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IBM Virtual Machine Facility/370: Glossary and Master Index

| **Release 6 PLC 1**

This publication contains a glossary of VM/370 (Virtual Machine Facility/370) terms taken from the content of VM/370 publications in the IBM Systems Library.

The master index lists topics alphabetically, and refers to the publications that discuss these topics in some detail. The indexes of the referenced publications list the same topics and refer to specific pages.



Seventh Edition (September 1979)

This is a major revision of GC20-1813-4 and makes that edition obsolete. This edition applies to Release 6 PLC 1 (Program Level Change) of the IBM Virtual Machine Facility/370 and to all subsequent releases until otherwise indicated in new editions or Technical Newsletters.

Changes are periodically made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370 Bibliography, Order No. GC20-0001, for the editions that are applicable and current.

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Preface

This publication contains a glossary of VM/370 terms, a master index to the VM/370 library, and two separate indexes of commands and operands.

This publication has five sections:

"Section 1. Glossary" defines terms that VM/370 uses, but that may not appear in the IBM Data Processing Glossary, Order No. GC20-1699. The IBM Data Processing Glossary is considered as a corequisite publication.

"Section 2. Master Index" is a guide to the VM/370 library. It directs users to the publications that contain the specific information they are seeking. This information is extracted from the tables of contents of the VM/370 publications listed at the beginning of Section 2.

"Section 3. Summary of VM/370 Operands and Commands" is an alphabetic list of all noteworthy uppercase CP, CMS, RSCS, IPCS, and system generation keywords, operands, and options; it lists the associated commands, macro instructions, control statements, and service routines within VM/370. Lowercase variables to commands and other commonly used operands are not included.

"Section 4. Summary of VM/370 Commands and Operands" is an alphabetic listing of each VM/370 command, macro instruction, and service program and the operands for each.

"Appendix A: VM/370 Publication-to-Audience Relationship" illustrates the relationship of VM/370 publications to their appropriate audience.

NOT CONTAINED IN THIS PUBLICATION: This publication does not contain line entries derived from VM/370 logic publications, the Licensed Program Specification (LPS), or the General Information Manual (GIM).

TO USE THIS MANUAL, THE READER SHOULD: Refer to Section 1 for definitions of VM/370 terms.

Refer to Section 2 for a specific item of VM/370 information; this section points the reader to the publications containing information about the item.

Refer to Section 3 to find a specific uppercase operand, keyword, option, etc. or its associated command. Information given with each operand identifies the command or macro instruction with which it is associated and the publication that contains further information.

Refer to Section 4 to find a specific command or macro instruction. All associated operands are listed under the appropriate command.

Entries in all sections that contain (5748-XE1) or (5748-XX8) indicate that the subject matter described is affected directly by functions associated with VM/370 Program Products.

Information on OS and DOS macro instructions is not included in this manual. The VM/370 System Programmer's Guide contains only implementation and program result differences that occur when these OS and DOS macro instructions are simulated by CMS. For complete information about OS and DOS macro instructions, refer to related OS and DOS publications.

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MISCELLANEOUS

New and Changed: Documentation

- The VM/370 Glossary and Master Index now contains entries that reflect all VM/370 functions and support through Release 6 PLC 1.
- Two new index sections have been added for quick reference: "Summary of VM/370 Operands and Commands" and "Summary of VM/370 Commands and Operands." Appendix A, "VM/370 Publication-to-Audience Relationship" replaces Figure 1.
- Miscellaneous editorial and technical changes have been made throughout this publication.

Section 1: Glossary

This glossary defines terms that have special meaning in VM/370 publications. For a more complete list of data processing terms, see the IBM Data Processing Glossary, Order No. GC20-1699. VM/370 terms that appear in the IBM Data Processing Glossary are not repeated in this glossary.

Sequence of Glossary Entries

This glossary uses an alphabetic entry sequence.

A

A-disk: In CMS, the primary user disk that is allocated to a CMS user. This read/write disk is used to store files created under CMS; such files are retained until deleted by the user. See also B-disk, D-disk, CMS system disk, virtual disk, Y-disk, Z-disk. Synonymous with primary user disk.

abbreviation, command: See command abbreviation.

access mode: See filemode.

active disk table (ADT): A table residing in the user's copy of the CMS nucleus that contains an entry for each valid filemode letter, that is, for each disk that has been accessed.

active file table (AFT): A table residing in the user's copy of the CMS nucleus that contains an entry for each disk file that is currently open.

active link: In RSCS, a teleprocessing link for which a line driver has been initiated; the RSCS operator uses the RSCS START command to initiate a line driver. The link is active until the line driver is terminated by another operator command.

address stop: See breakpoint, instruction address stop.

alternating operating systems: In VM/370, multiple operating systems that are loaded consecutively into a virtual machine. Information is passed between the operating systems via CP spooling facilities. Synonymous with flip flop.

alternate path support: In VM/370, 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, through use of the two-channel switch, the two-channel switch additional features, and the string switch hardware feature.

asynchronous exit: In RSCS, a program call to a task subroutine directly from the RSCS supervisor, not as a result of dispatching.

attached processor operation: In this mode, VM/370 executes tasks on two processors, only one of which has attached channels; however, the tasks come from a common dispatch queue and share common storage.

attention interrupt: An input/output interrupt caused by a terminal user pressing the attention key (or equivalent). See also signaling attention, attention key.

attention key: A key on some terminals that, when pressed, causes an I/O interrupt in the central processing unit. Also referred to as the ATTN key. See also signaling attention.

attention symbol (!): Under CP, for printing terminals only, the character (always the exclamation point (!) character) that can be used to indicate each time the attention key is pressed.

ATTN key: See attention key.

automatic logon: A process by which an operator's or user's virtual machine is initiated by other than the user of that virtual machine. For example, the primary VM/370 system operator's virtual machine is activated automatically during VM/370 initialization. A user can issue the AUTOLOG command to activate some other (disconnected) virtual machine.

auxiliary directory: In CMS, an extension of the CMS file directory, which contains the names and locations of certain CMS modules that are not included in the CMS file directory.

auxiliary file: In CMS, a file that contains a list of filetypes of update files to be applied to a particular source file. See also control file, preferred auxiliary file.

B

B-disk: An optional user disk.

batch facility: See CMS Batch Facility.

blip facility, CMS: An indication to the user at a terminal, via a tilt/rotate of the Selectric type ball (if using a printing terminal), or the displaying of some specified character(s), every two seconds of either real or virtual execution time that has elapsed for his CMS virtual machine. Whether the time shown is real or virtual depends on the current setting of the REALTIMER option.

breakpoint: An instruction address stop that can be established via a CMS DEBUG subcommand. See instruction address stop.

broadcast message: In VM/370, 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 that are automatically displayed at the user's terminal when he logs on, (2) optional lower priority log messages, (3) informational warning messages that alert users to some imminent event or action.

built-in function: Synonym for EXEC built-in function.

C

CE: (1) Channel end. (2) Customer Engineer.

character-deletion character: Synonym for logical character delete symbol.

chain link record: In CMS, a record that contains a series of pointers to the physical blocks, normally discontinuous, that are currently assigned to a CMS disk file.

channel-set switching: A facility used in 3033 attached processor environments to allow processing to continue in uniprocessor mode on the attached processor after the main processor enters a disabled wait state following an uncorrectable error (a hard machine or channel check), or after the system operator varies the main processor offline. CP switches all active channels on the main processor to the attached processor, and processing continues in uniprocessor mode.

checkpoint start: A VM/370 system restart that attempts to recover information about closed spool files that was 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 is also lost. Contrast with warm start, cold start, force start.

CIDA: Channel indirect data addressing.

Class A user: See primary system operator privilege class.

Class Any user: A subset of CP commands used to: log on to VM/370, have the terminal logically connected to a multiple-access virtual machine, or send messages to the operator or another user.

Class B user: See system resource operator privilege class.

Class C user: See system programmer privilege class.

Class D user: See spooling operator privilege class.

Class E user: See system analyst privilege class.

Class F user: See service representative privilege class.

Class G user: See general user privilege class.

clock comparator: A System/370 hardware feature (required by VM/370) that causes an interruption when the time-of-day clock has equaled or exceeded the value specified by a program or virtual machine.

CMS: Conversational Monitor System.

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, thus freeing his own terminal and virtual machine for other work.

CMSDOS: The standard name of the CMS/DOS discontinuous saved segment. See also discontinuous segment.

CMS/DOS: In CMS, the environment when DOS simulation is active. The SET DOS command activates and deactivates this environment. Synonymous with DOS simulation under CMS.

CMS/DOS phase library: See DOSLIB library.

CMS Editor: The CMS facility that allows the user to create, modify, insert, delete, or rearrange lines of data in a CMS file. See also input mode, edit mode.

CMS file directory: A directory on each CMS disk that contains the name, format, size, and location of all the CMS files on that disk. When a disk is accessed via the ACCESS command, its directory is read into virtual storage and identified with one of the ten disk mode letters: A, B, C, D, E, F, G, S, Y, or Z. Synonymous with master file directory block.

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

CMS primary disk: Synonym for A-disk.

CMS system disk: The virtual disk (S-disk) that contains the CMS nucleus and the disk-resident CMS commands. The CMS system disk can have extensions, usually the Y-disk and Z-disk.

CMS system file: Any file residing on the CMS system disk instead of on a user's disk.

CMS user disk: One or more virtual disks that contain CMS or read-only DOS or OS files which may be accessed by the user. If the user has read/write access to a disk, he can create programs and data files on the disk. Files are retained until the user deletes them. The user may also link to and access other users' disks, usually on a read-only basis.

cold start: A VM/370 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. Contrast with warm start, checkpoint start, force start.

command: A request from a user at a terminal for the execution of a particular CP, CMS, RSCS, or IPCS function. A CMS command may also be the name of a CMS file with a filetype of EXEC or MODULE. See also subcommand, user-written CMS command.

command abbreviation: A short form of the command name, operand, or option that is not a truncation of the word. For example, MSG instead of MESSAGE, RDR instead of READER. Contrast with truncation.

command privilege class: See privilege class.

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

console function: That subset of CP commands that allows the user to simulate almost all of the functions available to an operator at a real system console. Contrast with CP command.

console input buffer: Synonym for console stack.

console spooling: See virtual console spooling.

console stack: One or more CMS command and/or data lines (set up via appropriate EXEC or EDIT subcommands) that are passed, one at a time, to CMS when CMS issues a read to the user's terminal. Synonymous with console input buffer, terminal input buffer.

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

control file: In CMS, the file that contains records that identify the updates to be applied and the macro libraries, if any, that are needed to assemble that source program. See also auxiliary file.

Control Program (CP): The component of VM/370 that manages the resources of a single computer such that multiple computing systems appear to exist. Each virtual machine is the functional equivalent of an IBM System/370.

control program assist: See CP assist.

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

Conversational Monitor System (CMS): A virtual machine operating system that provides general interactive time-sharing, problem solving, and program development capabilities, and operates only under the control of the VM/370 control program.

copy function: In VM/370, the function initiated via a Program Function key to copy the contents of a display screen onto an associated hard copy 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.

CP: Control Program.

#CP: Synonym for escape to CP.

CP assist: A hardware function available only on a CPU that has Extended Control-Program Support, that reduces CP overhead by performing the most frequently used tasks of CP routines.

CP command: A request from the terminal user for the execution of programming that controls his virtual machine. The VM/370 control program commands are called CP commands. The subset of CP commands that perform console simulation are called console functions.

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

CP read: The situation is which the control program (CP) is waiting for a response or request for work from the user. On a typewriter terminal, the keyboard is unlocked; on a display terminal, the screen status area indicates CP READ.

