional name for file descriptor 1. By convention, programs write output to this descriptor. Usually, the descriptor refers to the display screen, but may be changed by redirection.

start of authority record (SOA). In the Domain Name System, the resource record that defines a zone.

state. See *program state*.

state transition. The change from one program state to another in a conversation.

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.

stderr. Standard error.

stdin. Standard input.

stdout. Standard output.

sticky bit. A file access permission bit that allows multiple users to share a single copy of an executable file.

sticky bit. A file access permission bit that allows multiple users to share a single copy of an executable file.

stop. To end, in a controlled manner, the current processing activity in a computer system because it is impossible or undesirable for the activity to proceed. [OSF] Synonymous with *end*.

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 editor. An editor called by the **sed** command, which modifies lines from a specified file, according to an edit script, and writes them to a standard output. [OSF]

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. (1) A group of minidisks defined for a specific function in the product parameter file, for example, the BASE2 string, which holds source code. (2) A linear sequence of entities such as characters or physical elements. Examples of strings are alphabetic string, binary element string, bit string, character string, search string, and symbol string. [OSF] An ordered sequence of bits, octets, or characters, accompanied by the string's length. [OSF] A sequence of characters or numbers. Any sequence of characters, as in `abc`. For the shell, strings should be enclosed by quotation marks (") to hide any blanks or tabs in the string from the shell.

structurally sparse files. Files that contain sparse blocks. See *sparse block*.

structure. A variable that contains an ordered group of data objects. Unlike an array, the data objects within a structure can have varied data types. Synonym for *data structure*.

Structure for Management Information (SMI). The rules used to define the objects that can be accessed through a network management protocol. See also 52.

Structured Query Language (SQL). Fourth generation English-like programming language used to perform queries on relational databases.

Structured Query Language/Data System (SQL/DS). An IBM relational database management system for the VM and VSE operating systems.

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.

subchannel. A logical function of a channel subsystem associated with the management of a single device.

subchannel number. A system-unique 16-bit value used to address a subchannel. See also I/O address.

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. In the file system hierarchy, a directory contained within another directory. Directories may be nested to arbitrary depth.

subdirectory. A directory contained within another directory in a file system hierarchy.

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*.

subnet. A networking scheme that divides a single logical network into smaller physical networks to simplify routing.

subnet address. The portion of the host address that identifies a subnetwork.

subnet mask. A mask used in the IP protocol layer to separate the subnet address from the host portion of the address.

subnetwork. Synonymous with *subnet*.

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.

subshell. An instance of the shell program started from an existing shell program.

substring. A part of a character string.

subsystem. A secondary or subordinate system, usually capable of operating independently of, or asynchronously with, a controlling system. (T)

suffix. A character string attached to the end of a file name that helps identify its file type. [OSF] For example, in `/dir/file.c`, the suffix is `.c`.

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. A system user who can pass all OpenExtensions security checks. A superuser has the special rights and privileges needed to manage OpenExtensions processes and files.

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 type of BFS file that contains the path name of, and acts as a pointer to, another BFS file or directory. The path name in the symbolic link 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.

SYNC. Synchronous.

sync point. See synchronization point processing.

sync point manager. See synchronization point manager.

sync point processing. See 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.

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 Coordinated Resource Recovery (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.

synchronous (SYNC). Pertaining to two or more processes that depend on the occurrences of a specific event such as common timing signal. Occurring with a regular or predictable time relationship. See *asynchronous*.

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.

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 who examines and saves z/VM system operation data in specified z/VM storage areas. This user type corresponds to IBM-defined CP privilege class E. See also privilege class.

SYSTEM CONFIG. A file containing the primary system definitions used when the Control Program (CP) nucleus is loaded (IPL).

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 that can be defined, monitored, and signaled by CMS or an application.

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 identifier. A unique name that identifies a particular system running on hardware with a particular serial number.

system integrity. The property of a system that is designed, implemented, and maintained to protect itself from unauthorized access.

