GC19-6207-1
File No. S370/4300-20

IBM Virtual Machine/ System Product: Library Guide and Master Index

Program Product

IBM

GC19-6207-1
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Program Product

IBM Virtual Machine/ System Product: Library Guide and Master Index

Program Number 5664-167

IBM

Second Edition (June 1982)

This edition, GC19-6207-1, applies to Release 2 of the IBM Virtual Machine/System Product (5664-167) and to all subsequent releases until otherwise indicated in new editions or Technical Newsletters. Changes are made periodically to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest *IBM System/370 and 4300 Processors Bibliography*, GC20-0001, for the editions that are applicable and current.

Summary of Amendments

Changes to this edition are noted in the Summary of Amendments found on page iii.

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Summary of Amendments

Summary of Amendments for VM/SP Release 2

This revision documents the changes that have been made to the VM/SP publications for Release 2. The major changes and revisions are :

- The title has been changed from *IBM Virtual Machine/System Product : Glossary and Master Index* to *IBM Virtual Machine/System Product Library Guide and Master Index.*
- The Sections have been renamed to Chapters and their order of presentation has been changed to make easier access to the Master Index.
- Chapter 1 is new, and describes the arrangement of the VM/SP Library as a whole as well as the organization of the individual manuals. Abstracts of the VM/SP publications and library related services have been incorporated. The VM/SP Publication-to-Reader Relationship table is now included in Chapter 1 instead of in Appendix A.
- Chapter 2, previously Section 1, contains new and updated glossary terms.
- Chapter 3, previously Section 3, lists VM/SP operands for commands.
- Chapter 4, previously Section 4, lists VM/SP commands with options.
- Chapter 5, previously Section 2, contains the updated Master Index for the VM/SP Library.
- The Master Index Table, which lists abbreviations and order numbers for each VM/SP publication, is at the beginning of Chapters 3, 4, and 5.
- For your convenience, the Master Index Table is also printed on a foldout at the back of this publication.

Preface

This book explains the organization of the VM/SP publications library. It provides means for locating specific information in a manual or manuals within the library. This publication contains a glossary of VM/SP terms, two separate indexes of commands and operands, and a master index to the VM/SP library.

Who This Book Is For

The audience for this manual consists of anyone who uses manuals in the VM/SP library.

How This Book Is Organized

"Chapter 1. The VM/SP Library" describes the organization of the individual manuals as well as the arrangement of the library as a whole. It defines the interrelationship of publications and the publication-to-reader relationship. It contains abstracts of the manuals in the VM/SP library, and describes library-related services, such as the System Library Subscription Service (SLSS). Use chapter 1 to determine whether a book is actually the correct one for your needs.

"Chapter 2. VM/SP Glossary" defines terms used by VM/SP, but that may not appear in the *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems*, GC20-1699. The *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems* is considered as a corequisite publication.

"Chapter 3. Summary of VM/SP Operands for 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/SP. Lowercase variables to commands and other commonly used operands are not included. It references the books where these operands are described. Use this chapter to determine the appropriate book, by operands.

"Chapter 4. Summary of VM/SP Commands with Options" is an alphabetic listing of each VM/SP command, macro instruction, and service program and their related operands. It references the books where these commands are described. Use this chapter to determine the appropriate book, by commands.

"Chapter 5. Master Index" is a guide to the VM/SP library. It directs you to the publications that contain the specific information you are seeking. The entries are extracted from the indexes of the VM/SP publications listed at the beginning of the chapter. Use this chapter to determine the appropriate book, by topic.

"Master Index Table" is a fold-out sheet that lists the abbreviations and order numbers for each of the VM/SP publications.

How To Use This Publication

When using this publication, you should:

- Refer to Chapter 2 for definitions of VM/SP terms.
- Refer to Chapter 3 to determine 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(s) that contains further information.
- Refer to Chapter 4 to determine a specific command, service program, or macro instruction. All associated operands are listed under the appropriate command. Information given with each command references the publication(s) that contain further information.
- Refer to Chapter 5 for a specific item of VM/SP information; this section points you to the publication(s) containing additional information about a particular subject.

Information Not Included in This Publication

This publication does not contain line entries derived from VM/SP logic publications or the Licensed Program Specification (LPS).

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Chapter 1. The VM/SP Library

This chapter describes the organization of the individual system manuals as well as the organization of the entire library. It will help you determine the proper VM/SP publications for your needs. It also describes library related services, such as methods for obtaining, updating, and commenting on library manuals.

Figure 1-1 correlates the VM/SP publications to their readers. A brief description of the text content is included to help you choose the most pertinent document.

Reader	Publications	Content
All users	*Library Guide,* GC19-6207	VM Library Usage, Glossary, Master Index
	Introduction, GC19-6200	Overview of VM/SP and virtual machines.
	Terminal User's Guide, GC19-6206	Logon/Logoff, virtual console terminal use, attention handling.
	CP Command Reference for General Users, SC19-6211	G and "Any" commands -- needed for virtual machine control.
	System Messages and Codes, SC19-6204	Abend codes, wait states, and messages.
	Quick Guide for Users, SX20-4400	Reference for command and service program control statement formats.
Customer Management	*General Information Manual,* GC20-1838	Synopsis of VM/SP,brief descriptions of unique VM/SP functions, planning installation and distribution information performance and compatibility statements.
	Introduction, GC19-6200	Overview of VM/SP and virtual machines.

Figure 1-1 (Part 1 of 3). VM/SP Publication-to-Reader Relationship

Reader	Publications	Content
System Analyst, Programming System Representatives, Installation Planners and Support Personnel	*General Information Manual*, GC20-1838	Synopsis of VM/SP, brief descriptions of unique VM/SP functions, planning installation and distribution information performance and compatibility statements.
	Planning and System Generation Guide, SC19-6201	VM/SP installations requirements and procedures.
	Operator's Guide, SC19-6202	VM/SP system control commands, resources, procedures control, service programs, spooling.
	System Programmer's Guide, SC19-6203	Resources for problem solving, tracking, tracing, monitoring.
	Operating Systems in a Virtual Machine, GC19-6216	Relationship of VM/SP with other operation systems, VM/SP concepts.
	OLTSEP and ERROR Recording Guide, SC19-6205	OLTS from a virtual environment. RMS, invoking CPEREP.
	CMS Command and Macro Reference, SC19-6209 *CMS User's Guide*, SC19-6210	CMS facilities for generating, compiling editing, testing and debugging progress.
	OS/VS, DOS/VSE, VM/370 Environmental Recording Editing and Printing, GC28-0772	Provides details on OS/VS, DOS/VSE, VM/370 and VM/SP ERER operands invoked by CPEREP.
	Interactive Problem Control System (IPCS) User's Guide, GC20-1823	Catalog and update facility for recorded system and virtual machine problems.
	Service Routines Program Logic, LY20-0891 *Data Areas and Control Block Logic*, LY20-0891 *System Logic and Problem Determination, Vol 3 - RSCS*, SY20-0888 *OS/VS, DOS/VSE, VM/370 Environmental Recording Editing and Printing (EREP) Program Logic*, SY28-0773	VM/SP logic on CP, CMS, IPCS and RSCS; the service programs; EREP and the data areas and control blocks that relate to those components.

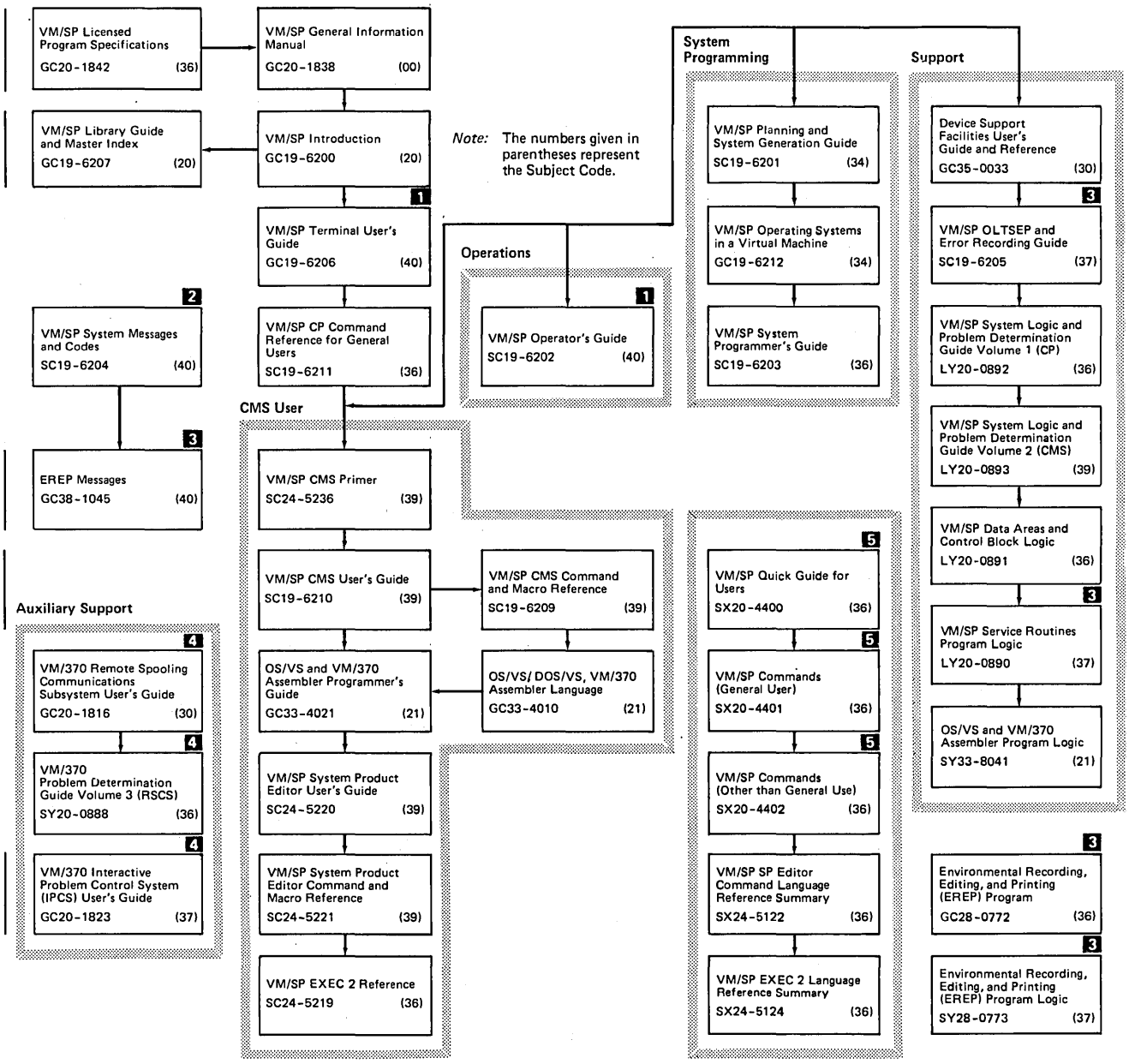
Figure 1-1 (Part 2 of 3). VM/SP Publication-to-Reader Relationship