CP READ screen status: For a display terminal used as a virtual console under VM/370, an indicator located in the lower right of the screen, that displays that CP is waiting for a response or request for work from the user.

CP system disks: Any disk space used by CP, other than the CP paging, spooling, and temporary disk space, for example, virtual disks.

CP trace table: A table used for debugging VM/370; its size is a multiple of 4096 bytes and is dependent on the size of real storage. This table contains the chronological occurrences of events that take place in the real machine, recorded in a wraparound fashion within the trace table.

CPU timer: A System/370 hardware feature that measures elapsed CPU time and causes an interruption when a previously specified amount of time has elapsed. The CPU timer is decremented when the CPU is executing instructions, is in a wait state, and is executing program loading instructions, but not when the CPU is in a stopped state. A virtual machine that uses the CPU timer must have the ECMODE and REALTIMER options active.

CTCA: Channel-to-channel adapter.

current line pointer: A pointer that indicates the line of a CMS file on which the CMS Editor is currently working.

D

D-disk: In CMS, the disk that becomes a user disk with a mode letter of D if the user logs on and a virtual disk at address 192 is defined in the virtual machine configuration.

DASD Dump Restore (DDR) program: In VM/370, a service program used to copy all or part of a minidisk onto tape, or to load the contents of a tape onto a minidisk.

DCSS: Discontiguous saved segment.

DDR program: In VM/370, refers to the DASD Dump Restore program.

DE: Device end.

deadline priority (5748-XE1) (5748-XX8): A value that is used to determine when the user gets his next time slice. This value is calculated each time a user is dropped from a queue and is based on paging activity, processor usage, the load on the system and user priority.

dedicated channel: A channel that is 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. The facility may be permanently assigned to a particular virtual machine via a VM/370 directory entry, or temporarily attached by the resource operator to the user's virtual machine.

default file attributes: In CMS, certain reserved filetype names that cause the CMS Editor to assume certain values for record length, tab settings, uppercase or lowercase setting, record sequence numbering, verification mode, fixed- or variable-length record type, truncation column, and other related record characteristics.

default operand: An operand that has a preset value if a value is not specified in the CP or CMS command line.

delimiter: (1) A flag that separates and organizes items of data. Synonymous with separator. (2) A character that groups or separates words or values in a line of input. In VM/370, normally one or more blank characters are used to separate the command name and each operand or option in the command line. In certain cases, a tab, left parenthesis, or backspace character can also act as a delimiter.

Diagnose interface: Under VM/370, a programming mechanism that allows any virtual machine, including CMS, to communicate directly with CP via the System/370 DIAGNOSE instruction. Specific interface codes allow a virtual machine to more efficiently request specific CP services.

directory: See auxiliary directory, CMS file directory, or VM/370 directory.

disconnect mode: The mode of operation in which a virtual machine is executing without a physical line or terminal connected as an operator console. Any attempt to issue a read to the console causes the virtual machine to be logged off after 15 minutes have elapsed, unless the user logs on again within the 15-minute interval.

discontiguous file: A CMS file with missing records. The user may write records 1, 3, and 5 into a CMS file. Records 2 and 4 are missing. This results in a discontiguous file.

discontiguous saved segment: See discontiguous segment.

discontiguous segment: A 64K segment of storage that was previously loaded and saved and assigned a unique name. The segment (or segments) can be shared among virtual machines if it contains reentrant code. Discontiguous segments used with CMS must be loaded into storage at locations above a user's CMS virtual machine, and are attached when needed and detached when no longer needed.

dispatch list: In VM/370, a list of those virtual machines that are executable and currently competing for a time slice of CPU resources. The virtual machine currently executing is called the runuser. When virtual machines are dropped from the dispatch list, replacement is made from the eligible list. See also eligible list.

dispatching: The starting of virtual machine execution.

display mode: When using the CMS Editor, the mode of operation of a display terminal that displays, in the output display area of the screen, the results of the editing, but not the subcommands that caused the changes. Contrast with line mode.

display paging: A technique used by the CMS Editor for a display terminal in display mode, for scanning through a CMS file up to 20 lines at a time.

distribution code: In the VM/370 directory, a 1- to 8-character identification word that is printed or punched with the userid in the separator page (or punched card) to further identify the location or department of the user.

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

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

DOS simulation under CMS: Synonym for CMS/DOS.

draining a unit record device: In VM/370, stopping spooling operations on a real unit record device after the current spool file has completed, or immediately if no spool file is being processed.

driverid: In RSCS, a 1- to 8-character alphanumeric filename of the CMS TEXT file that controls a communications line for a specific type of remote station.

dynamically modified channel program: A channel program that is altered 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

ECPS: Extended Control-Program Support.

edit macro: A special CMS EXEC file that allows the user to invoke complex sequences of EXEC control statements and EDIT subcommands via a single command.

edit mode: In the CMS Editor, the environment that allows the user to issue EDIT subcommands to insert, change, delete, or rearrange records in a CMS file. Contrast with input mode.

eligible list: In VM/370, a list of virtual machines that are potentially executable, but are not placed on the dispatch list to compete for CPU resources because of the current load on the system. See also dispatch list.

EP: Emulator Program.

escape symbol: Synonym for logical escape symbol.

escape to CP: Under VM/370, a transfer of control to CP when either the terminal user or the machine stops virtual machine operation. This can be accomplished by a CP command (such as #CP), by invoking a DIAGNOSE function, or by signaling attention. Synonymous with #CP. See also Diagnose interface, signaling attention, attention interrupt.

EWS: Early Warning System.

EXEC built-in function: Special EXEC keyword functions that can be invoked to provide specific types of information to a user's EXEC procedure. Synonymous with built-in function.

EXEC control statements: Special statements that determine what is to be done within an EXEC procedure. The statements can be used to control logic flow; to communicate with a terminal, a user program, or the VM/370 system; or to create output files via the user's virtual punch.

EXEC procedure: A CMS function that allows users to create new commands by setting up frequently used sequences of CP and/or CMS commands, together with conditional branching facilities, into special procedures to eliminate the repetitious re-keying of those command sequences.

executable phase library: See DOSLIB library.

executable statement: In an EXEC procedure, any statement that is processed by the EXEC interpreter. This may be (1) an EXEC control statement or assignment statement, (2) a CMS or CP command line, or (3) a null line.

expanded virtual machine assist: A hardware assist function, available only on a CPU that has Extended Control-Program Support, that handles many privileged instructions not handled by virtual machine assist, and extends the level of support of certain privileged instructions beyond that provided by virtual machine assist.

Extended Control-Program Support (VM/370 ECPS): A hardware assist feature, standard on System/370 Models 135-3, 138, 145-3, and 148, that improves the performance of CP by reducing CP overhead. VM/370 ECPS consists of CP assist, expanded virtual machine assist, and virtual interval timer assist.

external page storage: The portion of auxiliary storage that is used to contain 4K byte pages.

external page storage management: A set of routines in the paging supervisor that control the transfer of data between real storage and external page storage.

F

favorable execution performance option: A virtual machine performance option that allows an installation to force the system to allocate more of its resource to a given virtual machine than would normally be the case.

FCB: Forms control buffer.

FCS: First customer shipment.

FDP: Field Developed Program.

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.

FIFO: First in, first out.

file access mode: A filemode number that designates whether the file can be used as a read-only or read/write file by a user. See also filemode.

file definition: (1) Equating a CMS file identifier (filename, filetype, filemode) with an OS data set name via the FILEDEF command; or equating a DOS file-id with a CMS file identifier via the DLBL command. (2) Identifying the input or output files to be used during execution of a program (via either the FILEDEF or DLBL commands).

file status table (FST): A table that describes the attributes of a file on a CMS disk, including filename, filetype, filemode, date last written, and other status information.

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

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

file tag: A character string associated with a VM/370 spool file that contains information pertaining to that spool file. In RSCS, the file tag contains the destination linkid and transmission priority of the file.

fileid: A CMS file identifier that consists of a filename, filetype, and filemode. The fileid is associated with a particular file when the file is created, defined, or renamed under CMS. See also filename, filetype, filemode.

filemode: A 2-character field that is part of the CMS file identifier. The first character (called the filemode letter) must be one of the ten disk mode letters A, B, C, D, E, F, G, S, Y and Z. The filemode letter indicates the CMS file directory on which the file resides and whether the disk is a user virtual disk or a CMS system disk. The second character (called the filemode number) must be a number and indicates the access mode of the disk. See also file access mode.

filename: A 1- to 8-character alphameric field that is part of the CMS file identifier and serves to identify the file for the user.

filetype: A 1- to 8-character alphameric field that is used as a descriptor or as a qualifier of the filename field in the CMS file identifier. See also reserved filetypes.

first-level storage: Refers to real main storage. See also second-level storage, third-level storage.

flip flop: In VM/370, synonym for alternating operating system.

force start: A VM/370 system restart that attempts to recover information about closed spool files that was previously stored on the checkpoint cylinders. All unreadable or invalid spool file information is ignored. Contrast with checkpoint start, warm start, cold start.

format program: (1) In CMS, the service program that creates 800-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. Contrast with virtual disk initialization program.

FSCB: File system control block.

FST: File status table.

full recording mode: The mode of operation where transient CPU and/or main storage errors that are corrected or circumvented by hardware retry or error correction code logic are recorded on the VM/370 error recording cylinders.

G

general user privilege class: The subset of CP commands that allow the Class G user to manipulate and control his virtual machine.

H

handshaking feature: See VM/VS Handshaking feature.

high-water mark (5748-XE1): The highest contiguous address, starting from location zero, where the virtual system's real addresses equal the virtual system's virtual addresses.

HOLDING screen status: For a display terminal used as a virtual console under VM/370, an indicator located in the lower right of the screen that displays that the current contents of the screen remains on the screen until the user requests that the screen be erased. This status occurs either by pressing the Enter key, or is triggered by a message or warning being displayed on the screen.

host mode: The operating mode of a HASP main processor communicating with a HASP work station. In RSCS, an SML line driver operating in host mode appears to a remote work station as a HASP main processor.

IBCDASDI program: See virtual disk initialization program.

IBM Virtual Machine Facility/370 (VM/370): A system control program that manages the resources of a single System/370 computer so that multiple computing systems (virtual machines) appear to exist. VM/370 consists of a Control Program (CP), which manages the real computer, a Conversational Monitor System (CMS), which is a general-purpose conversational time-sharing system that executes in a virtual machine, a Remote Spooling Communications Subsystem (RSCS), which spools files to and from remote work stations and the Interactive Problem Control System (IPCS), which provides an online problem management, diagnosis, debugging, and tracking facility.

IDA: Indirect data addressing.

IDAL: Indirect data address list.

ID card: Under VM/370, the identification card used to indicate the destination userid of a deck of real cards to be read into the system card reader or into the card reader of an RSCS remote station.

Immediate command (CMS): A CMS command which, when issued after an attention interruption, causes any program execution currently in progress to be suspended until an immediate command is processed. The immediate commands are HB (halt the execution of the CMS batch virtual machine at the end of current job), HO (halt SVC tracing), HT (halt typing or displaying), HX (halt execution), RO (resume tracing), RT (resume typing or displaying), and SO (suspend tracing temporarily).

implied CP command: In CMS, a CP command that is invoked without preceding the command line with "CP".

implied EXEC: A CMS EXEC procedure that is invoked as though it were a CMS command without specifying the command name EXEC.

improved spool file recovery: The process of recovering from the disk the checkpoint data that was previously recorded for closed spool files. Therefore, if warm start is not possible, the VM/370 system operator may attempt a checkpoint start or force start. See also checkpoint start, force start.