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 who 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. This user type corresponds to IBM-defined CP privilege class A. See also privilege class and primary system operator.

system operator console. The device where the primary z/VM system operator's virtual machine is logged on.

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 who updates or changes system-wide parameters of the z/VM system. This user type corresponds to IBM-defined CP privilege class C. 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 who controls all the real resources of the z/VM system, except those controlled by system operators and spooling operators. This user type corresponds to IBM-defined CP privilege class B. See also privilege class.

system restart. See *initial program load*, *quick start*, and *warm start*.

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.

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 Network Control Program (NCP).

system trace file. A type of system data file that contains CP or virtual machine trace data.

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.

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.

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 SYSDESCT.

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.

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*.

Systems Application Architecture (SAA). A defined set of interfaces, conventions, and protocols that can be used across various IBM systems.

T

T-disk. See *temporary disk*.

table. An array of data each item of which can be unambiguously identified by means of one or more operands. [I][A] A two-dimensional array in which each item and its position with respect to other items is identified.

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.

TALK. An interactive messaging system that sends messages between the local host and a foreign host.

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.

Telecommunications Access Method (TCAM). An access method used to transfer data between main storage and remote or local terminals.

Telnet. The Terminal Emulation Protocol, a TCP/IP application protocol for remote connection service. Telnet allows a user at one site to gain access to a foreign host as if the user's terminal were connected directly to that foreign host.

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)*, *logically connected terminal*, *SNA/CCS terminal*, *terminal input buffer*, *terminal session*, *terminal user*.

terminal emulator. A program that imitates the function of a particular kind of terminal.

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.

terminal user. Anyone who uses a terminal to log on to z/VM.

Terminate and Stay Resident (TSR) program. A TSR is a program that installs part of itself as an extension of DOS when it is executed.

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*.

ticket. Encrypted information obtained from a Kerberos authentication server or a ticket-granting server. A ticket authenticates a user and, in conjunction with an authenticator, serves as permission to access a service when presented by the authenticated user.

ticket-granting server. Grants Kerberos tickets to authenticated users as permission to access an end-service.

tilde. The character ~ [POSIX.2]

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 Sharing Option (TSO). An operating system option; for z/OS, the option provides interactive time sharing from remote terminals

time stamp. (1) A record containing the TOD clock value stored in its internal 32-bit binary format. (2) To apply the current system time. The value on an object that is an indication of the system time at some critical point in the history of the object. In query, the identification of the day and time when a query report was created that query automatically provides on each report.

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.

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.

TN3270. An informally defined protocol for transmitting 3270 data streams over Telnet.

TOD clock. Time-of-day clock.

token. (1) 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. (2) In a local network, the symbol of authority passed among data stations to indicate the station temporarily in control of the transmission medium.

token ring. As defined in IEEE 802.5, a communication method that uses a token to control access to the LAN. The difference between a token bus and a token ring is that a token-ring LAN does not use a master controller to control the token. Instead, each computer knows the address of the computer that should receive the token next. When a computer with the token has nothing to transmit, it passes the token to the next computer in line.

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.

token-ring network. A ring network that allows unidirectional data transmission between data stations by a token-passing procedure over one transmission medium, so that the transmitted data returns to the transmitting station.

tokenized PLIST (parameter list). A string of doubleword aligned parameters occupying successive doublewords.

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.

top of file. When editing a file with XEDIT, the line above the file contents area.

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 locationsX'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.

translation table. (1) A table used to replace one or more characters with alternative characters—for example, to convert characters representing an event to those representing a procedure call, characters of a code set to those of another code set, or characters representing a relocated address to those representing an absolute address. (2) A table that maps virtual addresses with real addresses. (3) A table that specifies the mapping of events or event sequences to procedure names. (4) Synonymous with *translate table*.

Transmission Control Protocol (TCP). The TCP/IP layer that provides reliable, process-to-process data stream delivery between nodes in interconnected computer networks. TCP assumes that IP (Internet Protocol) is the underlying protocol.