Reader	Publications	Content
Field Engineer	*OLTSEP and Error Recording Guide*, SC19-6205	OLTS from the virtual machine, RMS, and Invoking CPEREP.
	OS/VS, DOS/VSE, VM/370 Environmental Recording Editing and Printing, GC28-0772	Provides details on OS/VS DOS/VSE, VM/370 and VM/SP EREP operands invoked by CPEREP.
System Operator	*Operator's Guide*, SC19-6202	Resource and system control command and service programs; VM/SP initialization and shutdown.
	Remote Spooling Communications Subsystem (RSCE) User's Guide, GC20-1816	Operational control of remote spooling.
	CP Command Reference for General Users, SC19-6211	G and Any commands -- required for virtual machine control.
	Operating Systems in a Virtual Machine, GC19-6212	Relationship of VM/SP with other operating systems.
	Interactive Problem Control System (IPCS) User's Guide, GC20-1823	Tracking facility for system and virtual machine problems.
	OLTSEP and Error Recording Guide, SC19-6205	How to invoke CPEREP to capture/clear SYS1.LOGREC and VM/SP error cylinders
Application Programmer, Interactive users -- Anyone who needs to create or modify programs or data	*CMS Command and Macro Reference*, SC19-6209	CMS command formats for program creation, editing testing and debugging.
	CMS User's Guide, SC19-6210	Detailed use of CMS, CMS commands.
	EXEC 2 Reference, SC24-5219	Detailed use of the EXEC 2 processor.
	System Product Editor User's Guide, SC24-5220	Tutorial information for using the System Product Editor.
	System Product Editor Command and Macro Reference, GC24-5221	Detailed use of the System Product Editor Commands.
	CMS Primer, SC24-5236	Interractive tutorial for new users.

Figure 1-1 (Part 3 of 3). VM/SP Publication-to-Reader Relationship

To understand the interrelationship of the publications in the VM/SP library, see Figure 1-2.

Publications that support VM/SP as used in conjunction with VM/370 Release 6



Legend:

1 For SNA terminal users, the prerequisite publication is: *VM/CNA Installation, Operations, and Terminal Use,* Order Number SC27-0502.

2 All users of virtual machine must use the *VM/SP System Messages and Codes* publication.

3 Contains information on VM/EREP support. EREP Release 3 is recommended for use with VM/SP Release 2.

4 VM/370 Release 6 components. However, the IPCS Extension Program Product (5748-SA1) and the RSCS Networking Program Product (5748-XP1) are recommended for use with VM/SP.

5 If you want all the Reference Summary publications identified by 5, use SBOF 3820 when ordering.

Figure 1-2. VM/SP Library and Related Publications

Abstracts of Manuals

These *abstracts* present a description of each manual and, consequently, a better idea about which book is best suited for your task. The titles are listed alphabetically.

CMS Command and Macro Reference, SC19-6209

This publication provides users of the Conversational Monitor System (CMS) component of VM/SP with detailed reference information about command syntax and usage notes for: CMS commands; EDIT subcommands; DEBUG commands; EXEC control statements, special variables, built-in functions; CMS assembler language macro instructions; CMS functions; and HELP format words.

CMS Primer, SC24-5236

This manual teaches you, as a new user, how to do your work using the VM/SP system and a video display terminal. The primer presents only a subset of all the functions and commands available with the VM/SP system. The material is presented in an interesting manner with suggested exercises woven throughout the text.

CMS User's Guide, SC19-6210

This book contains general information and examples about the Conversational Monitor System (CMS) component of VM/SP. It shows how CMS can create and modify data files (including VSAM data sets) and programs. It demonstrates how to compile, test and debug OS or DOS programs under CMS. The CMS Editor and CMS EXEC facilities are described with usage information and examples. Also included are brief descriptions of the System Product Editor and EXEC 2 facilities.

CP Command Reference for General Users, SC19-6211

This publication is a reference manual for the general class of users that are running systems such as OS, OS/VS, DOS, DOS/VS, VSE systems, CMS and networking systems in a virtual machine under VM/SP. Each CP command available to the general class of user is listed alphabetically. Each command description contains general usage information, the command line format, descriptions of all allowable operands, and default values for operands. Also included are tables showing the relationship of the general class of CP commands to the complete set of VM/SP CP commands.

EXEC 2 Reference, SC24-5219

This book is a reference manual that defines the EXEC 2 language. It contains all the formats, syntax rules, and descriptions of the arguments for EXEC 2 statements. An EXEC 2 primer for new users is included. It summarizes the language and what it is capable of. A detailed discussion of the different types of EXEC 2 statements is followed by examples. It lists the error messages and return codes issued by the EXEC 2 interpreter.

General Information Manual, GC20-1838

This publication introduces and describes the features of the IBM Virtual Machine/System Product (VM/SP) Program Product (5664-167). It provides planning information for installation managers, system programmers, and IBM Field Engineering personnel.

Interactive Problem Control System (IPCS) User's Guide, GC20-1823

This book is specifically directed to the system programmer or the IBM support representative. It is a reference book for users of (IPCS) which standardizes the problem reporting process and provides: online problem management, interactive problem diagnosis, an online debugging facility for disk-resident CP abend dumps, and a problem-tracking facility that can be updated either by the user or, automatically, by the system. It contains IPCS command formats and instructions for their use, along with messages associated with IPCS.

Note: For VM/SP user's who have the IPCS Extension Program Product (5748-SA1) installed, the following publications are available:

VM/IPCS Extension User's Guide and Reference, SC34-2020
VM/IPCS Extension Summary, SC34-2022
VM/IPCS Extension Logic, LY25-0005

Introduction, GC20-6200

This publication introduces VM/SP as it is used in conjunction with the IBM Virtual Machine Facility/370 (VM370) Program Number, 5749-010. VM/SP tailors the resources and capabilities of supported processors to provide users their own unique virtual machine. It describes the Control Program, Conversational Monitor System, spooling communications systems, and interactive problem control systems. This publication is a prerequisite for the VM/SP system library.

OLTSEP and Error Recording Guide, SC19-6205

This book is intended for the IBM Program Service Representative (PSR) and the IBM Customer Engineer (CE). The information will aid in performing hardware I/O maintenance from a virtual machine. It includes data on error handling and the error recording process. It describes how to run the online test system (OLTS) under OLTSEP, and how to use the CMS CPEREP command that interfaces with OS/VS EREP (IFCERER1) and error recorded data.

Operating Systems in a Virtual Machine, GC19-6212

This publication is for system programmers who plan to use System/360 or System/370 operating systems under the control of VM/SP. It describes how to use VM/SP functions more efficiently when running operating systems under VM/SP. It also provides system planning and operating considerations when running VM/SP, VSE, and OS/VS under VM/SP.

Operator's Guide, SC19-6202

This book is intended for those responsible for the operation and administration of a VM/SP system. It includes descriptions of all those commands that affect the I/O resources and operating characteristics of VM/SP, the associated virtual machines, and the real hardware configuration. Also included is information on spooling, resource allocation, system startup and shutdown procedures, and VM/SP service programs.

Planning and System Generation Guide, SC19-6201

This publication is intended for system programmers responsible for the planning, installation, and updating of a VM/SP system. It includes information about: planning for system generation, defining your VM/SP System, generating VM/SP

(CP and CMS), generating a 3704/3705 control program that runs under VM/SP, and updating VM/SP.

Remote Spooling Communications Subsystem (RSCS) User's Guide, GC20-1816

This publication provides the users of the VM/370 Remote Spooling Communication Subsystem with the information necessary to operate the RSCS virtual machine and supported remote terminals and stations. Topics covered include: devices supported by RSCS, line connection procedures, data transmission and reception, RSCS operator commands, VM/370 user commands, and error recovery procedures.

Note: For users who have the RSCS Networking Program Product (5748-XP1) installed, the following publications are available:

VM/SP RSCS Networking Reference and Operations, SH24-5005
VM/SP RSCS Networking Reference Summary, SX24-5119
VM/SP RSCS Networking Logic, LY24-5203

System Messages and Codes, SC19-6204

This book contains messages and codes, as well as restrictions that may be encountered when using VM/SP. Conditions that generate these messages and codes are explained, the resulting action is described, and appropriate responses are suggested.

System Product Editor Command and Macro Reference, SC24-5221

This publication is a reference manual that contains all the command formats, syntax rules, and operand and option descriptions for the XEDIT subcommands and macros. It tells how to enter XEDIT commands, subcommands and macros. It contains the format description, and operand and option list for the XEDIT command, which is used to invoke the editor. It lists EDGAR and EDIT subcommands and their XEDIT counterparts. You should be familiar with the user's guide before attempting to use this book.

System Product Editor User's Guide, SC24-5220

This book is intended for the individual who has limited data processing experience. It is designed to give the user a working knowledge of the System Product Editor (also referred to as XEDIT). XEDIT provides a wide range of functions for text processing and programming development. Both a full screen and a line mode editor, it can be used on display and typewriter terminals.

System Programmer's Guide, SC19-6203

This book, intended for VM/SP system programmers, contains detailed descriptions of procedures, commands, and utility programs useful in debugging, as well as guidelines for reading dumps. It describes CP and how it works with details of how to modify or better utilize CP. A description of CMS and how it works, as well as details of some special features of CMS are included. It also describes the Remote Spooling Communications Subsystem (RSCS).

Terminal User's Guide, GC19-6206

This publication has information about: terminal initialization and general procedures for all VM/SP terminals, gaining access to VM/SP, accessing VM/SP via common carrier facilities, VM/SP logon and logoff procedures, typing

conventions after logging on, display terminals and their usage including screen management, typewriter-like terminals and their usage, program function (PF) keys with setup and usage, and APL considerations.

Manual Organization

Titles

The first part of a manual title identifies the program product that the manual is about; the subsequent parts more specifically identify the manual's subject. For example, the first part of the title *Virtual Machine/System Product: CMS Command and Macro Reference* identifies the product as the the VM/SP system product, and the second part identifies the task that the manual describes, namely: using CMS commands and macros.

Certain words in the title indicate the level or kind of information that the manual contains. *Introduction* and *general information* indicate general and conceptual material, especially for program product manuals. These introductory manuals contain basic information on their subjects and develop the vocabulary used by more detailed manuals.