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

input line: For typewriter terminals, information keyed in by a user between the time the typing element of his terminal comes to rest following a carriage return until another carriage return is typed. For display terminals, the data keyed into the user input area of the screen. See also user input area.

input mode: In the CMS Editor, the environment that allows the user to key in new lines of data. Contrast with edit mode.

Installation Verification Procedure (IVP): A procedure distributed with the VM/370 system that exercises the newly generated VM/370 system to verify that the basic facilities of VM/370 are functioning correctly.

instruction address stop: An instruction address specified via a CP or CMS command, which, when fetched, causes the virtual machine to stop.

instruction simulation wait: The virtual machine is in a wait state awaiting the completion of instruction simulation.

intensive recording mode: A special error recording mode that can be invoked by an IBM Field Engineer (FE) for only one I/O device at a time. On the first through tenth unit check or other error condition specified by the CE, an I/O error record is constructed, formatted, and written to the VM/370 I/O error recording cylinder, after which no further errors are recorded.

interaction: A basic unit used to record system activity, consisting of acceptance of a line of terminal input, processing of the line, and a response, if any.

Interactive Problem Control System (IPCS): A component of VM/370 that permits online problem management, interactive problem diagnosis, online debugging for disk-resident CP abend dumps, problem tracking, and problem reporting.

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 time slice had ended.

internal trace table: See CP trace table.

IPCS: Interactive Problem Control System.

IUP: Installed User Program.

IVP: Installation Verification Procedure.

J

JIB: In CMS/DOS, job information block.

L

LIFO: Last in, first out.

line-deletion or line delete symbol: Synonymous with logical line delete symbol.

line driver: An RSCS task (program) that permits communication between RSCS and a specific type of remote station.

line end symbol: Synonymous with logical line end symbol.

line mode: When the CMS Editor is used, the mode of operation of a display terminal that is equivalent to using a typewriter terminal; that is, the terminal displays a chronological log of the EDIT subcommands entered, the lines affected by the editing (unless that is suppressed), and the system responses. Contrast with display 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 also prompting.

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

link attribute: In RSCS, a characteristic of a link, such as its line address, its linkid, or the line driver type it requires.

linkid: In RSCS, a 1- to 8-character alphanumeric name that identifies a telecommunications link.

LIOCS: Logical input/output control system.

linking to a disk: In VM/370, a sharing disk owned by another user. A user can share the disk on a temporary or permanent basis. The sharing is normally read-only and may require a password to access the data.

locally-attached terminal: A terminal such as a 3277 display station whose control unit is directly connected to a computer's data channel. No telecommunications line or control unit is used.

location id: In RSCS, a 1- to 8-character alphanumeric name that identifies an RSCS remote work station.

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

logical character delete symbol: A special editing symbol, normally the AT (@) sign, that causes CP to delete it and the immediately preceding character from the input line. If a number of delete symbols are keyed in consecutively, that same number of preceding characters are deleted from the input line. The value may be redefined or unassigned by the installation or the user. Synonymous with character delete symbol.

logical editing symbols: Symbols which allow the user to correct keying errors, combine multiple lines of input on one physical line, and key in logical editing symbols as data. The logical editing symbols may be defined, reassigned, or unassigned by the user. See also logical character delete symbol, logical escape symbol, logical line delete symbol, logical line end symbol.

logical escape symbol: A special editing symbol, normally the double quotation (") symbol, that causes CP to consider the immediately following character as a data character instead of as 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 input line by a logical line end symbol.

logical line delete symbol: A special editing symbol, normally the cent (¢) sign, that causes CP to delete the previous logical line in the input line back to (and including) the previous logical line end symbol. Synonymous with line delete symbol. See also logical line.

logical line end symbol: A special editing symbol, normally the pound (#) sign, that allows the user to key in several command and/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. Synonymous with line end symbol.

logically connected terminal: A terminal that is connected via leased or switched telecommunications or by local attachment to a multiple-access virtual machine via the CP DIAL command. See also multiple-access virtual machine.

LUB: In CMS/DOS, logical unit block.

M

MACLIB library: A library that contains macros, copy files, or source program statements for use under CMS.

map: In CMS, the file that contains a CMS output listing, such as (1) a list of macros in the MACLIB library, including macro size and location within the library. (2) a listing of the directory entries for the DOS/VS system or private source, relocatable, and/or core image libraries. (3) a linkage editor map for CMS/DOS programs. (4) a module map containing entry point locations.

master file directory block: Synonym for CMS file directory.

minidisk: Synonym for virtual disk.

minidisk directory: Synonym for CMS file directory.

minimum truncation: The shortest form of a command name, operand, or option that can be keyed in that can still be recognized by VM/370. For example, AC is the minimum truncation for the ACCESS command. On the other hand, the letter A is the minimum truncation for ASSEMBLE. See also truncation.

MORE screen status: For a display terminal used as a virtual console under VM/370, an indicator located in the lower right of the screen that displays that the user's display screen is full, but that there is more data to be displayed. After 60 seconds, the screen is automatically erased and the next screen is displayed. To clear the screen immediately, press the Clear, Cancel, or PA2 keys. To hold the data on the screen longer than 60 seconds, press the Enter key to enter HOLDING status. See also HOLDING screen status.

MTA feature: Multiple Terminal Access (an NCP feature).

MULTI-LEAVING¹: The telecommunications line protocol used to communicate between HASP- and ASP-type host and work stations. In RSCS, this protocol is supported by the Spool MULTI-LEAVING line driver.

multiple-access virtual machine: A virtual machine running under VM/370 that supports teleprocessing terminals.

Multiple Terminal Access (MTA) feature: A feature of the 3704/3705 Network Control Program (NCP) that allows NCP to accept switched-line connections for any of several terminal types on the same physical teleprocessing line. When the switched connection is first established, NCP determines the terminal line code and line speed to be used and passes the information to the host access method.

N

named system: A system that has an entry in the CP system name table (DMKSNTBL). The entry in the system name table includes the system name and the other pertinent data so that the system can later be saved. See also saved system.

native mode: Refers to running an operating system standalone on the real machine instead of under VM/370.

NCP: Network Control Program.

non-disruptive transition: A facility that enables an installation to transfer control of an operating system from VM/370 virtual machine mode to native mode (and vice versa) without shutting down and reinitializing the operating system.

noninteractive user: A user whose virtual machine completed its previous time slice interval without having an I/O interrupt from the terminal.

nonpaging mode: See OS/VS1 nonpaging mode.

nonprogrammable terminal: In RSCS, a device such as an IBM 2770, 2780, 3770, or 3780 that performs a hardware-defined fixed set of functions; such as printing, reading, and punching data. See also Remote Spooling Communications Subsystem (RSCS).

¹Trademark of IBM

nonprogrammable terminal line driver: An RSCS line driver that exchanges data with a nonprogrammable terminal.

NOT ACCEPTED screen status: For a display terminal used as a virtual console under VM/370, an indicator in the lower right of the screen that displays that the user is: (1) trying to enter another command line, but the terminal buffer still contains a previous command line, (2) using the copy function to copy the contents of the screen onto an associated hardcopy printer, however, the printer is busy, nonexistent, or is otherwise unavailable.

NPT: Nonprogrammable terminal.

NUCON: Nucleus constant area (CMS).

null line: A logical line with a length of zero; usually used to signal the CMS Editor to terminate input mode and enter edit mode. In VM/370, 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.

OLTS: Online Test Sections.

OLTSEP: Online Test Standalone Executive Program.

ordered seek queuing: A technique used by the CP I/O supervisor to schedule DASD I/O operations for nondedicated disks in an orderly progression from lower to higher cylinder numbers so that I/O operations for cylinders that are located at or near the present cylinder are handled before DASD accesses located at more distant higher cylinders are handled. When the highest cylinder is reached, the progression is reversed from high to low. This tends to minimize average seek times and to allow a greater level of I/O activity than initiating DASD seeks on an arbitrary "first come, first served" basis.

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

OS/VS1 nonpaging mode: If OS/VS1 executes under the control of a VM/370 system that supports the VM/VS Handshaking feature and if the OS/VS1 address space is equal to the size of its VM/370 virtual machine, OS/VS1 executes in nonpaging mode. When OS/VS1 executes in nonpaging mode, it uses fewer privileged instructions and avoids duplicate paging since paging is done only by CP.

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 key information into the output display area. This display format is not used by the CMS Editor.

overhead: The additional CPU time charged to each virtual machine for the CP functions needed to simulate the virtual machine environment and for paging and scheduling time.

P

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 reclamation: The process of 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 (labeled PAGTABLE) that indicates whether or not a page is in real storage and that correlates virtual addresses with real storage addresses.

page zero: Storage locations zero to 4095.

pageable nucleus: Less frequently used portions of the CP nucleus that are not normally resident in real main storage.

paging activity indexes: Values that affect the algorithm used by CP 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 is used by CP 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 based on ordered seek queuing and slot sorting techniques. See also ordered seek queuing, slot sorting.

parameter list (PLIST): In CMS, a string of 8-byte arguments that are used to 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 via the ACCESS command.

password: In VM/370, a 1- to 8-character symbol that the user is required to supply at the time he logs on to identify himself to VM/370. The password is normally protected from inadvertent disclosure to unauthorized personnel by not displaying the password or by masking the password as it is keyed in. A password may also be assigned to a virtual disk to control or limit access to that disk.

PEP: Partitioned Emulation Program.

performance option: One or more functions that can be assigned to a virtual machine to improve its performance, response time (if terminal-oriented) and/or throughput under VM/370.

PFnn keys: Special keys available on display terminals which can be defined as elementary cataloged procedures equivalent to one or more CP or CMS command lines, or input data for a virtual machine. A Program Function key can also be assigned a tabbing function for such terminals. When the PFnn key is pressed, the function or functions are performed, and the full command line can be displayed on the screen. Synonymous with Program Function (PFnn) keys.

PIOCS: Physical input/output control system.

PLC tape: Program Level Change tape.

PLIST: Parameter list.

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 virtual machine: A particular virtual machine that has one or more of the performance options assigned to it.

primary paging device: The direct access storage device with the highest effective data rate available for use by CP. CP always attempts to store pages on this paging device instead of on slower paging devices as long as space on the primary paging device is available.

primary system operator: The first CP privilege class A user that is logged on to VM/370 after system initialization. Although class A may be assigned to more than one user, only one user at a time can use class A privileges.

primary system operator privilege class: The CP privilege class A user; this operator has primary control over the VM/370 system, and can enable and disable teleprocessing lines, lock and unlock pages, force users off the VM/370 system, issue warning messages, query, set (and reset) performance options for selected virtual machines, and invoke VM/370 accounting. If the current primary system operator logs off, the next class A user to log on becomes the primary system operator.

primary user disk: Synonym for A-disk.

print inhibit: A hardware feature available on some typewriter terminals, such as the 2741, which permits the user to key in information via the keyboard without causing the data to be typed on the terminal's typewriter.

priority performance option: A virtual machine parameter that influences the internal scheduling algorithm of the VM/370 control program. The lower the priority value specified, the higher the priority of the virtual machine.

privilege class: One or more classes assigned to a virtual machine user in his VM/370 directory entry; each privilege class specified allows a user to access a logical subset of the CP commands.

privileged instruction simulation: The CP-incurred overhead to handle privileged instructions for virtual machine operating systems that execute as if they were in supervisor state but which are executing in problem state under VM/370. See also Virtual Machine Assist feature.

problem state: A state during which the central processing unit cannot execute input/output and other privileged instructions. VM/370 runs all virtual machines in problem state. See also privileged instruction simulation. Contrast with supervisor state.

PROFILE EXEC: A special EXEC procedure with a filename of PROFILE which can be created by a user. The procedure is normally executed immediately after CMS is loaded into a virtual machine.