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.

transport layer. Layer 4 of the Open Systems Interconnection (OSI) model; it defines protocols governing message structure and some error checking.

TRAP. An unsolicited message that is sent by an SNMP agent to an SNMP network management station.

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 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.

TSO. Time Sharing Option.

TSR. Terminate and stay resident. TSR usually refers to a terminate-and-stay-resident program.

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.

unformatted file. A file displayed with the data that is not arranged with particular characters. Contrast with *formatted file*.

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.

unnamed pipe. A pipe that typically sends data from one process to another; the two ends of a pipe can be used in a single program task. A pipe does not have a name in the byte file system, and the pipe vanishes when the last process using it closes it. The receiving process reads the data first-in-first-out (FIFO). See also FIFO special file.

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.

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*, *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 address space. An address space that has at least one shell task known to the kernel address space. This address space can contain a shell or an application program that uses OpenExtensions.

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. A CP disk file that describes the configuration and operating characteristics of each virtual machine, including the 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.

user exit. A documented z/VM programming interface that can be used by an application program to transfer control to a user exit routine. Generally, a user exit affects only the particular application specifying the user exit and is run as part of the application program. See also installation-wide exit.

user ID. (1) A string of characters that uniquely identifies a user to the z/VM sustem and an external security manager (ESM). (2) See also POSIX user ID.

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 name. The 1-to-8-character name of the owner of a POSIX user ID. The OpenExtensions user name is the lower case of the virtual machine user ID. In RACF, one to twenty alphanumeric characters that represent a RACF-defined user. A string that identifies a user. [POSIX.1] Synonym for *user ID*.

user profile. A description of a user, including user ID, user name, default group name, password, owner, access authority, and other attributes obtained at logon. A file in the user's home directory named **.profile** that contains shell commands that set initial user-defined characteristics and defaults for the session.

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 locationX'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 program. A module or exec not supplied by z/VM that is invoked by specifying the file name.

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*.

variable-length record. A record having a length independent of the length of other records with which it is logically or physically associated. Pertaining to a file in which the records need not be uniform in length. [A] Contrast with *fixed-length record.*

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*lvlid*. The *lvlid* 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.

vertical tab. The vertical tab character (<vertical tab>). [POSIX.2]

VF. Vector Facility.

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 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 *spool 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 Diagnose code (X'08') used to issue CP commands from programs running in a virtual machine.

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. See virtual processor.

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 in storage. Disks similar to temporary minidisks, except the disks are mapped to storage (memory) rather than the cylinders of real disks. Using virtual disks in storage avoids the need for disk I/O. The Control Program (CP) manages the virtual disk pages as part of its real memory management.

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. (2) In z/VM, the virtual CPUs, virtual storage, virtual devices, and virtual channel subsystem that the Control Program (CP) allocates to a single user. A virtual machine also includes any expanded storage dedicated to it.

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 dump. A dump limited to any single virtual machine running on the z/VM system.

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 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 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 server. See Linux virtual server.

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)*, 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/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 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). An IBM-licensed program that controls communication and the flow of data in an SNA network.

virtual wait time. The period during which the control program suspends the processing of a program while a required resource is unavailable.

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*.

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 configuration token. A 64-byte token created by the software (z/VM) that is compared to a similiar 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.

VM directory. See user directory.

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. The VM Dump Tool 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.

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.

VM/Pass-Through Facility (PVM). 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.

VMDBK. Virtual machine descriptor block.

VM/ESA. Virtual Machine/Enterprise System Architecture.

VMLIB. The name of the CSL supplied with z/VM and that contains routines to do various VM functions.

VMRM cooperative memory management (VMRM-CMM). A part of z/VM's virtual machine resource manager that helps Linux guests manage memory constraints in the system.

VMRM-CMM. See VMRM cooperative memory management.

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*.