A *guide* generally contains procedural information or step-by-step instruction on how to do something, for example: the *Virtual Machine/ System Product: System Product Editor User's Guide.*

A *reference* manual is a source of information usually arranged alphabetically, such as the *Virtual Machine/System Product: CP Command Reference for General Users.*

A *logic* manual is a a kind of reference manual that describes the internal structure of a product, for example, *Virtual Machine/ System Product: Service Routines Program Logic.*

A *messages* manual is a kind of reference manual that lists and explains the communications that the system makes to the user and suggests appropriate responses or actions. *Virtual Machine/System Product: System Messages and Codes* is an example of a title for a messages manual.

Formats

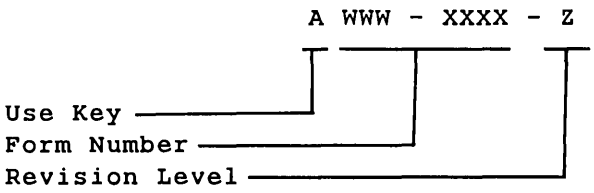
Each manual in the VM/SP Library is organized in the same fashion. To assist you in the selection of the proper manual, the most significant information about what is in that manual is placed in the first few pages, the *Preface.*

A preface contains the following information:

- The purpose of the manual
- The audience for the manual
- The main subject of the manual
- A summary of the major topics
- The prerequisite level of knowledge for the reader
- A list of related and prerequisite publications

Order Numbers, File Numbers, and Subject Codes

Each VM/SP manual is identified on its cover and title page by a unique order number. To obtain a particular manual, you should use this number. It consists of three parts: the use key, the form number, and the revision level.



The use key is a letter that indicates the availability of the manual.

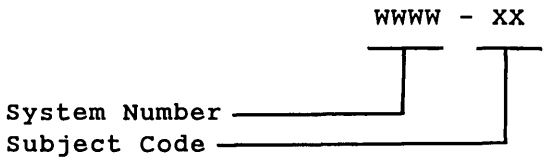
G, for *general*, means that the manual is available without charge to users of IBM systems.

S means that the manual is for *sale*.

L means that the manual is available only to *licensed* users of a particular program product.

The form number uniquely identifies the manual. The revision level helps to identify the current version of the manual. The first edition of a manual has a revision level of 0.

File numbers also appear on the cover and title pages of most VM/SP system manuals. These numbers are designed to aid filing in customer libraries and as an easy reference into the system bibliography. The file number consists of two parts: the system number and the subject code.



The system number for the VM/SP library is S370/4300.

Library-Related Services

Bibliography

The *IBM System/370 and 4300 Processors Bibliography*, GC20-0001, lists and provides abstracts of the publications available to help you set up, use, and maintain your library. The abstracts consist of brief descriptions of the purpose, scope, and intended readers for each publication listed. The *Bibliography* also lists manuals by subject codes.

System Library Subscription Service (SLSS)

The System Library Subscription Service (SLSS) is an automatic updating service for technical documentation. You can subscribe to documents in two ways: by document order number or by profile. Either method requires the SLSS order form, Z120-1816.

You should order a document by its order number when you need many copies or when the document (for example, program listing, logic manuals, or unlicensed application program literature) is not available through the profile service. Whenever IBM releases a major revision or technical newsletter pertaining to the ordered document, SLSS subscribers automatically receive copies.

The profile service allows you to obtain documents by identifying areas of interest, including major systems, specific subjects as identified by subject codes, revisions and updates to documents in the profile, in addition to new publications in your expressed areas of interest.

To discontinue this subscription service for either individual manuals or particular subjects, you must fill out a revised SLSS order form.

For additional information on SLSS, see *Entering an SLSS Subscription,* G320-1561, or your IBM marketing representative.

Technical Newsletters (TNLs) and Revisions

Technical Newsletters (TNLs) update and correct existing manuals. A TNL consists of two parts: a cover letter listing the changes to the manual and additional or replacement pages. New pages are added to the manual in question; replacement pages are substituted for affected pages in the manual.

Revision takes place when the current stock of a manual to which TNLs have been issued is exhausted, or when there are major changes to be made in the content of the manual.

IBM automatically sends TNLs and major revisions to users who request the base document from the System Library Subscription Service.

Revision Bars

When a manual is revised, or a TNL is issued, the entire contents of the book are not usually changed. Any material in the book that is new, or any text that has been changed is marked with revision bars. Revision bars appear to the left of the changed text, and provide a quick way to find the new or changed information.

Reader's Comment Forms

A postpaid reader's comment form, included at the back of most IBM manuals, allows you to make comments about the manual or to suggest improvements to it. Users in countries other than the United States can submit their comments free by giving them to their IBM representative, who will forward them. Manuals that will not be updated or revised may not contain this form.

Chapter 2. VM/SP Glossary

This glossary defines terms that have special meaning in VM/SP publications. It includes terms and definitions from the *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems*, GC20-1699.

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. *Synonymous with* primary user disk. *See also* D-disk, CMS system disk, virtual disk, S-disk, and Y-disk, which have special uses; all other disks (B,C, E-R, T-X, and Z are optional user disks.

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/SP, 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/SP, 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.

area. Term acceptable when there is no need to differentiate between DASD space on count-key-data devices or FB-512 devices.

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

attached processor. A processor that has no I/O capability. An attached processor is always linked to the processor initialized for I/O handling. Note that VM/SP High Performance Option also supports real multiprocessor (MP) configurations on the 158MP, 168MP, and 3033MP processors, and the 3081 dyadic processor.

attached processor operation. In this mode, VM/SP 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 main 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/SP system operator's virtual machine is activated automatically during VM/SP 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

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/SP, 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

central site/system. The main installation with skilled system support personnel such as system programmers and operations staff.

#CP:. *Synonym for* escape to CP.

CCS. *See* console communication services.

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 discontiguous, that are currently assigned to a CMS disk file.

channel-set switching. A facility used in some 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/SP 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.

class A user. *See* primary system operator privilege class.

class Any user. A subset of CP commands used to: log on to VM/SP, 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 hardware feature (required by VM/SP) that causes an interruption when the time-of-day clock has equaled or exceeded the value specified by a program or virtual machine.

CMS. *See* 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 discontiguous saved segment. *See also* discontiguous segment.

CMS/DOS. Refers to the VSE simulation mode available in CMS. The VSE simulation mode becomes active when the CMS command SET DOS ON is issued. *Synonymous with* DOS simulation under CMS.

CMS/DOS phase library. *See* DOSLIB library.

CMS Editor. A 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 EXEC. *See* EXEC entries.

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 any letter from A through Z. *Synonymous with* master file directory block.

CMS files. This term refers exclusively to files that are in the fixed-block format used by CMS file system commands. VSAM and OS data sets and DOS files are not compatible with the CMS file format and cannot be manipulated using CMS file system commands. Note that "disk", "minidisk" , and "virtual disk" are used interchangeably to indicate disks that are in your CMS virtual machine configuration. Where necessary, a distinction is made between CMS-formatted disks and disks that are in OS or DOS format.

CMS-formatted disk. Is one that is formatted to be used specifically with the CMS file system macros. It does not contain a VTOC and is incompatible with OS and DOS formatted disks. OS and DOS access methods cannot be used directly with CMS formatted disks.

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.

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 that 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/SP 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 communication services. A group of CP modules that interfaces with the VTAM service machine, providing full VM/SP console capabilities for SNA terminal users.

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 spooling. *See* virtual console spooling.

console stack. A general term used to refer collectively to a program stack and a terminal input buffer. The term console stack is used when there is no need to distinguish between the two stacks. *See also* program stack, 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/SP 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 operating system.

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 that operates only under the control of the VM/SP control program.

copy function. In VM/SP, 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. *See* Control Program.

CP assist. A hardware function available only on a processor that has Extended Control-Program Support (ECPS), 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/SP 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 in 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/SP, 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/SP; 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 hardware feature that measures elapsed processor time and causes an interruption when a previously specified amount of time has elapsed. The CPU timer is decremented when the processor is executing instructions, is in a wait state, and is executing program loading instructions, but not when the processor is in a stopped state. A virtual machine that uses the CPU timer must have the ECMODE and REALTIMER options active.

cross memory service. This MVS/SP facility is a standard hardware feature on the IBM 3081 processor complex. It increases communication efficiency between address spaces. To implement cross memory services on the IBM 3033 processor, the processor must have virtual machine assist with the 3033 extension feature (#6850) as well as the virtual machine assist RPQ. *Synonymous with* dual address space assist.

current line pointer. A pointer that indicates the line of a CMS file on which the CMS Editor and/or the System Program Editor (XEDIT) is currently working.

cylinder. A term used to describe specific space on count-key-data direct access storage devices.

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/SP, 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.

DASD space. (1) Area allocated to DASD units on count-key-data devices. (2) Area allocated to DASD units on FB-512 devices. Note that "DASD space" is synonymous with "cylinder" when there is no need to differentiate between count-key-data devices and FB-512 devices. This term applies to VM/370, as well as to the VM/SP and VM/SP High Performance Option program products.

DCSS. *See* discontiguous saved segment.

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

deadline priority. 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, and the load on the system as well as on 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/SP 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 editors (EDIT and XEDIT) 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/SP, 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.

device support facilities. A virtual disk initialization program operating under OS/VS1, OS/VS2 MVS, DOS/VSE and as a stand-alone program under a native or virtual machine environment. It can initialize a direct-access storage volume so that it can be used in an OS/VSE system, inspect a volume for defective tracks, reformat the volume label and IPL bootstrap and program records, and examine a device with a nonremovable storage mechanism to determine if there are problems with the drive or with reading and writing data stored on the volume.

DIAGNOSE interface. Under VM/SP, a programming mechanism that allows any virtual machine, including CMS, to communicate directly with CP via the 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/SP 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. Note that with the single console image facility (SCIF), a user can be disconnected from a primary virtual console but still have console communications via the console of the secondary user.

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. *Synonymous with* discontiguous segment.

discontiguous segment. A 64K segment of storage that was previously loaded and saved and assigned a unique name. The segment(s) can be shared among virtual machines if the segment(s) 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/SP, a list of those virtual machines that are executable and currently competing for a time slice of processor 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. A type of editing at a display terminal in which an entire screen of data is displayed at once and in which the user can access data through commands or by using a cursor. *Synonymous with* full-screen editing. *Contrast with* line mode editing.

display paging. A technique used for scanning through a CMS file on a display terminal in display mode. When using the CMS Editor, scanning can include up to 20 lines at a time. When using the System Product Editor (XEDIT), use the BACKWARD or FORWARD subcommands; if a number is not given with either subcommand, only one screen is shown.