Program Function (PFnn) keys: Synonym for PFnn keys.

Program Level Change (PLC) tape: A system update service that includes new functions as well as cumulative system changes. The latest PLC tape, periodically made available at PID, contains all new updates, as well as all updates since the last VM/370 release base.

programmable station: An I/O configuration that must be programmed before it can communicate with other remote stations that adhere to a compatible protocol.

prompting: An interactive technique that allows the program to 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.

protocol: A set of rules for communication that are mutually understood and followed by two communicating stations or processes. The protocol specifies actions that can be taken by a station when it receives a transmission or detects an error condition.

pseudo page fault: A facility available with VM/VS Handshaking that allows the VS1 virtual machine to dispatch another task while waiting for a page-in request to be completed for some other task. Without this facility, the whole virtual machine would wait until the page request was satisfied, even if higher priority tasks were ready to execute.

pseudo timer: A special VM/370 timing facility that provides date, time, virtual CPU and total CPU time information to a virtual machine.

PUB: In CMS/DOS, physical unit block.

Q

queue 1 (Q1): A queue of interactive users from which the dispatcher selects users for the dispatch list. The virtual machines may or may not be immediately runnable. The size of queue 1 is dependent on the system's multiprogramming level. The time slice given to an interactive user is significantly shorter than that given to a noninteractive user, but the interactive user's virtual machine is dispatched more frequently. Queue 1 is filled from the eligible list. See also interactive user, noninteractive user, queue 2.

queue 2 (Q2): A queue of noninteractive users from which the dispatcher selects users for the dispatch list. The virtual machines may or may not be runnable. The time slice given to a noninteractive user is significantly longer than that given to an interactive user, but the noninteractive virtual machine is dispatched less often since runnable users in queue 1 are selected first. See also interactive user, noninteractive user, queue 1.

queue 3 (Q3) (5748-XE1) (5748-XX8): A queue of noninteractive users that have cycled through at least eight consecutive Q2 processor time slices without a Q1 interaction before they are dropped from the queue. Q3 users receive eight times as much processor time each time in queue as Q2 users, but receive only one-eighth as often. The differences between Q2 and Q3 users are reflected in their deadline priority calculations. See also deadline priority, interactive user, noninteractive user, queue 1, queue 2.

quiet recording mode: The mode of operation where transient CPU and/or main storage errors that are corrected or circumvented by hardware retry or error correction code logic are not recorded on the VM/370 error recording cylinders. This mode is entered via the SET MODE RETRY QUIET command or after 12 transient machine checks have occurred while in full recording mode.

Q1: See queue 1.

Q2: See queue 2.

Q3: See queue 3.

R

raddr: The real device address of an I/O device.

read: See CP read, VM read.

read-only access: An access mode associated with a virtual disk that allows a user to read, but not write or update, any file on the disk.

read-only system residence disk: See shared read-only system residence disk.

read/write access: An access mode associated with a virtual disk that allows a user to read and write any file on the disk.

real address: (1) The address of a location in real storage. (2) The address of a real I/O device.

recording mode, full: See full recording mode.

recording mode, intensive: See intensive recording mode.

recording mode, quiet: See quiet recording mode.

remote batch system: An operating system that provides for job input from and job output to remote work stations. An SML line driver executing in RJE mode under RSCS in a virtual machine can act as a remote work station to such a system.

Remote Spooling Communications Subsystem (RSCS): The component of VM/370 that provides for the transfer of spool files between VM/370 users, remote stations, and remote and local batch systems via HASP-compatible telecommunications facilities.

reserved filetypes: (1) Filetypes 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 filetype. The CMS Editor creates a file according to these attributes. (2) Filetypes recognized by CMS commands; that is, commands that only search for and use particular filetypes, or create one or more files with a particular filetype.

reserved page frame performance option: A virtual machine option that reserves a specific number of page frames for use by one virtual machine. Generally, this option allows the most recently active pages of a virtual machine's storage to remain allocated in real storage.

resource allocation: The distribution of system resources (devices, storage, and CPU accessibility) to system users.

response time: (1) The time between the submission of an item of work to a computing system and the return of results. (2) 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.

RJE mode: The operating mode of HASP work stations submitting jobs to a host processor. In RSCS, an SML line driver operating in RJE mode appears as a HASP work station to a remote HASP- or ASP-type batch processor.

RPS: Rotational position sensing.

RSCS: Remote Spooling Communications Subsystem.

RUNNING screen status: For a display terminal used as a virtual console under VM/370, an indicator located in the lower right of the screen that displays that the user's virtual machine is in control (but not necessarily executing a program or command) and that the terminal is able to receive messages.

runuser: In VM/370, the virtual machine in the dispatch list that is currently executing.

S-disk: See CMS system disk.

saved system: A special nonrelocatable copy of a virtual machine's virtual storage and associated registers that is kept on a CP-owned disk and that can be loaded by name instead of by I/O device address. Loading a saved system by name substantially reduces the time it takes to IPL the system in a virtual machine. In addition, a saved system such as CMS can also share one or more 64K segments of reenterable code in real storage between virtual machines. This reduces the cumulative real main storage requirements and paging demands of such virtual machines.

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, such as protected, not protected, displayable or nondisplayable. The user is not allowed to set or change the screen attribute byte if the display terminal is used as the virtual console of a virtual machine.

screen status area: For a display terminal used as a virtual console under VM/370, an indicator of the current status of the display screen. This field is located in the lower right of the display screen. See also CP READ screen status, HOLDING screen status, MORE screen status, NOT ACCEPTED screen status, RUNNING screen status, VM READ screen status.

SCRIPT: See SCRIPT/370.

SCRIPT/370: A document- and text-processing program that executes in the CMS command environment. SCRIPT/370 is an Installed User Program (IUP) available from IBM for a license fee. SCRIPT input consists of text and SCRIPT control words which control the output format of the text.

scrolling: In the CMS Editor, a technique used with display terminals in display mode to scan, in a forward or backward direction, up to 20 records at a time.

second-level storage: The storage that appears to be real to a virtual machine. See also first-level storage, third-level storage.

segment: (1) A contiguous 64K or 1024K area of virtual storage (not necessarily contiguous in real storage) that is allocated to a job or system task. (2) VM/370 does not use 1024K segments, but supports any virtual machine operating system that uses 1024K segments.

segment number: The part of a virtual storage address needed to refer to a segment.

separator: Synonymous with delimiter.

service representative privilege class: The CP privilege class F user, normally an IBM Field Engineer, is permitted to set or change the level of detail of I/O device error recording to the level desired. See also full recording mode, intensive recording mode, quiet recording mode.

service routines: CP or CMS routines used for addressing and updating directories; formatting or initializing disks; or performing disk, tape, or terminal input/output functions.

shadow page table: A page table created and used by CP 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 read-only system residence disk: A system residence disk that is 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 also saved system.

shared segment: A feature of a saved system that allows one or more segments of reentrant code in real storage to be shared among many virtual machines. For example, if a saved CMS system was generated, segment 1 of the CMS nucleus is shared in real storage among all CMS virtual machines loaded by name, that is, every CMS machine's segment of virtual storage maps to the same 64K of real storage. See also saved system, discontinuous segment.

shared system: See saved system, shared read-only system residence disk.

signaling attention: Pressing a key or keying in a CP command to present an attention interruption to CP or to a user's virtual machine.

single processor mode (5748-XE1): In tightly-coupled multiprocessing (MP) or attached processor (AP) systems, single processor mode allows an installation to dedicate a processor to an MVS V=R virtual machine. In single processor mode, VM/370 runs in uniprocessor mode in the main processor, and the MVS V=R virtual machine runs under VM/370 in the main processor and has the exclusive use of the other processor for MP or AP operations. However, other virtual machines can operate under VM/370 concurrently with the MVS V=R virtual machine in single processor mode. Single processor mode should not be confused with VM/370 uniprocessor mode.

sink virtual machine: In Virtual Machine Communication Facility (VMCF), the virtual machine that receives messages or data from a source virtual machine. Contrast with source virtual machine.

sleep mode: An environment where the virtual machine is in a dormant state; that is, the virtual machine is not running, but connect time still accumulates, and messages may be displayed at the terminal. The virtual machine is reactivated either at the end of a specified time interval or when the user signals attention to CP. See also signaling attention.

slot sorting: A technique used by the CP paging supervisor to reduce the number of separate channel programs needed to read pages from or write pages on a paging device. This is accomplished by grouping, in the same channel program, the reading or writing of pages which occur in different relative record positions on the same track or within the same cylinder. See also ordered seek queuing.

SML: Spool MULTI-LEAVING.

smoothed data: Statistical data (as in a curve or graph) freed from irregularities by ignoring random occurrences or by a process of continual averaging.

source virtual machine: In Virtual Machine Communication Facility (VMCF), the virtual machine that initiates the sending of messages or data to another virtual machine. Contrast with sink virtual machine.

special variable: In CMS, a reserved variable name that is assigned a value by the EXEC interpreter. The values of EXEC special variables can be tested in an EXEC procedure.

spool file class: A 1-character class associated with each virtual unit record device. For input spool files, the spool file class allows the user to control which input spool files are read next; and, for output spool files, it allows the spooling operator to better control or reorder the printing or punching of spool files having similar characteristics or priorities. The spool file class value can be A-Z, 0-9, or *.

Spool MULTI-LEAVING line driver: In RSCS, the line driver that exchanges data with a programmable terminal.

spool file tag: In VM/370, a 136-character data field that is 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. In RSCS, the spool file tag contains the location identifier of the link on which the file is to be transmitted, the userid of the virtual machine that is to receive the file, and a transmission priority value.

spoolid: A spool file identification number that is automatically assigned by CP when the file is closed. The spoolid number can be from 0001 to 9900; it is unique for each spool file. To identify a given spool file, a user must specify the owner's userid, the virtual device type, and the spoolid.

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 also virtual console spooling.

spooling area: Any direct access storage area temporarily used by VM/370 to store input for a virtual card reader, output for a virtual printer or punch, or a console log of input/output for a virtual console.

spooling operator privilege class: The CP privilege class D user who controls the real unit record equipment and all closed spool files.

spooling unit record I/O: See virtual spooling device, spooling.

SRF (IBM 7443 Service Record File) device: A diskette used in error recording procedures in either 303x uniprocessor environments or in 303x attached processor environments. The SRF device contains frames which contain information to format machine check and channel check records. CP accesses the SRF device at system initialization, retrieves the frames, and records them at the beginning of the error recording area. CPEREP makes use of the information to interpret inboard errors for hardcopy output.

stack: See console stack.

static CP area: Those portions of storage that are allocated to CP during system generation and IPL.

storage levels: First-level storage, second-level storage, and third-level storage refers to, respectively, real main storage, the storage that appears to be real to a virtual machine, and the virtual storage created and controlled by a virtual machine.

subcommand: The commands of processors such as EDIT and DEBUG that run under CMS.

supervisor state: A state during which the central processing unit can execute input/output and other privileged instructions. In VM/370, only CP can execute in the supervisor state; all virtual machine operating systems execute in problem state. Contrast with problem state.

SVC 76 error recording interface: A means for VM/370 to record the error incidents encountered by certain operating systems running in a virtual machine under VM/370. When the virtual operating system issues SVC 76, VM/370 translates the virtual storage and I/O device addresses to the real ones, records the information on the VM/370 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.

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 filetype of SYNONYM. Issuing the SYNONYM command allows use of those synonyms until that terminal session ends or until the use of synonyms is revoked by issuing the SYNONYM command with no operands.