VMSES/E. Virtual Machine Serviceability Enhancements Staged/Extended.

volid. Volume identifier.

volume identifier (volid). 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/POWER. See 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. A state allowing a parent process to synchronize with the processing of an exit issued by a child process. A state in which no instructions are fetched or processed. Synonymous with *wait state*.

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 (CKPT) start, clean start, cold start, and force start.

well-known port. A port number that has been preassigned for specific use by a specific protocol or application. Clients and servers using the same protocol communicate over the same well-known port.

white space. Space characters, tab characters, newline characters, and comments. [OSF] A sequence of one or more spaces or horizontal tab characters. White space separates commands on the command line. A sequence of one or more characters that belong to the **space** character class as defined by the LC_CTYPE category in the current locale. In the POSIX locale, white space consists of one or more <blank>s (<space>s and <tab>s), <newline>s, <carriage return>s, <form-feed>s, and <vertical tab>s. [POSIX.2]

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.

widget. The basic data type of the X Window System Toolkit. Every widget belongs to a widget class that contains the allowed operations for that corresponding class.

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.

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.

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.

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.

working directory. 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. The active directory used to resolve path names that do not begin with a slash. 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.

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 access. In computer security, permission to write to an object. Synonymous with *write permission*.

write authority. The authority to read or change the contents of a file or directory. Write authority implies read authority.

write permission. Synonym for *write access*.

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

X Client. An application program which uses the X protocol to communicate windowing and graphics requests to an X Server.

X Server. A program which interprets the X protocol and controls one or more screens, a pointing device, a keyboard, and various resources associated with the X Window System, such as Graphics Contexts, Pixmaps, and color tables.

X Window System. The X Window System is a protocol designed to support network transparent windowing and graphics. TCP/IP for z/VM and OS/390 provides client support for the X Window System application program interface.

X Window System API. An application program interface designed as a distributed, network-transparent, device-independent, windowing and graphics system.

X Window System Toolkit. Functions for developing application environments.

X-Windows. A network-based graphics windowing system.

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.

XDR. eXternal Data Representation.

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.

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. In the Domain Name System, a zone is a logical grouping of domain names that is assigned to a particular organization. Once an organization controls its own zone, it can change the data in the zone, add new tree sections connected to the zone, delete existing nodes, or delegate new subzones under its zone.

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.

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Bibliography

See the following publications for additional information about z/VM. For abstracts of the z/VM publications, see *z/VM: General Information*.

Where to Get z/VM Information

z/VM product information is available from the following sources:

- z/VM Information Center at publib.boulder.ibm.com/infocenter/zvm/v6r1/index.jsp
- z/VM Internet Library at www.ibm.com/eserver/zseries/zvm/library/
- IBM Publications Center at www.elink.ibmlink.ibm.com/publications/servlet/pbi.wss
- *IBM Online Library: z/VM Collection on DVD*, SK5T-7054

z/VM Base Library

Overview

- *z/VM: General Information*, GC24-6193
- *z/VM: Glossary*, GC24-6195
- *z/VM: License Information*, GC24-6200

Installation, Migration, and Service

- *z/VM: Guide for Automated Installation and Service*, GC24-6197
- *z/VM: Migration Guide*, GC24-6201
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- *z/VM: CMS Pipelines Reference*, SC24-6169
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- *z/OS: IBM Tivoli Directory Server Plug-in Reference for z/OS*, SA76-0148
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- *z/VM: Diagnosis Guide*, GC24-6187
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- *z/VM: DFSMS/VM Customization*, SC24-6181
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- *z/VM: Directory Maintenance Facility Commands Reference*, SC24-6188
- *z/VM: Directory Maintenance Facility Messages*, GC24-6189
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- *System z10, System z9 and eServer zSeries: Open Systems Adapter-Express Customer's Guide and Reference*, SA22-7935
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Device Support Facilities

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Environmental Record Editing and Printing Program

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Program Number: 5741-A07

Printed in USA

GC24-6195-00