Distributed Data Processing (DDP). The operation a a network of interconnected processors/systems each capable of independent operation. These processors/systems are linked so it is not necessary, to store all data and programs at any site. Authorized users of such a network can use the facilities of any part of this network. Such use can either be intentional or transparent to the user; that is the user might intentionally request service from a remote system or a user's request for data or program might automatically be routed to the appropriate part of the network by that system.

distributed logical operator. A virtual machine at the distributed system to which machine intervention requests are sent. There is a machine attendant who mounts forms and tapes, and turns the power on/off for that site.

distribution code. In the VM/SP 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.

Document Composition Facility (DCF). A text processing program; its main component is the text formatter, called SCRIPT/VS. *See* SCRIPT/VS.

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.

double key protection. This program support associates each 2k block of real storage with with two storage protect keys. Two keys are needed to protect a 4k frame.

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

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

dual address space assist. *Synonym for* cross memory service.

dyadic processor. A processor complex comprising two processors in one unit. Both processors share central storage, are controlled by a single operating system, communicate directly with each other, execute I/O operations through a common element, and can run with one central processor if the other is removed from the configuration because of an error. A dyadic processor cannot be configured into two independent uniprocessor units. Note that each processor has access to its own assigned channel set of up to 16 channels.

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

Early Warning System (EWS). An information system for getting information pertaining to programming problems to the field. The information includes :

- programming symptom index (PSI)
- APAR list
- programming symptom index text
- miscellaneous program support information such as PTF application charts, PTF-to-APAR cross-reference list, etc.

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

edit macro. A special CMS EXEC or EXEC 2 file that allows the user to invoke complex sequences of EXEC or EXEC 2 control statements and CMS EDIT and/or System Product editor (XEDIT) subcommands via a single command.

edit mode. The environment in which use of CMS EDIT subcommands and/or System Product editor (XEDIT) subcommands can be issued by the user to insert, change, delete, or rearrange the contents of a CMS file. *Contrast with* input mode.

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

error recording area. This term refers to the DASD space that the system programmer defines during system generation on the system residence volume that CP uses to record formatted outboard error recordings, machine check records, and channel check records. For count-key-data devices, this area is between 2 and 9 contiguous cylinders in size; for FB-512 devices, the size of this area can be any number of contiguous pages.

escape symbol. *Synonym for* logical escape symbol.

escape to CP. Under VM/SP, 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. *See* Early Warning System.

EXEC and EXEC 2 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 and EXEC 2 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/SP system; or to create output files via the user's virtual punch.

EXEC and EXEC 2 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.

Note: EXEC and EXEC 2 are not synonymous. Although the majority of commands are common to both EXEC and EXEC 2, each EXEC language has some commands and functions that are unique to it and unmatched in the other.

executable phase library. *See* DOSLIB library.

executable statement. In an EXEC or EXEC 2 procedure, any statement that is processed by the EXEC and/or EXEC 2 interpreter. This may be (1) an EXEC and/or EXEC 2 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 processor that has Extended Control-Program Support (ECPS), 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 (ECPS:VM/370). 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. ECPS:VM/370 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

favored 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.

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.

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/SP 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 CMS file identifier field comprising the filemode letter (A through Z) followed by the filemode number (0 through 5). The filemode letter indicates the CMS file directory on which the file resides and whether or not the disk is a user virtual disk or a CMS system disk. The filemode number indicates the access mode of the disk. *See also* file access mode.

filename. A 1- to 8-character alphameric field, comprised of A-Z,0-9, and special characters $ # @ + - (hyphen) : (colon) _ (underscore), 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, comprised of A-Z,0-9, and special characters $ # @ + - (hyphen) : (colon) _ (underscore), 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/SP *synonym for* alternating operating system.

force start. A VM/SP 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. *See* file system control block.

FST. *See* file status table.

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

I

IBM Virtual Machine/System Product (VM/SP). A program product that manages the resources of a single computing system so that multiple computing systems (virtual machines) appear to exist. VM/SP consists of a Control Program (CP), which manages the real computer and a Conversational Monitor System (CMS), which is a general-purpose conversational time-sharing system that executes in a virtual machine. Note that former VM/370 users continue to have 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.

Note: Since RSCS and IPCS were not modified to support some VM/SP functions, the RSCS Networking Program Product (5748-XP1) and the IPCS Extension Program Product (5748-SA1) are recommended for use with VM/SP.

ID card. Under VM/SP, 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 or an EXEC 2 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. Thus, if warm start is not possible, the VM/SP 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.

in-memory file. EXEC 2 term which is similar in concept to a file on disk, but is resident in storage.

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 or System Product Editor (XEDIT), 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/SP system that exercises the newly generated VM/SP system to verify that the basic facilities of VM/SP are functioning correctly.

installed user program (IUP). A licensed program produced by or for an individual IBM system user (customer or IBM internal). This kind of program may interface with program products, system control programming, currently available Type I, II, or III programs, or it may be a stand-alone program.

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 FE, an I/O error record is constructed, formatted, and written to the VM/SP 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.

Note: VM/SP users should use the IPCS Extension Program Product (5748-SA1).

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.

inter-user communication vehicle (IUCV). A VM/SP generalized CP interface that facilitates the transfer of messages either among virtual machines or between CP and a virtual machine.

IPCS. *See* interactive problem control system.

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

IUCV. *See* inter-user communication vehicle.

IVP. *See* installation verification procedure.

J

JIB. In CMS/DOS, job information block.

L

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. The mode of operation of a display terminal that is equivalent to using a typewriter-like terminal. When the CMS Editor is used, the terminal displays a chronological log of the CMS EDIT subcommands entered, the lines affected by the editing (unless that is suppressed), and the system responses. When the System Product Editor (XEDIT) is used, full screen editing is the norm but line mode can be used instead. *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 alphameric name that identifies a telecommunications link.

linking to a disk. In VM/SP, sharing a 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.

locationid. In RSCS, a 1- to 8-character alphameric 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 that 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.

logical operator. The name given to the virtual machine from which OPERATOR functions requested by the Programmable Operator Facility virtual machine are performed. This name also may describe the person who normally operates the Logical Operator virtual machine.

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.

M

machine. A synonym for a virtual machine running under the control of VM/370 or VM/SP.

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 and still be recognized by VM/SP. For example, AC is the minimum truncation for the ACCESS command. However, note that 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/SP, 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.

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

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

MVS page fault assist. This is a standard hardware feature on the IBM 3081 processor complex that reduces the time needed by the MVS/SP virtual machine to handle page translation exception interruptions. The MVS/SP V=R guest gets these interruptions the first time certain tasks access storage using the GETMAIN macro instruction. The virtual machine assist extension for the IBM 3033 extension feature (#6850) must be in place so that the user may obtain MVS/SP page fault assist on the IBM 3033 processor.

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 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/SP.

non-disruptive transition. A facility that enables an installation to transfer control of an operating system from VM/SP virtual machine mode to native mode (and vice versa) without having to shut down and reinitialize 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.

non-IPL processor. In an AP or a MP system, the attached or second processor initialized at system generation time. Note that both the IPL processor and the non-IPL processor in a real MP configuration have I/O capabilities.

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).

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/SP, 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 otherwise unavailable.

NPT. Nonprogrammable terminal.

NUCON. The nucleus constant area of (CMS) which is invoked via the NUCON macro.

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/SP, 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.

O

OLTS. On Line Test Sections. A program used by IBM custom engineers (CE) for I/O maintenance.

OLTSEP. On Line Test Standalone Executive Program. A program used by IBM custom engineers (CE) for I/O maintenance.

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/SP system that supports the VM/VS Handshaking feature and if the OS/VS1 address space is equal to the size of its VM/SP 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 processor 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 0 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/SP, a 1- to 8-character symbol that the user is required to supply at the time he logs on to identify himself to VM/SP. 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.

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/SP.

PFnn keys. Special keys available on display terminals that 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.

physical unit block (PUB). In a VSE system, an entry in a table containing the channel and device address of a device. There is a physical unit block for each and every physical device available in the system.

PLIST. *See* 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.

predefined function. *Synonym for* EXEC built-in function.

preferred machine assist. This term refers to the hardware feature of the IBM 3081 processor complex that improves MVS/SP (Release 1 enhancement, or later) V=R machine performance. It is also an optional feature on the IBM 3033 processor. The MVS/SP guest virtual machine thus operates in supervisor state with direct control of its own I/O operations under VM/SP High Performance Option. Note that preferred machine assist, is an extension of virtual machine assist, which eliminates CP simulation of certain instructions and interruptions.

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

prefix area. The five left-most positions on the System Product Editor's full screen display, in which prefix subcommands may be entered. *See* prefix subcommands.

prefix subcommands. System Product editor subcommands that are entered in the prefix area of any line on a full screen display. *See* prefix area.

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/SP 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/SP system, and can enable and disable teleprocessing lines, lock and unlock pages, force users off the VM/SP system, issue warning messages, query, set (and reset) performance options for selected virtual machines, and invoke VM/SP 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/SP 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/SP 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/SP. *See also* virtual machine assist.

problem state. A state during which the central processing unit cannot execute I/O and other privileged instructions. VM/SP 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 stack. Part of the console stack; lines transmitted by programs through the CMS ATTN function are placed in the program stack. *See also* console stack.

program update tape (PUT). A vehicle for system maintenance which contains service for the SCP and/or the VM/System Product. It is customized to contain service for only those products listed in the PID user profile. A PUT may be one or more physical tape volumes.

programmable operator facility (PROP). This facility enables automatic filtering and routing of messages from a specified virtual machine (for example the operator) to a Logical Operator virtual machine, resident locally, or at another node in the network. The programmable operator facility also permits installation defined actions to be performed automatically.

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

programmed symbols. A VM/SP feature that allows definition of user-indicated shapes and/or symbols.

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/SP timing facility that provides date, time, virtual processor and total processor time information to a virtual machine.

PUB. *See* physical unit block

PUT. *See* program update tape.

Q

queue drop elimination. VM/SP performance option that eliminates the dropping of a virtual machine from the active queue if the virtual machine is determined to be idle.

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 upon 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). 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 processor and/or main storage errors that are corrected or circumvented by hardware RETRY or error correction code logic are not recorded on the VM/SP 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 operator console facility. A 4300 Series Processor Support Processor microcode function that permits communication from a remote console (for functions like IML or IPL) using a switched line. The VM/Pass-Through Facility program provides a communication vehicle which allows any of its supported display stations to serve as this remote console.

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.

Note: VM/SP users should use the RSCS Networking Program Product (5748-XP1).

reserved filetypes. (1) Filetypes recognized by the CMS editors (EDIT and XEDIT) 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 processor 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.

reverse video. Color display terminal highlight feature.

ring of files. The arrangement of files in virtual storage when multiple files are being edited by the System Product editor.