SYSRES: Refers to the system residence disk.

system analyst privilege class: The CP privilege class E user, normally the VM/370 system analyst, who can query, examine, and print or display, but not modify, certain areas of the CP nucleus, and can create saved systems. See also saved system.

system control file: In CP, the file that consists of macros that describe the CP system residence disk, the real main storage size, the CP-owned DASD volumes, the VM/370 system operator's userid, and the system timer value.

system load: The combination of active devices, programs, and users that use the system resources of CPU and storage.

system name table: In CP, the table that contains the name and location of saved systems, including discontinuous shared and nonshared segments.

system programmer privilege class: The CP privilege class C user, normally the VM/370 system programmer, who can alter the contents of any real storage locations in the machine.

system resource operator privilege class: The CP privilege class B user, who controls all the real resources of the machine, such as real storage, disk and tape drives, that are not controlled by the primary system or spooling operators.

system restart: The restart that allows reuse of previously initialized areas. System restart usually requires less time than IPL. See also warm start.

Ⓡ

T-disk: See temporary disk.

tag slot: In RSCS, the area in task storage that contains status and attribute information pertaining to a spool file that has been accepted and enqueued for transmission by RSCS.

tag, spool file: See spool file tag.

task name: A 1- to 4-character alphanumeric string used by the RSCS operator to identify a task when he communicates with RSCS about that task.

temporary disk: In VM/370, an area on a direct access storage device available to the user for his newly created or stored files until he logs off, at which time the area is released. Temporary disk space is allocated to the user when he logs on or when he issues the CP DEFINE command.

terminal input buffer: Synonym for console stack.

terminal session: The period of time from logon to logoff when a user and his virtual machine can utilize the facilities of CP, CMS, RSCS, IPCS, and/or his operating system. This includes any time that the virtual machine is running in disconnect mode. See also disconnect mode.

terminal user: Anyone who uses a terminal to log on to VM/370.

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.

third-level storage: The virtual storage created and controlled by a DOS/VS, OS/VS, or VM/370 virtual machine. See also first-level storage, second-level storage.

time share: To use a device or system for two or more interleaved purposes.

time sharing: A method of using a computing system that allows a number of users to execute programs concurrently and to interact with the programs during execution.

time-of-day (TOD) clock: A System/370 hardware feature that is required by VM/370. 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 CPU state (running, wait, or stopped).

timeout, logon: For a terminal that is attempting to log on to VM/370 via a switched line, the Line Timeout hardware feature of a telecommunications control unit that logs off the user if he does not key in any character for a specified period of time, normally 28 seconds. If logged off, the user must dial the VM/370 computer again.

token: An 8-character symbol created by the CMS EXEC interpreter when it scans an EXEC statement line. Symbols longer than eight characters are truncated to eight characters.

total CPU time: The virtual CPU time plus the CP overhead to service the virtual machine.

trace table: See CP trace table.

transient program area: In CMS, the virtual storage area occupying locations X'E000' to X'10000'. Some CMS commands and user programs may execute in this area of CMS storage.

translate mode: The operating mode of a virtual machine when virtual addresses are converted to real addresses via segment and page tables.

transparency mode: A binary synchronous communications (BSC) mode that permits transmission of any data, bypassing normal BSC control character scanning.

truncation: A valid shortened form of CP, CMS, IPCS, and RSCS command names, operands and options that can be keyed in. When the shortened form is used, the number of key strokes is reduced. For example, the ACCESS command has a minimum allowable truncation of two, so AC, ACC, ACCE, ACCES, and ACCESS are all recognized by CMS as the ACCESS command. Contrast with command abbreviations.

truncation setting: In the CMS Editor, the value that determines the maximum length of input lines.

U

uniprocessor mode: In VM/370, this term indicates that there is only one processor in the physical configuration, or that VM/370 uses the facilities of one processor in an attached processor or multiprocessor system. The system operator can alter the VM/370 mode of operation, from attached processor or multiprocessor operation (using more than one processor), to a one-processor operation (and vice versa). The term uniprocessor mode identifies the one-processor operation. Contrast with single processor mode.

universal class card reader: A virtual card reader with a spool file class of * (asterisk) that can read any class of reader, printer, or punch files that have been spooled or transferred to it.

UPSI: In CMS/DOS, User Program Switch Indicator.

user disk: See CMS user disk.

user identification (userid): A 1- to 8-character alphanumeric symbol identifying each terminal user.

user identification card: See ID card.

user input area: For a display terminal, the bottom two lines of the screen where the user is allowed to key in command or data lines. This screen format is used with the CMS Editor only when line mode is in effect. See also line mode, display mode.

user program area: In CMS, the virtual storage area occupying location X'20000' to the end of the user's virtual machine. The beginning of the user program area is the default loading point for user programs and for many CMS commands.

user profile table: A table of user attributes (called the VMBLOK) built for each active user from information gathered during logon.

user-defined CMS command: See user-written CMS command.

user-written CMS command: Any CMS file created by a user that has a filetype of MODULE or EXEC. Such a file can be executed as if it were a CMS command by issuing its filename, followed by any operands or options expected by the program.

userid: User identification.



vaddr: Virtual device address.

variable symbol: In a CMS EXEC procedure, a symbol beginning with an ampersand (&) that is assigned a value by the user, or in some cases by the EXEC interpreter. The value of variable symbols may be tested and changed using EXEC control statements. See also special variable.

verification setting: When using the CMS Editor, determines whether or not new lines keyed in or the results of editing changes keyed in by the user are displayed at the user's terminal.

virtual address: An address that refers to virtual storage or a virtual I/O device address, and must, therefore, be translated into a real storage or I/O device address when it is used.

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 printer records of up to 151 characters in length. The virtual device type and I/O device address are normally defined in the VM/370 directory. See also spool file class, universal class card reader.

virtual console: A 3210, 3215, or 1052 system console simulated on a communications terminal (such as a 2741 or 3270) by CP. The virtual device type and I/O address are defined in the VM/370 directory entry for that virtual machine.

virtual console function: A CP command that is executed via the Diagnose Interface.

virtual console spooling: The writing of console input/output 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 and as often as he likes. When the console spool file is closed, it becomes a printer spool file.

virtual CPU time: The time required to execute the instructions of the virtual machine.

virtual disk: A logical subdivision (or all) of a physical disk pack that has its own virtual device address, consecutive virtual cylinders (starting with virtual cylinder zero), and a VTOC or disk label identifier. Each user virtual disk is preallocated and defined via a VM/370 directory entry as belonging to some user. Synonymous with minidisk.

virtual disk initialization program: The IBCDASDI program, which can initialize virtual as well as real disks for use by DOS, DOS/VS, OS, and OS/VS virtual machines executing under VM/370. VSAM disks initialized by IBCDASDI can also be used under CMS.

virtual interval timer assist: A hardware assist function, available only on a CPU that has Extended Control-Program Support, that provides, if desired, a hardware updating of each virtual machine's interval timer at location X'50'.

virtual machine: (1) A functional simulation of a computer and its associated devices. (2) In VM/370, a functional equivalent of an IBM System/370 computing system. Each virtual machine is controlled by a suitable operating system. VM/370 controls the concurrent execution of multiple virtual machines on a single System/370.

virtual machine assist: A hardware feature available on certain VM/370-supported System/370 models, that causes a significant reduction in the real supervisor state time used by VM/370 to control the operation of virtual storage systems such as DOS/VS and OS/VS and, to a lesser extent, CMS, DOS, and OS when executing under VM/370. VM/370 supervisor state time is reduced because virtual machine assist feature, instead of VM/370, intercepts and handles interruptions caused by SVCs (other than SVC 76), and certain privileged instructions. See also VM/370 Extended Control-Program Support, CP assist, expanded virtual machine assist, virtual interval timer assist.

Virtual Machine Communication Facility (VMCF): A CP function that provides a method of communication and data transfer between virtual machines operating under the same VM/370 system.

virtual machine control block (VMBLOCK): The CP control block that contains, for each virtual machine, the following types of information: the dispatch and priority level of the virtual machine, the virtual machine's CPU registers, preferred virtual machine options currently in effect, and information concerning all other significant activities.

virtual printer (or punch): A printer (or card punch) simulated on disk by CP for a virtual machine. The virtual device type and I/O address are normally defined in the VM/370 directory entry for that virtual machine.

virtual=real area: In VM/370, that part of real storage, starting with real page 1, where a virtual=real machine can execute. CP maintains control of real page zero; only page 0 (zero) of the virtual=real machine is relocated. Only one virtual machine at a time can occupy the virtual=real area. The area must be defined during VM/370 system generation to contain the largest virtual=real machine that is likely to run. See also virtual=real option.

virtual=real option: A VM/370 performance option that allows a virtual machine to run in VM/370's virtual=real area. This option eliminates CP paging and optionally, CCW translation for this virtual machine.

virtual reserve/release: In VM/370, a function that allows several operating systems such as MVS, SVS, VS1, and VM/370 itself to all run as virtual machines under the same VM/370 operating system and have data protection on a minidisk. It prevents several users of the same data file from simultaneously accessing the same data, particularly when that data is being updated.

virtual spooling device: Unit record devices simulated on disk by CP. The virtual device type and I/O addresses are defined in the VM/370 directory or via the CP DEFINE command. CP's spooling facilities allow multiple virtual machines to share the real unit record devices. In addition, VM/370 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 printer (or punch), virtual console spooling.

VMBLOCK: Virtual machine control block.

VMCF: Virtual Machine Communication Facility.

VM read: The situation in which the user's virtual machine is not executing, but is waiting for a response or a request for work from the user. On a typewriter terminal, the keyboard is unlocked; on a display terminal, the screen status area indicates VM READ.

VM READ screen status: For a display terminal used as a virtual console under VM/370, an indicator located in the lower right of the screen that displays that the user's virtual machine is not executing, but is waiting for a response or a request for work from the user.

VM/370: Virtual Machine Facility/370.

VM/370 directory: A CP disk file that defines each virtual machine's normal configuration; the userid, password, normal and maximum allowable virtual storage, CP command privilege class or classes allowed, dispatching priority, logical editing symbols to be used, account number, and CP options desired.

VM/370 ECPS: See Extended Control-Program Support.

VM/370 hardware assist: A general term that represents any or all of the following hardware assist functions: expanded virtual machine assist, Extended Control-Program Support, virtual interval timer assist, and virtual machine assist.

VM/VS Handshaking feature: A communication interface between VM/370 and other operating systems that are running a virtual machine under VM/370. These operating systems and CP make each other aware of mutual capabilities and requirements.

V=R: Synonym for virtual=real.

valid: The volume identification label for a disk.

VSAM: Virtual storage access method.

W

warm start: In VM/370, (1) The result of an IPL that does not erase previous system data. (2) The automatic reinitialization of the VM/370 control program that occurs if the control program cannot continue processing. Closed spool files and the VM/370 accounting information are not lost. Contrast with cold start, checkpoint start, force start.

working set: The estimated number of pages of real storage that the virtual machine needs to execute.

Y

Y-disk: An extension of the CMS system disk.

Z

Z-disk: An extension of the CMS system disk.

zone-setting: In the CMS Editor, a number range that specifies the positions within each data line that can be scanned and edited.

Section 2: Master Index

The following table lists the VM/370 publication, document numbers, and the abbreviations used in this manual to refer the reader to the desired publication.