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. *See* Rotational position sensing.

rotational position sensing (RPS). A standard or optional feature of most IBM disk storage devices that permits these devices to disconnect from a block multiplexer channel (or its equivalent on Model 3115/3125 processing units) during rotational positioning operations, thereby allowing the channel to service other devices.

RSCS. *See* Remote Spooling Communications Subsystem.

RSF. The 4300 Processors contain a TP Port which is used for remote activity via a dial-up line. The port may be used to access a centrally located data bank containing information useful in diagnosing and fixing system hardware or software problems. You can operate the 4300 processor from a RETAIN or IBM 3275-2 display station.

RUNNING screen status. For a display terminal used as a virtual console under VM/SP, 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/SP, the virtual machine in the dispatch list that is currently executing.

S

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.

scale. A line on the System Product editor's (XEDIT) full screen display, used for column reference.

SCIF. *See* Single Console Image Facility.

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/SP, 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, and VM READ screen status.

SCRIPT. *See* SCRIPT/VS.

SCRIPT/VS. A document- and text-processing program that executes in the CMS command environment. SCRIPT/VS is a component of the IBM Document Composition Facility program product 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. In the System Product Editor (XEDIT), use of the Backward and/or Forward subcommands accomplishes the same scanning technique. However, if a number is not specified with either subcommand, only one screen is displayed.

secondary user. When a user is disconnected -- that is, has no virtual console on line -- a secondary user may be designated to receive the disconnected user's console messages and to issue commands to the disconnected user's console.

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/SP 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.

segment protect. This hardware feature is available on the IBM 3081 processor complex. It provides protection for shared segments at the hardware level.

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, discontiguous 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 console image facility (SCIF). (1) Enables a user, who is disconnected from a primary virtual console, to continue to have console communications via the console of the secondary user. *See also* secondary user. (2) Enables a virtual machine operator to control multiple virtual machines from one physical terminal.

single key protection. This program support associates each 4k block of real storage with one storage key. Only one key is needed to protect a 4k frame.

single key storage. Real storage composed of storage frames that are protected by one storage key per 4k frame rather than two storage keys per 4k frame.

single processor mode. 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/SP runs in uniprocessor mode in the main processor, and the MVS V=R virtual machine runs under VM/SP 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/SP concurrently with the MVS V=R virtual machine in single processor mode. Single processor mode should not be confused with VM/SP 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. *See* 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 or EXEC 2 interpreter. The values of EXEC or EXEC 2 special variables can be tested in an EXEC or EXEC 2 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 an asterisk (*).

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

spool file tag. In VM/SP, 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 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/SP 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 includes frames that 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 also* console stack; program stack.

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

storage key. A four-bit control field associated with either 2k or 4k blocks of real storage.

storage levels. Three levels are available: first-level storage, which is real main storage; second-level storage, which is the storage that appears to be real to a virtual machine; and third-level storage, which is the virtual storage created and controlled by a virtual machine.

subcommand. The commands of processors such as EDIT or System Product Editor (XEDIT) 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/SP, 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/SP to record the error incidents encountered by certain operating systems running in a virtual machine under VM/SP. When the virtual operating system issues SVC 76, VM/SP translates the virtual storage and I/O device addresses to the real ones, records the information on the VM/SP 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.

system analyst privilege class. The CP privilege class E user, normally the VM/SP 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 macro instructions that describe the CP system residence disk, the real main storage size, the CP-owned DASD volumes, the VM/SP 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 the processor and storage.

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

system product editor. The CMS facility, comprising the XEDIT command and XEDIT subcommands and macros, that allows a user to create, modify, and manipulate CMS disk files.

system programmer privilege class. The CP privilege class C user; normally, the VM/SP 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 drives, 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

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.

target. One of several ways to identify a line to be searched for by the System Product editor. A target may be specified as an absolute line number, a relative displacement from the current line, a line name, or a string expression.

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

temporary disk. In VM/SP, 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. Part of the console stack; lines typed at the terminal are placed in this buffer.

terminal session. The period of time from logon to logoff when a user and his virtual machine can utilize the facilities of VM/SP and/or his operating system. This also includes any period of 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/SP.

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 VSE, OS/VS, or VM/SP 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 hardware feature that is required by VM/SP. The TOD clock is incremented once every microsecond, and provides a consistent measure of elapsed time suitable for the indication of date and time; it runs regardless of the processor state (running, wait, or stopped).

timeout, logon. For a terminal that is attempting to log on to VM/SP 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/SP 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 processor 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.

typewriter terminal. This term refers to printer-keyboard devices that produce hard-copy output only, such as: the IBM 2741 Communication Terminal; the IBM 3215 Console Printer-Keyboard; the IBM 3767 Communication Terminal, Model 1 or 2, operating as a 2741. This term also refers to the IBM 3101 Display Terminal operating as a 2741.

U

uniprocessor mode. In VM/SP, this term indicates that there is only one processor in the physical configuration, or that VM/SP uses the facilities of one processor in an attached processor or multiprocessor system. The system operator can alter the VM/SP 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. User Program Switch Indicator which allows you to set switches that can be tested by the program in CMS/DOS.

user disk. *See* CMS user disk.

user identification (userid). A 1- to 8-character alphameric 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, EXEC, or EXEC 2. 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.

Note: EXEC and EXEC 2 are not synonymous.

V

vaddr. Virtual device address.

variable symbol. In a CMS EXEC and/or EXEC 2 procedure, a symbol beginning with an ampersand (&) that is assigned a value by the user, or in some cases by the CMS EXEC or EXEC 2 interpreter. The value of variable symbols may be tested and changed using EXEC and/or EXEC 2 control statements. *See also* special variable.

verification setting. When using the CMS Editor, XEDIT, 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 that 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 print records of up to 151 characters in length. The virtual device type and I/O device address are normally defined in the VM/SP directory. *See also* spool file class, universal class card reader.

virtual console. A 3210, 3215, 1052, or 3270 system console simulated on a communications terminal (such as a 2741 or 3278) by CP. The virtual device type and I/O address are defined in the VM/SP 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/SP directory entry as belonging to some user. *Synonymous with* minidisk.

virtual disk initialization program. *See* device support facilities (DSF).

virtual interval timer assist. A hardware assist function, available only on a processor 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, which you control from your terminal. (2) In VM/SP, a functional equivalent of an IBM System/370 computing system. Each virtual machine is controlled by a suitable operating system. VM/SP controls the concurrent execution of multiple virtual machines on a single System/370.

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

virtual machine control block (VMBLOK). 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 processor registers, preferred virtual machine options currently in effect, and information concerning all other significant activities.

virtual machine/VTAM communications network application (VM/VCNA). A program that runs in the VTAM service machine. VM/VCNA controls the physical appearance of the screen when displaying output on a VM/SP terminal attached to a SNA network.

Virtual Machine/System Product (VM/SP). A program product that controls virtual machines.

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/SP directory entry for that virtual machine.

virtual=real area. In VM/SP, 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/SP system generation to contain the largest virtual=real machine that is likely to run. *See also* virtual=real option.

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

virtual reserve/release. In VM/SP, a function that allows several operating systems such as MVS, SVS, VS1, and VM/SP itself to all run as virtual machines under the same VM/SP 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/SP 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/SP 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.

virtual storage access method (VSAM). An access method for direct or sequential processing of fixed and variable-length records on direct access devices. The records in a VSAM data set or file can be organized in logical sequence by a key field (key sequence), in the physical sequence in which they are written on the data set or file (entry-sequence), or by relative-record number.

VM/370 hardware assist. This term refers to both the virtual machine assist function and the VM/370 Extended Control-Program Support. Some form of the VM/370 hardware assist is available on all VM/370 supported System/370 systems except the 155 II, 165-III, and 4341 2.

VMBLOK. *See* Virtual machine control block.

VMCF. *See* 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/SP, 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/SP. *See* Virtual Machine/System Product.

VM/SP 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/SP 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/VCNA. *See* virtual machine/VTAM communications network application.

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

V=R. *Synonym for* virtual=real.

volid. The volume identification label for a disk.

VSAM. *See* virtual storage access method.

VSE. The generalized term to indicate the combination of the DOS/VSE system control program and the VSE/Advanced Functions program product. Note that in certain cases, the term DOS is still used as a generic term; for example, disk packs initialized for use with VSE or any predecessor DOS or DOS/VS system may be called DOS disks. Also note that the DOS-like simulation environment provided under the VM/SP CMS component and CMS/DOS exist on VM/SP and VM/SP High Performance Option program product and continues to be referred to as CMS/DOS.

VSM. This term refers to the VTAM Service Machine which is a virtual machine. *See* VTAM service machine.

VTAM service machine (VSM). A virtual machine that contains an operating system (OS/VS1 or DOS/VSE), an access method (ACF/VTAM or ACF/VTAME), and VM/VCNA. VSM forms the interface for SNA communication in VM/SP.

W

warm start. (1) The result of an IPL that does not erase previous system data. (2) The automatic reinitialization of the VM/SP control program that occurs if the control program cannot continue processing. Closed spool files and the VM/SP 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.

X

XEDIT. *See* system product editor.

XEDIT macro. An EXEC 2 file, whose filetype is XEDIT, that is invoked from the System Product editor environment. It allows a user to execute a sequence of XEDIT subcommands, EXEC 2 control statements, and CMS/CP commands via a single command.

XEDIT profile macro. A special XEDIT macro with a filename of PROFILE and a filetype of XEDIT that can be created by a user. It is executed automatically when an XEDIT command (or subcommand) is issued.

XMEM. This option enables MVS cross memory services for the MVS/SP virtual machine. When specified, the MVS/SP V=R user can use the System/370 extended facility enhancements and cross memory services implemented in Release 3 and all subsequent releases of MVS/SP. The IBM 3033 processors equipped with the 3033 extensions feature and the 3081 processor complex support cross memory services (XMEM). Cross memory is initiated when it is present on either or both processors of an attached processor or multiprocessor system. The MVS/SP guest virtual machine thus operates in supervisor state with direct control of its own I/O operations under VM/SP High Performance Option.

Y

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

Z

zone-setting. In the CMS Editor, a number range that specifies the positions within each data line that can be scanned and edited. In the System Product Editor, the starting position and ending position (columns) of each record within which the editor searches for targets.

Chapter 3. Summary of VM/SP Operands for Commands

This chapter 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/SP. Lowercase variables to commands and other commonly used operands are not included. It references the books where these these operands are described.

Master Index Table

To enable you to use the VM/SP Master Index with ease, the following table lists the abbreviations used in the index for each of the VM/SP publications, the title of the publication, and the document order number for each publication.

Abbreviation	Title	Order Number
CMSREF	*CMS Command & Macro Reference*	SC19-6209
CMSUG	*CMS User's Guide*	SC19-6210
CPREF	*CP Command Reference for General Users*	SC19-6211
EXEC2	*EXEC 2 Reference*	SC24-5219
GIM	*General Information Manual*	GC20-1838
INTRO	*Introduction*	GC19-6200
IPCSUG	*Interactive Problem Control System (IPCS) User's Guide*	GC20-1823
OLTSEP	*OLTSEP & Error Recording Guide*	SC19-6205
OPGDE	*Operator's Guide*	SC19-6202
OSVM	*Operating Systems in a Virtual Machine*	SC19-6212
PRIMER	*CMS Primer*	SC24-5236
RSCSUG	*Remote Spooling Communications Subsystem (RSCS) User's Guide*	GC20-1816
SPG	*System Programmer's Guide*	SC19-6203
SYSGEN	*Planning & System Generation Guide*	SC19-6201
SYSMSG	*System Messages and Codes*	SC19-6204
TUG	*Terminal User's Guide*	SC19-6206
XEDIT	*System Product Editor Command and Macro Reference*	SC24-5221
XEDITUG	*System Product Editor User's Guide*	SC24-5220

The VM/SP Master Index itself is listed in hierarchical and alphabetical sequence. The hierarchical listings do not have a prefix character separating the list. Each alphabetical section has its letter prefixing the listing. If any letter of the alphabet is missing, it means there was no listing that began with the missing letter in any of the publications.

Note: The subjects listed for RSCSUG and IPCSUG are at the VM/370 Release 6 level of these publications. If your installation has the RSCS Networking Program Product (5748-XP1) or the IPCS Extension Program Product (5748-SA1) implemented, you should use the cumulative index that accompanies each of those program products.

For your convenience, there is a copy of this Master Index Table in fold out form at the back of this publication.

.BX (BOX) format word of HELP command CMSUG,CMSREF
.CM (COMMENT) format word of HELP command CMSUG,CMSREF
.CS (CONDITIONAL SECTION) format word of HELP command CMSUG,CMSREF
.FO (FORMAT MODE) format word of HELP command CMSUG,CMSREF
.IL (INDENT LINE) format word of HELP command CMSUG,CMSREF
.IN (INDENT) format word of HELP command CMSUG,CMSREF
.OF (OFFSET) format word of HELP command CMSUG,CMSREF
.SP (SPACE) format word of HELP command CMSUG,CMSREF
.TR (TRANSLATE) format word of HELP command CMSUG,CMSREF

&$ 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
&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
&GLOBAL EXEC special variable CMSREF
&GOTO EXEC control statement CMSUG,CMSREF
&HEX EXEC control statement CMSREF
&IF EXEC control statement CMSUG,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
&NAME subcommand of DUMPSCAN command IPCSUG
&PUNCH EXEC control statement CMSREF
&READ EXEC control statement CMSREF
&READFLAG EXEC special variable CMSREF
&RETCODE EXEC special variable CMSREF
&SKIP EXEC control statement CMSUG,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 CMSUG, CMSREF
MACROS edit macro CMSUG
MARK edit macro CMSUG
MOVE edit macro CMSUG
POINT edit macro CMSUG

***** command CPREF

? edit subcommand CMSUG
subcommand of DUMPSCAN command IPCSUG

#CP command TUG, CPREF

= edit subcommand CMSUG

A

a, operand of LISTIO command CMSREF
ABBREV operand of QUERY command CMSREF
operand of SET command CMSREF
ABEND operand of BUILD macro SYSGEN
operand of STAT command IPCSUG
ACC operand of CPEREP command OLTSEP
ACCESS command CMSREF
ACCOUNT control statement OPGDE, SYSGEN
ACCT option of OPTION control statement OPGDE, SYSGEN
ACK option of NOTE command CMSREF
option of SENDFILE command CMSREF
ACNT operand of SET command CPREF
ACNT command OPGDE
ACTDV operand of SYSCNTRL macro SYSGEN
ACTIVE operand of QUERY command OPGDE, RSCSUG
ADAPTER operand of RDEVICE macro SYSGEN
ADD operand of MACLIB command CMSREF
option of NOTE command CMSREF
operand of TXTLIB command CMSREF
ADDRESS operand of LINE macro SYSGEN
operand of RCHANNEL macro SYSGEN
operand of RCTLUNIT macro SYSGEN
operand of RDEVICE macro SYSGEN
ADSTOP command CPREF, OLTSEP
AFFINITY operand of QUERY command OPGDE
operand of SET command CPREF, OPGDE
option of OPTION control statement OPGDE, SYSGEN
ALIGN option of ASSEMBLE command CMSREF
ALIGN2 option of LKED command SYSGEN
ALL operand of ACNT command OPGDE
operand of CHANGE command CPREF, OPGDE
operand of DISABLE command OPGDE
operand of DRAIN command OPGDE
operand of DSERV command CMSREF

	operand of ENABLE command OPGDE
	operand of FLUSH command OPGDE, RSCSUG
	operand of FREE command OPGDE
	operand of HOLD command OPGDE
	operand of INDICATE command OPGDE
	operand of LISTIO command CMSREF
	operand of MESSAGE command OPGDE
	option of NUCXMAP command CMSREF
	operand of PURGE command CPREF, OPGDE, RSCSUG
	operand of QUERY command CPREF, OPGDE
	operand of SPTAPE command OPGDE
	operand of START command OPGDE
	operand of STAT command IPCSUG
	operand of TRACE command CPREF, RSCSUG
	operand of TRANSFER command CPREF, OPGDE
	operand of WARNING command OPGDE
	option of GENMOD command CMSREF
	option of HELP command CMSREF
	option of VMFDOS command SYSGEN
ALLOC	option of LISTFILE command CMSREF
ALLOCATE	control statement of FORMAT/ALLOCATE service aid OPGDE
ALOGIC	option of ASSEMBLE command CMSREF
ALTCH	operand of RCTLUNIT macro SYSGEN
ALTCONS	operand of RIOGEN macro SYSGEN
ALTCU	operand of RDEVICE macro SYSGEN
ALTER	edit subcommand CMSUG
AMSERV	command CMSUG, CMSREF
ANS	operand of BUILD macro SYSGEN
AP	operand of SYSCOR macro SYSGEN
APAR	operand of PRB command IPCSUG
APARED	operand of STAT command IPCSUG
APL	operand of TERMINAL command CPREF
APPEND	option of COPYFILE command CMSREF
	option of FILELIST command CMSREF
	option of LISTFILE command CMSREF
	option of LISTIO command CMSREF
	option of RDRLIST command CMSREF
AREA	operand of DMSFREE macro SPG
AREGS	subcommand of DUMPSCAN command IPCSUG
AS	operand of ATTACH command OPGDE
	operand of DEFINE command CPREF
	operand of LINK command CPREF
ASAP	operand of HNDINT macro CMSREF
ASMGEND	EXEC procedure SYSGEN
ASMXREF	operand of BUILD macro SYSGEN
ASM3705	command SYSGEN
ASSEMBLE	command CMSREF
ASSGN	command CMSUG, CMSREF
ASSIST	operand of SET command CPREF
ATTACH	operand of QUERY command OPGDE
ATTACH	CHANNEL command OPGDE
ATTACH	command OPGDE, OLTSEP
ATTN	operand of GROUP macro SYSGEN
	operand of TERMINAL command CPREF
ATTN	command TUG, CPREF, OLTSEP
ATTN	function CMSREF
ATTREST	operand of RDTERM macro CMSREF
AUTO	operand of SYSMON macro SYSGEN
	option of INCLUDE command CMSREF
	option of LOAD command CMSREF
AUTOCR	option of IPL command CPREF
AUTODISK	operand of MONITOR command OPGDE
AUTOLOG	command OPGDE
AUTOPOLL	operand of SET command CPREF
AUTOREAD	operand of SET command TUG, CMSREF
AUTOSAVE	edit subcommand CMSUG, CMSREF
AUXPROC	option of FILEDEF command SPG

B

BACKSPAC	command OPGDE, RSCSUG
BACKWARD	EDIT subcommand CMSUG, CMSREF
	XEDIT subcommand XEDIT
BASE	ZAP control record OPGDE
BASEADD	operand of RDEVICE macro SYSGEN
BEGIN	command TUG, CPREF
BFRPAD	operand of HOST macro SYSGEN
BFRS	operand of BUILD macro SYSGEN
BLIP	operand of QUERY command CMSREF
	operand of SET command CMSREF
BLKCT	operand of TAPESL macro CMSREF
BLKSIZE	option of FILEDEF command CMSREF
	option of FORMAT command CMSREF
	option of TAPE command CMSREF
BLOCK	option of FILEDEF command CMSREF
BLP	operand of FILEDEF command CMSREF
BMX	option of OPTION control statement OPGDE, SYSGEN
BOTH	operand of TRACE command CPREF
BOTTOM	EDIT subcommand CMSUG, CMSREF
	XEDIT subcommand XEDIT
BRANCH	operand of TRACE command CPREF
BREAK	subcommand of DEBUG command CMSUG, CMSREF
BSF	operand of TAPE command CMSREF
BSIZE	operand of FSCB macro CMSREF
BSR	operand of TAPE command CMSREF
BUFAD	operand of DISPW macro SPG
BUFFA	operand of LINEDIT macro CMSREF
BUFFER	operand of FSCB macro CMSREF
BUFFER	UNLOAD command OLTSEP
BUFFS	operand of SYSMON macro SYSGEN
BUFSIZE	option of ASSEMBLE command CMSREF
BUFSP	option of DLBL command CMSREF
BUILD	operand of GENERATE EXEC procedure SYSGEN
	operand of VMFBLD EXEC procedure SYSGEN
BUILD	macro SYSGEN
BYTES	operand of DISPW macro SPG

C

C	subcommand of DUMPSCAN command IPCSUG
CALOC	operand of DMSFRES macro SPG
CAMOD	option of SAVENCP command SYSGEN
CANCEL	operand of DISPW macro SPG
	option of NOTE command CMSREF
	operand of SPTAPE command OPGDE
CAPPEND	XEDIT subcommand XEDIT
CARD	option of EXECIO command CMSREF
CASE	edit subcommand CMSUG, CMSREF
CAT	option of DLBL command CMSREF
CAW	operand of DISPLAY command CPREF
	subcommand of DEBUG command CMSUG, CMSREF
CC	option of EXECIO command CMSREF
	option of NOTE command CMSREF
	option of PRINT command CMSREF
CCW	operand of TRACE command CPREF
CD	operand of DSERV command CMSREF
CDATA	operand of GROUP macro SYSGEN
CDELETE	XEDIT subcommand XEDIT
CFIRST	XEDIT subcommand XEDIT
CHANGE	EDIT subcommand CMSUG, CMSREF
	option of DLBL command CMSREF
	option of FILEDEF command CMSREF
	option of LABELDEF command CMSREF