<u>Abbreviation</u>	<u>Title</u>	<u>Order Number</u>
INTRO	Introduction	GC20-1800
SYSGEN	Planning & System Generation Guide	GC20-1801
OPGDE	Operator's Guide	GC20-1806
SPG	System Programmer's Guide	GC20-1807
SYSMSG	System Messages	GC20-1808
OLTSEP	OLTSEP & Error Recording Guide	GC20-1809
TUG	Terminal User's Guide	GC20-1810
RSCSUG	Remote Spooling Communications Subsystem (RSCS) User's Guide	GC20-1816
CMSREF	CMS Command & Macro Reference	GC20-1818
CMSUG	CMS User's Guide	GC20-1819
CPREF	CP Command Reference for General Users	GC20-1820
OSVM	Operating Systems in a Virtual Machine	GC20-1821
IPCSUG	Interactive Problem Control System (IPCS) User's Guide	GC20-1823

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Section 3: Summary of VM/370 Operands and Commands

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<p>&\$, EXEC special variable CMSREF &*, EXEC special variable CMSREF &ARGS, EXEC control statement CMSREF &BEGMSG, EXEC control statement CMSREF &BEGPUNCH, EXEC control statement CMSREF &BEGSTACK, EXEC control statement CMSREF &BEGTYPE, EXEC control statement CMSREF &CONCAT, EXEC built-in function CMSREF &CONTINUE, EXEC control statement CMSREF &CONTROL, EXEC control statement CMSREF &DATATYPE, EXEC built-in function CMSREF &DISK*, EXEC special variable CMSREF</p>	
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 operand of QUERY command CMSREF
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 operand of BUILD macro SYSGEN
 operand of STAT command IPCSUG
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 ACNT, operand of SET command CPREF
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 ACTDV, operand of SYSCNTRL macro SYSGEN
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 operand of NAME3800 macro SYSGEN
 SYSTEM
 operand of ATTACH command OPGDE
 operand of CHANGE command OPGDE
 operand of DETACH command OPGDE
 operand of LOCK command OPGDE
 operand of ORDER command OPGDE
 operand of PURGE command OPGDE
 operand of QUERY command OPGDE,RCSUG
 operand of SPOOL command CPREF
 operand of TRANSFER command OPGDE
 operand of UNLOCK command OPGDE
 operand of VMFDOS command SYSGEN
 option of GENMOD command CMSREF
 SYSTEM command CPREF
 SYSTEME macro SYSGEN
 SYSTYPE, operand of SYSRES macro SYSGEN
 SYSUM, operand of CPEREP command OLTSEP
 SYSVIRT
 operand of DEFINE command OPGDE
 option of QUERY command OPGDE
 SYSVOL
 operand of NAMENCP macro SYSGEN
 operand of NAMESYS macro SYSGEN
 operand of NAME3800 macro SYSGEN
 operand of SYSRES macro SYSGEN
 SYSWRM, operand of SYSRES macro SYSGEN
 SYSxxx
 operand of ASSGN command CMSREF
 operand of LISTIO command CMSREF
 option of DLBL command CMSREF
 S370E, operand of QUERY command (5748-XE1)
 CPREF,OPGDE

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TAB, operand of SET command CPREF
 TABCHAR
 operand of TERMINAL command (5748-XE1)
 CPREF
 operand of TERMINAL command (5748-XX8)
 CPREF
 TABSET, edit subcommand CMSUG,CMSREF
 TABSIZE, operand of CPEREP command OLTSEP
 TAG command CPREF

TAPE command CMSREF
 TAPECTL macro CMSREF
 TAPEMAC command CMSREF
 TAPES, operand of QUERY command
 CPREF,OPGDE
 TAPESL macro (5748-XE1) CMSREF
 TAPESL macro (5748-XX8) CMSREF
 TAPIN, option of AMSERV command CMSREF
 TAPn
 operand of FILEDEF command CMSREF
 option of TAPE command CMSREF
 option of TAPEMAC command CMSREF
 option of TAPPDS command CMSREF
 TAPOUT, option of AMSERV command CMSREF
 TAPPDS command CMSREF
 TAP1, operand of VMFDOS command SYSGEN
 TAP2, operand of VMFDOS command SYSGEN
 TASK
 operand of DEFINE command RSCSUG
 operand of GENLINK macro SYSGEN
 operand of START command RSCSUG
 TBL, option of QUERY command CPREF,OPGDE
 TD, operand of DSERV command CMSREF
 TDSK
 control statement of FORMAT/ALLOCATE
 service aid OPGDE
 operand of QUERY command OPGDE
 TEMP
 control statement of FORMAT/ALLOCATE
 service aid OPGDE
 operand of SYSOWN macro SYSGEN
 TERM
 operand of GROUP macro SYSGEN
 operand of PSERV command CMSREF
 operand of SPOOL command CPREF
 operand of TERMINAL macro SYSGEN
 option of DOSLIB command CMSREF
 option of DOSLKED command CMSREF
 option of DSERV command CMSREF
 option of LKED command SYSGEN
 option of MACLIB command CMSREF
 option of OPTION command (5748-XE1)
 CMSREF
 option of OPTION command (5748-XX8)
 CMSREF
 option of RSERV command CMSREF
 option of SSERV command CMSREF
 option of TAPE command CMSREF
 option of TXTLIB command CMSREF
 option of UPDATE command CMSREF
 option of VMFASM EXEC procedure SYSGEN
 option of ZAP command OPGDE
 TERMINAL
 operand of CPEREP command OLTSEP
 operand of FILEDEF command CMSREF
 operand of QUERY command CPREF
 operand of TRACE command CPREF
 option of ASSEMBLE command CMSREF
 TERMINAL command CPREF
 TERMINAL macro SYSGEN
 TERMN, operand of CPEREP command OLTSEP
 TEST, option of ASSEMBLE command CMSREF
 TEXT
 operand of LINEDIT macro CMSREF
 operand of RSERV command CMSREF
 operand of TERMINAL command CPREF
 TEXTA, operand of LINEDIT macro CMSREF
 TEXTLIB, operand of ZAP command OPGDE
 TFB512
 operand of DEFINE command (5748-XE1)
 CPREF
 operand of DEFINE command (5748-XX8)
 CPREF
 Thexloc1
 operand of DCP command OPGDE
 operand of DMCP command OPGDE
 THRESHOLD, operand of CPEREP command
 OLTSEP
 TIME
 operand of CPEREP command OLTSEP
 operand of MONITOR command OPGDE
 operand of QUERY command CPREF
 operand of SYSMON macro SYSGEN
 TIMEOUT, operand of HOST macro SYSGEN
 TIMER
 operand of DEFINE command CPREF
 operand of SET command CPREF
 TM
 operand of TAPESL macro (5748-XE1)
 CMSREF
 operand of TAPESL macro (5748-XX8)
 CMSREF
 TO
 operand of ATTACH CHANNEL command OPGDE
 operand of ATTACH command OPGDE
 operand of LINK command CPREF
 operand of SPOOL command CPREF
 operand of TRANSFER command CPREF,OPGDE
 option of GENMOD command CMSREF
 TOLABEL, option of COPYFILE command CMSREF
 TOP, edit subcommand CMSUG,CMSREF
 TRACE
 operand of BUILD macro SYSGEN
 operand of NETWORK command OPGDE
 operand of SYSCOR macro SYSGEN
 subcommand of DUMPSCAN command IPCSUG
 TRACE command CMSUG,CPREF,RSCSUG
 TRANS, option of COPYFILE command CMSREF
 TRANSFER command CPREF,OPGDE
 TRENDS, operand of CPEREP command OLTSEP
 TRTCH
 option of ASSGN command CMSREF
 option of FILEDEF command CMSREF
 option of TAPE command CMSREF
 TRUNC
 edit subcommand CMSUG,CMSREF
 option of COPYFILE command CMSREF
 TXTLIB
 operand of GLOBAL command CMSREF
 operand of QUERY command CMSREF
 TXTLIB command CMSREF
 TYPICAL
 operand of DMSABN macro SPG
 operand of DMSFREE macro SPG
 operand of DMSFRES macro SPG
 operand of DMSFRET macro SPG
 operand of STRINIT macro SPG
 TYPE
 edit subcommand CMSUG,CMSREF
 function control statement of DDR
 command CMSREF
 operand of CPEREP command OLTSEP
 operand of DEFINE command RSCSUG
 operand of DMSFREE macro SPG
 operand of GENLINK macro SYSGEN
 operand of START command RSCSUG

option of COPYFILE command CMSREF
option of ERASE command CMSREF
option of INCLUDE command CMSREF
option of LOAD command CMSREF
option of RENAME command CMSREF
TYPE=PRIVATE, operand of LOCK macro SPG
TYPE command CMSREF
T2305, operand of DEFINE command CPREF
T2314, operand of DEFINE command CPREF
T2319, operand of DEFINE command CPREF
T3310
operand of DEFINE command (5748-XE1)
CPREF
operand of DEFINE command (5748-XX8)
CPREF
T3330, operand of DEFINE command CPREF
T3340, operand of DEFINE command CPREF
T3350, operand of DEFINE command CPREF
T3370
operand of DEFINE command (5748-XE1)
CPREF
operand of DEFINE command (5748-XX8)
CPREF

U

UA
operand of ASSGN command CMSREF
operand of LISTIO command CMSREF
UCBCCW macro SPG
UCS, operand of LOADBUF command OPGDE
UCS macro SPG
UCSB macro SPG
UCSCCW macro SPG
UNITSZ, operand of HOST macro SYSGEN
UNLOAD, option of I/O control statement of
DDR command CMSREF
UNLOCK command OPGDE
UNPACK, option of COPYFILE command CMSREF
UP, edit subcommand CMSUG,CMSREF
UPCASE
option of ASSGN command CMSREF
option of COPYFILE command CMSREF
option of FILEDEF command CMSREF
option of PRINT command CMSREF
UPDATE, option of TAPPDS command CMSREF
UPDATE command CMSREF
UPDATE control statements CMSREF
UPDIRT, option of RENAME command CMSREF
UPSI
operand of QUERY command CMSREF
operand of SET command CMSREF
UR, operand of QUERY command CPREF,OPGDE
UREC, operand of DMSFRES macro SPG
USER
operand of INDICATE command CPREF,OPGDE
operand of PRB command IPCSUG
USER control statement OPGDE,SYSGEN
USERHOLD
operand of SPTAPE command (5748-XE1)
OPGDE
operand of SPTAPE command (5748-XX8)
OPGDE

USERID
operand of NAMESYS macro (5748-XE1)
SYSGEN
operand of NAMESYS macro (5748-XX8)
SYSGEN
operand of SYSACNT macro (5748-XE1)
SYSGEN
operand of SYSACNT macro (5748-XX8)
SYSGEN
operand of SYSMON macro SYSGEN
USERS, operand of QUERY command
CPREF,OPGDE
UT, operand of BUILD macro SYSGEN

V

VARY, operand of NETWORK command OPGDE
VARY command OPGDE
VER, operand of LOADBUF command OPGDE
VERIFY
edit subcommand CMSUG,CMSREF
ZAP control record OPGDE
VIOBLOK, subcommand of DUMPSCAN command
IPCSUG
VIRT=REAL
operand of UNLOCK command OPGDE
option of OPTION control statement
OPGDE,SYSGEN
VIRTUAL
operand of DEFINE command OPGDE
operand of QUERY command CPREF
option of QUERY command OPGDE
VLD, control statement of IBCDASDI command
OPGDE
VM, operand of QUERY command RSCSUG
VMBLOK, subcommand of DUMPSCAN command
IPCSUG
VMFASM EXEC procedure SYSGEN
VMFBLD EXEC procedure SYSGEN
VMFDUMP command OPGDE,IPCSUG
VMFLOAD EXEC procedure SYSGEN
VMFMAC EXEC procedure SYSGEN
VMSAVE (5748-XE1)
operand of QUERY command CPREF
operand of SET command CPREF
option of OPTION control statement
SYSGEN
VMSAVE (5748-XX8)
operand of QUERY command CPREF
operand of SET command CPREF
option of OPTION control statement
SYSGEN
VM370, operand of GENERATE EXEC procedure
SYSGEN
VOLID
operand of CPEREPR command OLTSEP
operand of LABELDEF command (5748-XE1)
CMSREF
operand of LABELDEF command (5748-XX8)
CMSREF
VOLSEQ
operand of LABELDEF command (5748-XE1)
CMSREF
operand of LABELDEF command (5748-XX8)
CMSREF