XEDIT subcommand XEDIT
CHANGE command CPREF, OPGDE, RSCSUG
CHANNEL operand of ATTACH command OPGDE
operand of DETACH command CPREF, OPGDE
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LOGUID operand of SYSJRL macro SYSGEN
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	subcommand of DUMPSCAN command IPCSUG
MASK	operand of LOGON command CPREF
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MAXBFRU	operand of HOST macro SYSGEN
MAXDIAL	operand of RDEVICE macro SYSGEN
MAXSUBS	operand of LINEDIT macro CMSREF
MAXTEN	option of TAPPDS command CMSREF
MCALL	option of ASSEMBLE command CMSREF
MDISK	control statement OPGDE, SYSGEN
MEMBER	option of FILEDEF command CMSREF
	option of PRINT command CMSREF
	option of PUNCH command CMSREF
	option of TYPE command CMSREF
MERGE	operand of CPEREP command OLTSEP
MES	operand of CPEREP command OLTSEP
MESSAGE	command CPREF, OPGDE
MF	operand of LINEDIT macro CMSREF
Mhexloc	operand of STCP command OPGDE
Mhexloc1	operand of DCP command OPGDE
	operand of DMCP command OPGDE
MIGRATE	command SPG, OPGDE
MIN	operand of DMSFREE macro SPG
	operand of SLEEP command CPREF
MLhexloc	operand of STCP command OPGDE
MLhexloc1	operand of DCP command OPGDE
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MLOGIC	option of ASSEMBLE command CMSREF
MNEMONIC	operand of NCPDUMP command OPGDE
MOD	operand of CPEREP command OLTSEP
MODE	operand of RDTAPE macro CMSREF
	operand of SET command OPGDE
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	operand of TAPECTL macro CMSREF
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	operand of TERMINAL command CPREF
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MODEL	operand of TERMINAL macro SYSGEN
MODESET	operand of TAPE command CMSREF
MODIFY	operand of CHANGE command CPREF, OPGDE
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MODMAP	command CMSREF
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MOVEFILE	command CMSUG, CMSREF
MREGS	subcommand of DUMPSCAN command IPCSUG
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MSGNOH	command OPGDE
MShexloc	operand of STCP command OPGDE
MTALCST	macro SYSGEN
MTALIST	operand of GROUP macro SYSGEN
MTALIST	macro SYSGEN
MTAPOLL	macro SYSGEN
MTARTRY	operand of BUILD macro SYSGEN
MTATABL	macro SYSGEN
MThexloc1	operand of DCP command OPGDE
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	operand of CLOSE command CPREF
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NAMENCP	macro SYSGEN
NAMES	operand of QUERY command CPREF, OPGDE
NAMESYS	macro SYSGEN
NAME3800	macro SYSGEN
NCAL	option of LKED command SYSGEN
NCPBUFF	operand of NCPDUMP command OPGDE
NCPDUMP	command OPGDE
NE	option of LKED command SYSGEN
NEEDINFO	operand of PRB command IPCSUG
	operand of STAT command IPCSUG
NETWORK	command OPGDE, SYSGEN
NEW	option of SENDFILE command CMSREF
NEWDATE	option of COPYFILE command CMSREF
	option of RECEIVE command CMSREF
NEWFILE	option of COPYFILE command CMSREF
NEWNAME	operand of BUILD macro SYSGEN
NEXT	edit subcommand CMSUG, CMSREF
Nhexloc	operand of STCP command OPGDE
Nhexloc1	operand of DCP command OPGDE
	operand of DMCP command OPGDE
NL	operand of FILEDEF command CMSREF
NLhexloc	operand of STCP command OPGDE
NLhexloc1	operand of DCP command OPGDE
	operand of DMCP command OPGDE
nnnnn	edit subcommand CMSUG, CMSREF
NO	operand of START command CMSREF
NOACK	option of NOTE command CMSREF
	option of SENDFILE command CMSREF
NOALIGN	option of ASSEMBLE command CMSREF
NOALOGIC	option of ASSEMBLE command CMSREF
NOAUTO	option of INCLUDE command CMSREF
	option of LOAD command CMSREF
NOCC	option of PRINT command CMSREF
NOCHANGE	option of DLBL command CMSREF
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NOCLEAR	operand of CMSGEND EXEC procedure SYSGEN
	operand of IPL command CPREF, OPGDE
	option of INCLUDE command CMSREF
	option of LOAD command CMSREF
	option of XEDIT command XEDIT
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NOCOL1	option of TAPPDS command CMSREF
NOCONT	operand of SPOOL command CPREF
NOCTL	option of UPDATE command CMSREF
NODECK	option of ASM3705 command SYSGEN
	option of ASSEMBLE command CMSREF
	option of OPTION command CMSREF
	option of VMFASM EXEC procedure SYSGEN
NODISK	option of ACCESS command CMSREF
NODISP	option of EDIT command CMSREF
NODUMP	option of OPTION command CMSREF
NODUP	option of INCLUDE command CMSREF
	option of LOAD command CMSREF
NOEND	option of TAPPDS command CMSREF
NOEOF	operand of SPOOL command CPREF
NOEOV	option of FILEDEF command CMSREF
NOERASE	option of FORMAT command CMSREF
NOERRS	option of OPTION command CMSREF
NOESD	option of ASSEMBLE command CMSREF
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NOHEX operand of VMFDUMP command OPGDE, IPCSUG
NOHOLD operand of CHANGE command CPREF, OPGDE, RSCSUG
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operand of SPTAPE command OPGDE
NOINC option of UPDATE command CMSREF
NOINV operand of CMSGEND EXEC procedure SYSGEN
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NOIPL operand of LOGON command CPREF
NOLIBE option of INCLUDE command CMSREF
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NOLIBMAC option of ASSEMBLE command CMSREF
NOLIST option of ASM3705 command SYSGEN
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option of OPTION command CMSREF
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NOLISTX option of OPTION command CMSREF
NOLOAD operand of GENERATE EXEC procedure SYSGEN
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NOLOG operand of CMD command RSCSUG
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NOMAP operand of GENMOD command CMSREF
operand of VMFDUMP command OPGDE, IPCSUG
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NOMAXTEN option of TAPPDS command CMSREF
NOMCALL option of ASSEMBLE command CMSREF
NOMLOGIC option of ASSEMBLE command CMSREF
NONSHARE operand of SET command CMSREF
NONUM option of ASSEMBLE command CMSREF
NOOBJECT option of ASSEMBLE command CMSREF
NOPDS option of TAPPDS command CMSREF
NOPRINT option of ASM3705 command SYSGEN
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NOPROF option of ACCESS command CMSREF
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NOPROMPT option of COPYFILE command CMSREF
NOREC operand of FSCB macro CMSREF
NORENT option of AMS3705 command SYSGEN
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NOSAVE option of GEN3705 command SYSGEN
NOSCreen option of LOAD subcommand XEDIT
NOSEP operand of START command OPGDE
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NOSPECS option of COPYFILE command CMSREF
NOSTD option of SYNONYM command CMSREF
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NOSYM operand of CHANGE command CPREF
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NOSYS operand of CHANGE command CPREF
NOTAG option of READ subcommand XEDIT
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NOTERM operand of SPOOL command CPREF
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NOTEST option of ASSEMBLE command CMSREF
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NOUPDIRT option of RENAME command CMSREF
NOVIRT operand of VMFDUMP command OPGDE, IPCSUG
NOWTM option of TAPE command CMSREF
NOXREF option of ASM3705 command SYSGEN
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NShexloc operand of STCP command OPGDE
NSL operand of FILEDEF command CMSREF
operand of TAPEMAC command CMSREF
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NThexloc1 operand of DCP command OPGDE
operand of DMCP command OPGDE
NUCLEUS operand of GENERATE EXEC procedure SYSGEN
NUM operand of GENTAGQ macro SYSGEN
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OBJECT option of ASSEMBLE command CMSREF
OBJLIB operand of BUILD macro SYSGEN
OBR reports OLTSEP
OBTAIN operand of LOCK macro SPG
OFFLINE operand of QUERY command OPGDE
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OL option of LKED command SYSGEN
OLD option of SENDFILE command CMSREF
OLDDATE option of COPYFILE command CMSREF
OLT operand of BUILD macro SYSGEN
ONLINE operand of VARY command OPGDE
ONLY operand of GENERATE EXEC procedure SYSGEN
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PACK option of COPYFILE command CMSREF
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PAGEX operand of SET command CPREF
PAGING operand of INDICATE command OPGDE
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PARM operand of IPL command CPREF
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PD operand of DSERV command CMSREF
PDS operand of MOVEFILE command CMSREF
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PERFORM operand of STAT command IPCSUG
PERM control statement of FORMAT/ALLOCATE service aid OPGDE
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option of FILEDEF command CMSREF
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PF operand of QUERY command CPREF
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PFnn operand of QUERY command CPREF
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PHASE operand of DSERV command CMSREF
PNLTEST operand of BUILD macro SYSGEN
POLL operand of MTAPOLL macro SYSGEN
POLLDLAY operand of NETWORK command OPGDE
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QUALIFY	operand of BUILD macro SYSGEN
QUERY	operand of NETWORK command OPGDE
	operand of TAG command CPREF
QUERY	command CPREF, OPGDE, CMSREF, RSCSUG
QUEUE	operand of QUERY command RSCSUG
QUEUES	operand of INDICATE command OPGDE
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RCHANNEL	macro SYSGEN
RCNTRL	operand of SYSCNTRL macro SYSGEN
RCOND	option of SYSCNTRL macro SYSGEN
RCTLUNIT	macro SYSGEN
RCVRID	operand of NAMESYS macro SYSGEN
RD	operand of DSERV command CMSREF
RDCARD	macro CMSREF
RDESUM	operand of CPEREP command OLTSEP
RDEVICE	macro SYSGEN
RDEVQ	operand of SYSCNTRL macro SYSGEN
RDTAPE	macro CMSREF
RDTERM	macro CMSREF
RDYMSG	operand of QUERY command CMSREF
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READCARD	command CMSREF
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RECMD	operand of SYSCNTRL macro SYSGEN
RECNO	operand of FSCB macro CMSREF
RECOMP	option of FORMAT command CMSREF
RECORD	operand of SET command OPGDE
REDTYPE	operand of QUERY command CMSREF
	operand of SET command CMSREF
REFR	option of LKED command SYSGEN
REGEQU	macro CMSREF
REGS	subcommand of DUMPSCAN command IPCSUG
RELEASE	operand of LOCK macro SPG
RELEASE	command CMSREF
RELPAGE	operand of QUERY command CMSREF
	operand of SET command CMSREF
RENAME	command CMSREF
RENT	operand of LINEDIT macro CMSREF
	option of ASM3705 command SYSGEN
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REP	operand of MACLIB command CMSREF
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RESTART	operand of SYSTEM command CPREF
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REUS	option of LKED command SYSGEN
REUSE	edit subcommand CMSUG, CMSREF
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REWIND	operand of SPTAPE command OPGDE
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REWIND	command CPREF
RIMM	operand of SYSCNTRL macro SYSGEN
RIOBLOK	subcommand of DUMPSCAN command IPCSUG
RIOGEN	macro SYSGEN
RL	option of VMFDOS command SYSGEN
RLD	option of ASSEMBLE command CMSREF
RMSIZE	operand of SYSCOR macro SYSGEN
R/O	operand of ATTACH command OPGDE
RO	Immediate command CMSREF
RPTR	operand of FSPOINT macro CMSREF
RSCS	operand of GENERATE EXEC procedure SYSGEN
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RSERV	command CMSUG, CMSREF
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RUN	operand of SET command CPREF
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SAME	option of INCLUDE command CMSREF
SAMPLE	option of MONITOR command OPGDE
SASSIST	operand of QUERY command OPGDE
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SAVESEQ operand of NAMESYS macro SYSGEN
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SEARCH operand of QUERY command CMSREF
SEC operand of LABELDEF command CMSREF
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SEEKS operand of MONITOR command OPGDE
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SHARE operand of CPEREP command OLTSEP
Shexloc operand of STCP command OPGDE
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SRM operand of QUERY command OPGDE
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STFIRST option of OPTION control statement SYSGEN
STK option of UPDATE command CMSREF
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STMULTI operand of QUERY command CPREF
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SUL operand of FILEDEF command CMSREF
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WPTR operand of FSPOINT macro CMSREF