V

VSAM
 option of DLBL command CMSREF
 option of SET command CMSREF
 VSYSADR, operand of NAMESYS macro SYSGEN
 VSYSRES, operand of NAMESYS macro SYSGEN
 VTOCD, control statement of IBCDASDI
 command OPGDE

W

WAIT
 operand of HNDINT macro CMSREF
 operand of INDICATE command OPGDE
 operand of STAT command IPCSUG
 WAITD macro CMSREF
 WAITT macro CMSREF
 WARNING command OPGDE
 WNG, operand of SET command CPREF
 WPTR
 operand of FSPOINT macro (5748-XE1)
 CMSREF
 operand of FSPOINT macro (5748-XX8)
 CMSREF
 WRTAPE macro CMSREF
 WRTERM macro CMSREF
 WTM
 operand of TAPE command CMSREF
 option of TAPE command CMSREF
 WVOL1
 operand of TAPE command (5748-XE1)
 CMSREF
 operand of TAPE command (5748-XX8)
 CMSREF

X

X
 edit subcommand CMSUG,CMSREF
 subcommand of DEBUG command
 CMSUG,CMSREF
 XBREAK, operand of BUILD macro SYSGEN
 XCAL, option of LKED command SYSGEN
 XITB, operand of BUILD macro SYSGEN
 XREF
 option of ASM3705 command SYSGEN
 option of ASSEMBLE command CMSREF
 option of LKED command SYSGEN
 option of OPTION command CMSREF
 option of VMFASM EXEC procedure SYSGEN
 Xreg, operand of STORE command CPREF
 Xreg1, operand of DISPLAY command CPREF
 XTENT, option of FILEDEF command CMSREF

Y

Y, edit subcommand CMSUG,CMSREF
 YFLAG, option of ASSEMBLE command CMSREF
 Yreg, operand of STORE command CPREF
 Yreg1, operand of DISPLAY command CPREF

Z

ZAP command OPGDE
 ZAP control record OPGDE
 ZERO, operand of CPEREP command OLTSEP
 ZONE
 edit subcommand CMSUG,CMSREF
 operand of SYSTIME macro SYSGEN

1

1403, operand of DEFINE command CPREF
 1443, operand of DEFINE command CPREF

2

2501, operand of DEFINE command CPREF
 2540P, operand of DEFINE command CPREF
 2540R, operand of DEFINE command CPREF

3

3203, operand of DEFINE command CPREF
 3211, operand of DEFINE command CPREF
 3289
 operand of DEFINE command (5748-XE1)
 CPREF
 operand of DEFINE command (5748-XX8)
 CPREF
 3330V, option of ATTACH command OPGDE
 3505, operand of DEFINE command CPREF
 3525, operand of DEFINE command CPREF
 370E, operand of SET command (5748-XE1)
 CPREF
 370E (5748-XE1)
 operand of SET command CPREF,OPGDE
 option of OPTION control statement
 SYSGEN

4

48C, option of OPTION command CMSREF

6

60C, option of OPTION command CMSREF

7

7TRACK
 option of ASSGN command CMSREF
 option of FILEDEF command CMSREF
 option of TAPE command CMSREF

9

9TRACK
 option of ASSGN command CMSREF
 option of FILEDEF command CMSREF
 option of TAPE command CMSREF

Section 4: Summary of VM/370 Commands and Operands

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&$ EXEC special variable CMSREF
&* EXEC special variable CMSREF
&ARGS EXEC control statement CMSREF
&BEGEMSG EXEC control statement CMSREF
&BEGPUNCH EXEC control statement CMSREF
&BEGSTACK EXEC control statement CMSREF
&BEGTYPE EXEC control statement CMSREF
&CONCAT EXEC built-in function CMSREF
&CONTINUE EXEC control statement CMSREF
&CONTROL EXEC control statement CMSREF
&DATATYPE EXEC built-in function CMSREF
&DISK? EXEC special variable CMSREF
&DISKx EXEC special variable CMSREF
&DOS EXEC special variable CMSREF
&EMSG EXEC control statement CMSREF
&END EXEC control statement CMSREF
&ERROR EXEC control statement CMSREF
&EXEC EXEC special variable CMSREF
&EXIT EXEC control statement CMSREF
&GLOBAL EXEC special variable CMSREF
&GLOBALn EXEC special variable CMSREF
&GOTO EXEC control statement CMSREF
&HEX EXEC control statement CMSREF
&IF EXEC control statement CMSREF
&INDEX EXEC special variable CMSREF
&LENGTH EXEC built-in function CMSREF
&LINENUM EXEC special variable CMSREF
&LITERAL EXEC built-in function CMSREF
&LOOP EXEC control statement CMSREF
&n EXEC special variable CMSREF
&PUNCH EXEC control statement CMSREF
&READ EXEC control statement CMSREF
&READFLAG EXEC special variable CMSREF
&RETCODE EXEC special variable CMSREF
&SKIP EXEC control statement CMSREF
&SPACE EXEC control statement CMSREF
&STACK EXEC control statement CMSREF
&SUBSTR EXEC built-in function CMSREF
&TIME EXEC control statement CMSREF
&TYPE EXEC control statement CMSREF
&TYPEFLAG EXEC special variable CMSREF
&0 EXEC special variable CMSREF

$COL edit macro CMSUG
$DUP edit macro CMSREF,CMSUG
$MACROS edit macro CMSUG
$MARK edit macro CMSUG
$MOVE edit macro CMSREF,CMSUG
$POINT edit macro CMSUG

* command CPREF

? edit subcommand CMSUG,CMSREF

#CP command CPREF

= edit subcommand CMSUG,CMSREF

A
ACCESS command CMSREF
  ERASE CMSREF
  NODISK CMSREF
  NOPROF CMSREF
ACCOUNT control statement OPGDE,SYSGEN
ACNT command OPGDE
  ALL OPGDE
  CLOSE (5748-YE1) OPGDE
  CLOSE (5748-XX8) OPGDE
ADSTOP command CPREF
  OFF CPREF
ALLOCATE control statement OPGDE
  DRCT OPGDE
  END OPGDE
  PERM OPGDE
  TDSK OPGDE
  TEMP OPGDE
ALTER edit subcommand CMSUG,CMSREF
AMSERV command CMSREF
  PRINT CMSREF
  TAPIN CMSREF
  TAPOUT CMSREF
ASMGEND EXEC procedure SYSGEN
ASM3705 command SYSGEN
  DECK SYSGEN
  DISK SYSGEN
  LINECOUN SYSGEN
  LIST SYSGEN
  LOAD SYSGEN
  NODECK SYSGEN
  NOLIST SYSGEN
  NOLOAD SYSGEN
  NOPRINT SYSGEN
  NORENT SYSGEN
  NOXREF SYSGEN
  PRINT SYSGEN
  RENT SYSGEN
  XREF SYSGEN
ASSEMBLE command CMSREF
  ALIGN CMSREF
  ALOGIC CMSREF
  BUFSIZE CMSREF
  DECK CMSREF
  DISK CMSREF
  ESD CMSREF
  FLAG CMSREF
  LIBMAC CMSREF
  LINECOUN CMSREF
  LIST CMSREF
  MCALL CMSREF
  MLOGIC CMSREF
  NOALIGN CMSREF
  NOALOGIC CMSREF

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NODECK CMSREF
 NOESD CMSREF
 NOLIBMAC CMSREF
 NOLIST CMSREF
 NOMCALL CMSREF
 NOMLOGIC CMSREF
 NONUM CMSREF
 NOOBJECT CMSREF
 NOPRINT CMSREF
 NORENT CMSREF
 NORLD CMSREF
 NOSTMT CMSREF
 NOTERM CMSREF
 NOTEST CMSREF
 NOXREF CMSREF
 NOYFLAG CMSREF
 NUMBER CMSREF
 OBJECT CMSREF
 PRINT CMSREF
 RENT CMSREF
 RLD CMSREF
 STMT CMSREF
 SYSPARM CMSREF
 TERMINAL CMSREF
 TEST CMSREF
 XREF CMSREF
 YFLAG CMSREF
 ASSGN command CMSREF
 DEN CMSREF
 IGN CMSREF
 LOWCASE CMSREF
 SYSxxx CMSREF
 TRTCH CMSREF
 UA CMSREF
 UPCASE CMSREF
 7TRACK CMSREF
 9TRACK CMSREF
 ATTACH CHANNEL command OPGDE
 TO OPGDE
 ATTACH command OPGDE
 AS OPGDE
 R/O OPGDE
 SYSTEM OPGDE
 TO OPGDE
 3330V OPGDE
 ATTN command CPREF
 AUTOLOG command OPGDE
 AUTOSAVE edit subcommand CMSUG,CMSREF

B

BACKSPAC command OPGDE,RSCSUG
 EOF OPGDE
 FILE OPGDE,RSCSUG
 BACKWARD edit subcommand CMSUG,CMSREF
 BEGIN command CPREF
 BOTTOM edit subcommand CMSUG,CMSREF
 BUILD macro SYSGEN
 ABEND SYSGEN
 ANS SYSGEN
 ASMXREF SYSGEN
 BFRS SYSGEN
 CHKPT SYSGEN
 CSMHDR SYSGEN
 CSMHDC SYSGEN
 CSMMSGC SYSGEN
 CUID SYSGEN

DIALTO SYSGEN
 ERASE SYSGEN
 ITEXTO SYSGEN
 JOBCARD SYSGEN
 LOADLIB SYSGEN
 MTARTRY SYSGEN
 NEWNAME SYSGEN
 OBJLIB SYSGEN
 OLT SYSGEN
 PNLTEST SYSGEN
 QUALIFY SYSGEN
 TRACE SYSGEN
 UT SYSGEN
 XBREAK SYSGEN
 XITB SYSGEN

C

CASE edit subcommand CMSUG,CMSREF
 CAW debug subcommand CMSUG,CMSREF
 CHANGE command CPREF,OPGDE,RSCSUG
 ALL CPREF,OPGDE
 CHARS CPREF,OPGDE
 CLASS CPREF,OPGDE,RSCSUG
 COPY CPREF,OPGDE,RSCSUG
 DIST CPREF,OPGDE,RSCSUG
 FCB CPREF,OPGDE
 FLASH CPREF,OPGDE
 HOLD CPREF,OPGDE,RSCSUG
 MODIFY CPREF,OPGDE
 NAME CPREF,OPGDE,RSCSUG
 NOHOLD CPREF,OPGDE,RSCSUG
 NOSYS OPGDE
 PRINTER CPREF,OPGDE
 PRIORITY RSCSUG
 PUNCH CPREF,OPGDE
 READER CPREF,OPGDE
 SYS OPGDE
 SYSTEM OPGDE
 CHANGE edit subcommand CMSUG,CMSREF
 CLOSE command CPREF
 CONSOLE CPREF
 DIST CPREF
 HOLD CPREF
 NAME CPREF
 NOHOLD CPREF
 PRINTER CPREF
 PUNCH CPREF
 PURGE CPREF
 READER CPREF
 CLUSTER macro SYSGEN
 CUTYPE SYSGEN
 DIAL SYSGEN
 GPOLL SYSGEN
 LINE SYSGEN
 CMD command SPG,RSCSUG
 LOG SPG,RSCSUG
 NOLOG SPG,RSCSUG
 CMS edit subcommand CMSUG,CMSREF
 CMSBATCH command CMSREF
 MSGEND EXEC procedure SYSGEN
 CTLALL SYSGEN
 TLCMS SYSGEN
 MAP SYSGEN
 NOCLEAR SYSGEN
 NOINV SYSGEN
 COMND command SPG