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WRTERM	macro CMSREF
WTM	operand of TAPE command CMSREF option of TAPE command CMSREF
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XCAL	option of LKED command SYSGEN
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XITB	operand of BUILD macro SYSGEN
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Xreg1	operand of DISPLAY command CPREF
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Y	edit subcommand CMSUG, CMSREF
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Yreg	operand of STORE command CPREF
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ZONE	edit subcommand CMSUG, CMSREF operand of SYSTIME macro SYSGEN

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1443	operand of DEFINE command CPREF

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

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3203	operand of DEFINE command CPREF
3211	operand of DEFINE command CPREF
3289	operand of DEFINE command CPREF
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3505	operand of DEFINE command CPREF
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370E	operand of SET command CPREF, OPGDE option of OPTION control statement SYSGEN

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60C	option of OPTION command CMSREF

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

Chapter 4. Summary of VM/SP Commands with Options

This chapter is an alphabetic listing of each VM/SP commmand, macro instructions, and service program and their related operands. It references the books where these commands are described.

Master Index Table

To enable you to use the VM/SP Master Index with ease, the following table lists the abbreviations used in the index for each of the VM/SP publications, the title of the publication, and the document order number for each publication.

Abbreviation	Title	Order Number
CMSREF	*CMS Command & Macro Reference*	SC19-6209
CMSUG	*CMS User's Guide*	SC19-6210
CPREF	*CP Command Reference for General Users*	SC19-6211
EXEC2	*EXEC 2 Reference*	SC24-5219
GIM	*General Information Manual*	GC20-1838
INTRO	*Introduction*	GC19-6200
IPCSUG	*Interactive Problem Control System (IPCS) User's Guide*	GC20-1823
OLTSEP	*OLTSEP & Error Recording Guide*	SC19-6205
OPGDE	*Operator's Guide*	SC19-6202
OSVM	*Operating Systems in a Virtual Machine*	SC19-6212
PRIMER	*CMS Primer*	SC24-5236
RSCSUG	*Remote Spooling Communications Subsystem (RSCS) User's Guide*	GC20-1816
SPG	*System Programmer's Guide*	SC19-6203
SYSGEN	*Planning & System Generation Guide*	SC19-6201
SYSMSG	*System Messages and Codes*	SC19-6204
TUG	*Terminal User's Guide*	SC19-6206
XEDIT	*System Product Editor Command and Macro Reference*	SC24-5221
XEDITUG	*System Product Editor User's Guide*	SC24-5220

The VM/SP Master Index itself is listed in hierarchical and alphabetical sequence. The hierarchical listings do not have a prefix character separating the list. Each alphabetical section has its letter prefixing the listing. If any letter of the alphabet is missing, it means there was no listing that began with the missing letter in any of the publications.

Note: The subjects listed for RSCSUG and IPCSUG are at the VM/370 Release 6 level of these publications. If your installation has the RSCS Networking Program Product (5748-XP1) or the IPCS Extension Program Product (5748-SA1) implemented, you should use the cumulative index that accompanies each of those program products.

For your convenience, there is a copy of this Master Index Table in fold out form at the back of this publication.

&$ 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

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*** command** (CP) CPREF any comment CPREF

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#CP command CPREF commandline1 CPREF

= edit subcommand CMSUG, CMSREF

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TDSK OPGDE
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LINECOUN option SYSGEN
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NODECK option SYSGEN
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NOLOAD option SYSGEN
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NORENT option SYSGEN
NOXREF option SYSGEN
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FLAG option CMSREF
LIBMAC option CMSREF
LINECOUN option CMSREF
LIST option CMSREF
MCALL option CMSREF
MLOGIC option CMSREF
NOALIGN option CMSREF
NOALOGIC option CMSREF
NODECK option CMSREF
NOESD option CMSREF
NOLIBMAC option CMSREF
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NOMCALL option CMSREF
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NONUM option CMSREF
NOOBJECT option CMSREF
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AS OPGDE
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EOF OPGDE
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ABEND SYSGEN
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ASMXREF SYSGEN
BFRS SYSGEN
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MTARTRY SYSGEN
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"" XEDIT
""n XEDIT
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An XEDIT
C XEDIT
CC XEDIT
Cn XEDIT
D XEDIT
DD XEDIT
Dn XEDIT
E XEDIT
F XEDIT
I XEDIT
In XEDIT
M XEDIT
MM XEDIT
Mn XEDIT
n" XEDIT
n"" XEDIT
nA XEDIT
nC XEDIT
nD XEDIT
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Chapter 5. Master Index

Master Index Table

To enable you to use the VM/SP Master Index with ease, the following table lists the abbreviations used in the index for each of the VM/SP publications, the title of the publication, and the document order number for each publication.

Abbreviation	Title	Order Number
CMSREF	*CMS Command & Macro Reference*	SC19-6209
CMSUG	*CMS User's Guide*	SC19-6210
CPREF	*CP Command Reference for General Users*	SC19-6211
EXEC2	*EXEC 2 Reference*	SC24-5219
GIM	*General Information Manual*	GC20-1838
INTRO	*Introduction*	GC19-6200
IPCSUG	*Interactive Problem Control System (IPCS) User's Guide*	GC20-1823
OLTSEP	*OLTSEP & Error Recording Guide*	SC19-6205
OPGDE	*Operator's Guide*	SC19-6202
OSVM	*Operating Systems in a Virtual Machine*	SC19-6212
PRIMER	*CMS Primer*	SC24-5236
RSCSUG	*Remote Spooling Communications Subsystem (RSCS) User's Guide*	GC20-1816
SPG	*System Programmer's Guide*	SC19-6203
SYSGEN	*Planning & System Generation Guide*	SC19-6201
SYSMSG	*System Messages and Codes*	SC19-6204
TUG	*Terminal User's Guide*	SC19-6206
XEDIT	*System Product Editor Command and Macro Reference*	SC24-5221
XEDITUG	*System Product Editor User's Guide*	SC24-5220

The VM/SP Master Index itself is listed in hierarchical and alphabetical sequence. The hierarchical listings do not have a prefix character separating the list. Each alphabetical section has its letter prefixing the listing. If any letter of the alphabet is missing, it means there was no listing that began with the missing letter in any of the publications.

Note: The subjects listed for RSCSUG and IPCSUG are at the VM/370 Release 6 level of these publications. If your installation has the RSCS Networking Program Product (5748-XP1) or the IPCS Extension Program Product (5748-SA1) implemented, you should use the cumulative index that accompanies each of those program products.

For your convenience, there is a copy of this Master Index Table in fold out form at the back of this publication.

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./ D (DELETE) UPDATE control statement **CMSREF**
./ I (INSERT) UPDATE control statement **CMSREF**
./ R (REPLACE) UPDATE control statement **CMSREF**
./ S (SEQUENCE) UPDATE control statement **CMSREF**
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.CM (COMMENT) format word **CMSREF**
.CM format word **CMSUG**
.CS (CONDITIONAL SECTION) format word **CMSREF**
.CS format word **CMSUG**
.FO (FORMAT MODE) format word **CMSREF**
.FO format word **CMSUG**
.IL (INDENT LINE) format word **CMSREF**
.IL format word **CMSUG**
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.OF format word **CMSUG**
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IBM VM/SP: Library Guide and Master Index (File No. S370/4300-20) Printed in U. S. A. GC19-6207-1

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Abbreviation	Title	Order Number
CMSREF	*CMS Command & Macro Reference*	SC19-6209
CMSUG	*CMS User's Guide*	SC19-6210
CPREF	*Command Reference for General Users*	SC19-6211
EXEC2	*EXEC 2 Reference*	SC24-5219
GIM	*General Information Manual*	GC20-1838
INTRO	*Introduction*	GC19-6200
IPCSUG	*Interactive Problem Control System (IPCS) User's Guide*	GC20-1823
OLTSEP	*OLTSEP & Error Recording Guide*	SC19-6205
OPGDE	*Operator's Guide*	SC19-6202
OSVM	*Operating Systems in a Virtual Machine*	SC19-6212
PRIMER	*CMS Primer*	SC24-5236
RSCSUG	*Remote Spooling Communications Subsystem (RSCS) User's Guide*	GC20-1816
SPG	*System Programmer's Guide*	SC19-6203
SYSGEN	*Planning & System Generation Guide*	SC19-6201
SYSMSG	*System Messages and Codes*	SC19-6204
TUG	*Terminal User's Guide*	SC19-6206
XEDIT	*System Product Editor Command and Macro Reference*	SC24-5221
XEDITUG	*System Product Editor User's Guide*	SC24-5220

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