COMPARE command CMSREF
 COL CMSREF
 COMPSWT macro CMSREF
 CONSOLE control statement OPGDE,SYSGEN
 COPYFILE command CMSREF
 APPEND CMSREF
 EBCDIC CMSREF
 FILL CMSREF
 FOR CMSREF
 FRLABEL CMSREF
 FROM CMSREF
 LCRECL CMSREF
 LOWCASE CMSREF
 NEWDATE CMSREF
 NEWFILE CMSREF
 NOPROMPT CMSREF
 NOSPECS CMSREF
 NOTRUNC CMSREF
 NOTYPE CMSREF
 OLDDATE CMSREF
 OVLY CMSREF
 PACK CMSREF
 PROMPT CMSREF
 RECFM CMSREF
 REPLACE CMSREF
 SINGLE CMSREF
 SPECS CMSREF
 TOLABEL CMSREF
 TRANS CMSREF
 TRUNC CMSREF
 TYPE CMSREF
 UNPACK CMSREF
 UPCASE CMSREF
 COUPLE command CPREF
 CP command CPREF,CMSREF
 CPEREP command OLTSEP
 ACC OLTSEP
 CLEAR OLTSEP
 CLEARF OLTSEP
 CPU OLTSEP
 CPUCUA OLTSEP
 CTLCRD OLTSEP
 CUA OLTSEP
 DATE OLTSEP
 DEV OLTSEP
 ERRORID OLTSEP
 EVENT OLTSEP
 HIST OLTSEP
 LIBADR OLTSEP
 LINECT OLTSEP
 MERGE OLTSEP
 MES OLTSEP
 MOD OLTSEP
 PRINT OLTSEP
 RDESUM OLTSEP
 SHARE OLTSEP
 SHORT OLTSEP
 SYMCDE OLTSEP
 SYSUM OLTSEP
 TABSIZE OLTSEP
 TERMINAL OLTSEP
 TERMN OLTSEP
 THRESHOLD OLTSEP
 TIME OLTSEP
 TRENDS OLTSEP
 TYPE OLTSEP
 VOLID OLTSEP
 ZERO OLTSEP

CSW debug subcommand CMSUG,CMSREF

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DCP command OPGDE
 END OPGDE
 Lhexloc1 OPGDE
 Mhexloc1 OPGDE
 MLhexloc1 OPGDE
 MThexloc1 OPGDE
 Nhexloc1 OPGDE
 NLhexloc1 OPGDE
 NThexloc1 OPGDE
 Thexloc1 OPGDE
 DDR command OPGDE,CMSREF
 DDR control statement OPGDE,CMSREF
 INPUT OPGDE,CMSREF
 OUTPUT OPGDE,CMSREF
 SYSPRINT OPGDE,CMSREF
 DDR function statement OPGDE,CMSREF
 COPY OPGDE,CMSREF
 DUMP OPGDE,CMSREF
 PRINT OPGDE,CMSREF
 RESTORE OPGDE,CMSREF
 TYPE OPGDE,CMSREF
 DDR input/output control statement
 OPGDE,CMSREF
 LEAVE OPGDE,CMSREF
 MODE OPGDE,CMSREF
 REWIND OPGDE,CMSREF
 SKIP OPGDE,CMSREF
 UNLOAD OPGDE,CMSREF
 DEBUG command CMSUG,CMSREF
 DEBUG subcommands CMSUG,CMSREF
 BREAK CMSUG,CMSREF
 CAW CMSUG,CMSREF
 CSW CMSUG,CMSREF
 DEFINE CMSUG,CMSREF
 DUMP CMSUG,CMSREF
 GO CMSUG,CMSREF
 GPR CMSUG,CMSREF
 HX CMSUG,CMSREF
 ORIGIN CMSUG,CMSREF
 PSW CMSUG,CMSREF
 RETURN CMSUG,CMSREF
 SET CMSUG,CMSREF
 STORE CMSUG,CMSREF
 X CMSUG,CMSREF
 DEDICATE control statement OPGDE,SYSGEN
 DEFINE command CPREF,RSCSUG
 AS CPREF
 CHANNELS CPREF
 CLASS RSCSUG
 CONSOLE CPREF
 CTCA CPREF
 GRAF CPREF
 KEEP RSCSUG
 LINE CPREF,RSCSUG
 PRINTER CPREF
 PUNCH CPREF
 READER CPREF
 STORAGE CPREF
 SYSVIRT OPGDE
 TASK RSCSUG
 TFB512 (5748-XE1) CPREF
 TFB512 (5748-XX8) CPREF
 TIMER CPREF

TYPE	RSCSUG		ACCOUNT	OPGDE,SYSGEN
T2305	CPREF		CONSOLE	OPGDE,SYSGEN
T2314	CPREF		DEDICATE	OPGDE,SYSGEN
T2319	CPREF		DIRECTORY	OPGDE,SYSGEN
T3310	(5748-XE1)	CPREF	IPL	OPGDE,SYSGEN
T3310	(5748-XX8)	CPREF	LABEL	OPGDE,SYSGEN
T3330	CPREF		LINK	OPGDE,SYSGEN
T3340	CPREF		MDISK	OPGDE,SYSGEN
T3350	CPREF		OPTION	OPGDE,SYSGEN
T3370	(5748-XE1)	CPREF	SPECIAL	OPGDE,SYSGEN
T3370	(5748-XX8)	CPREF	SPOOL	OPGDE,SYSGEN
VIRTUAL	OPGDE		USER	OPGDE,SYSGEN
1403	CPREF		DISABLE command	OPGDE
1443	CPREF		ALL	OPGDE
2501	CPREF		DISCONN command	CPREF,RSCSUG
2540P	CPREF		HOLD	CPREF
2540R	CPREF		DISK command	CMSREF
3203	CPREF		DUMP	CMSREF
3289	(5748-XE1)	CPREF	LOAD	CMSREF
3289	(5748-XX8)	CPREF	DISPLAY command	CPREF
3505	CPREF		CAW	CPREF
3525	CPREF		CSW	CPREF
DEFINE debug subcommand	CMSUG,CMSREF		END	CPREF
DELETE command	RSCSUG		Greg1	CPREF
DELETE edit subcommand	CMSUG,CMSREF		PSW	CPREF
DETACH CHANNEL command	CPREF,OPGDE		Xreg1	CPREF
FROM	OPGDE		Yreg1	CPREF
DETACH command	CPREF,OPGDE,RSCSUG		DISPW macro	SPG
FROM	OPGDE		BUFAD	SPG
SYSTEM	OPGDE		BYTES	SPG
DIAGNOSE X'00'	instruction	SPG	CANCEL	SPG
DIAGNOSE X'04'	instruction	SPG	ERASE	SPG
DIAGNOSE X'08'	instruction	SPG	LINE	SPG
DIAGNOSE X'0C'	instruction	SPG	DLBL command	CMSREF
DIAGNOSE X'10'	instruction	SPG	BUFSP	CMSREF
DIAGNOSE X'14'	instruction	SPG	CAT	CMSREF
DIAGNOSE X'18'	instruction	SPG	CHANGE	CMSREF
DIAGNOSE X'1C'	instruction	SPG	CLEAR	CMSREF
DIAGNOSE X'20'	instruction	SPG	CMS	CMSREF
DIAGNOSE X'24'	instruction	SPG	DSN	CMSREF
DIAGNOSE X'28'	instruction	SPG	DUMMY	CMSREF
DIAGNOSE X'2C'	instruction	SPG	EXTENT	CMSREF
DIAGNOSE X'30'	instruction	SPG	MULT	CMSREF
DIAGNOSE X'34'	instruction	SPG	NOCHANGE	CMSREF
DIAGNOSE X'38'	instruction	SPG	PERM	CMSREF
DIAGNOSE X'3C'	instruction	SPG	SYSxxx	CMSREF
DIAGNOSE X'40'	instruction	(5748-XE1) SPG	VSAM	CMSREF
DIAGNOSE X'40'	instruction	(5748-XX8) SPG	DMCP command	OPGDE
DIAGNOSE X'4C'	instruction	SPG	END	OPGDE
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Appendix A: VM/370 Publication-To-Audience Relationship

The following two charts illustrate the relationship of the VM/370 publications to their appropriate audience and also includes a brief description of the text content.

Audience	Publications	Content
All users	Introduction, GC20-1800	Overview of VM/370 and virtual machines
	CP Command Reference for General Users, GC20-1820	G and Any commands -- needed for virtual machine control
	System Messages, GC20-1808	Abend codes, wait states, messages
	Terminal User's Guide, GC20-1810	Logon/logoff, virtual console terminal use, attention handling
	Quick Guide for Users, GC20-1926	Reference for command and service program control statement formats
System Analyst, Programming System Representatives, Installation Planners and Support Personnel	Planning and System Generation Guide, GC20-1801	VM/370 installation requirements and procedures
	Operator's Guide, GC20-1806	VM/370 system control commands, resource control, service programs, spooling
	System Programmer's Guide, GC20-1807	Resources for problem solving, tracking, tracing, monitoring
	Operating Systems in a Virtual Machine, GC20-1821	Relationship of VM/370 with other operating systems, VM/370 concepts
	OLTSEP and Error Recording Guide, GC20-1809	OLTS from a virtual environment, RMS, invoking CPERP
	CMS Command and Macro Reference, GC20-1818	CMS facilities for generating, compiling, editing, testing and debugging programs
	CMS User's Guide, GC20-1819	
	OS/VS Environmental Recording Editing and Printing, GC28-0772	Details on OS/VS EREP operands invoked by CPERP
	Interactive Problem Control System (IPCS) User's Guide, GC20-1823	Catalog and update facility for recorded system and virtual machine problems

Audience	Publications	Content
System Analyst, Programming System Representatives, Installation planners and Support Personnel (cont.)	Service Routines Program Logic, SY20-0882	VM/370 logic on CP, CMS and RSCS; the service programs; OS/VS EREP; and the data areas and control blocks that relate to those components
	Data Areas and Control Block Logic, SY20-0884	
	System Logic and Problem Determination Guide, SY20-0886,7,8	
	OS/VS Environmental Recording Editing and Printing (EREP) Program Logic, SY28-0773	
Field Engineer (CE)	OLTSEP and Error Recording Guide, GC20-1809	OLTS from the virtual machine, RMS, and invoking CPEREP
	OS/VS Environmental Recording Editing and Printing, GC28-0772	Provides details on OS/VS EREP operands invoked by CPEREP
System Operator	Operator's Guide, GC20-1806	Resource and system control command and service programs; IPL VM/370
	Remote Spooling Communications Subsystem (RSCS) User's Guide, GC20-1816	Operational control of remote spooling
	CP Command Reference for General Users, GC20-1820	G and Any commands — Needed for CP virtual machine control
	Operating Systems in a Virtual Machine, GC20-1821	Relationship of VM/370 with other operating systems, expanded information on G command usage
	Interactive Problem Control System (IPCS) User's Guide, GC20-1823	Tracking facility for system and virtual machine problems
	OLTSEP and Error Recording Guide, GC20-1809	How to invoke CPEREP to capture/clear SYS1.LOGREC and VM/370 error recording cylinders
	Application Programmer, interactive users — anyone who needs to create or modify programs or data	CMS Command and Macro Reference, GC20-1818 CMS User's Guide, GC20-1819

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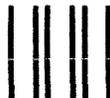
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