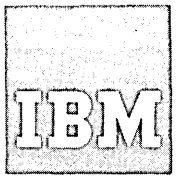
File No. S360-36
Order No. GC28-6732-1

OS



Systems Reference Library

IBM System/360 Operating System:

Time Sharing Option

Command Language Reference

This reference publication describes the TSO command language that a terminal user may use to request the services of TSO.

The "Introduction" describes what the command language is. The section entitled "What You Must Know to Use the Commands" contains general information necessary for the use of every command.

The section entitled "The Commands" contains a description of each command, its operands and its subcommands. Examples are included.

"Command Procedure Statements" describes the statements designed for use in command procedures. The "Glossary" contains definitions of terms contained in the text of the publication.

Information in this publication for TSO, the IBM 2260 and 2265 Display Stations is for planning purposes until those items are available.

Preface

This reference publication describes the commands, subcommands and operands of the TSO Command Language. This publication is designed for use at a terminal by all terminal users. The level of knowledge required for this publication varies. Commands that are used by most terminal users require little prerequisite knowledge of the system. Commands that are used only by knowledgable users assume a greater knowledge of the system.

The major divisions in this book are:

- Introduction
- What You Must Know to Use the Commands
- The Commands
- Command Procedure Statements
- Glossary
- Index

The Introduction describes what the command language is. The section entitled "What You Must Know to Use the Commands" contains general information necessary for the use of every command.

The section entitled "The Commands" contains a description of each command, its operands and its subcommands. Examples are included.

The commands are presented in alphabetical order. Subcommands are presented in alphabetical order following the command to which they apply. A boldface heading on each page identifies the information contained on the page. The boldface headings and alphabetical organization allow you to locate particular commands as you would locate a subject in a dictionary or encyclopedia. The larger boldface headings identify the first pages of the descriptions of commands.

"Command Procedure Statements" describes the statements designed for use in command procedures.

The Glossary contains definitions of terms that appear in the text of this publication.

The "Index" contains the location (page number) where terms and subjects are discussed in the text.

Information concerning the IBM 2260 and 2265 Display Stations is for planning purposes only.

Second Edition (March, 1971)

This is a major revision of, and obsoletes, GC28-6732-0. This publication has been completely rewritten and should be reviewed in its entirety.

This edition applies to release 20.1, of IBM System/360 Operating System, and to all subsequent releases until otherwise indicated in new editions or Technical Newsletters. Changes are continually made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/360 SRL Newsletter, Order No. GN20-0360, for the editions that are applicable and current.

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A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, Programming Systems Publications, Department D58, PO Box 390, Poughkeepsie, N. Y. 12602

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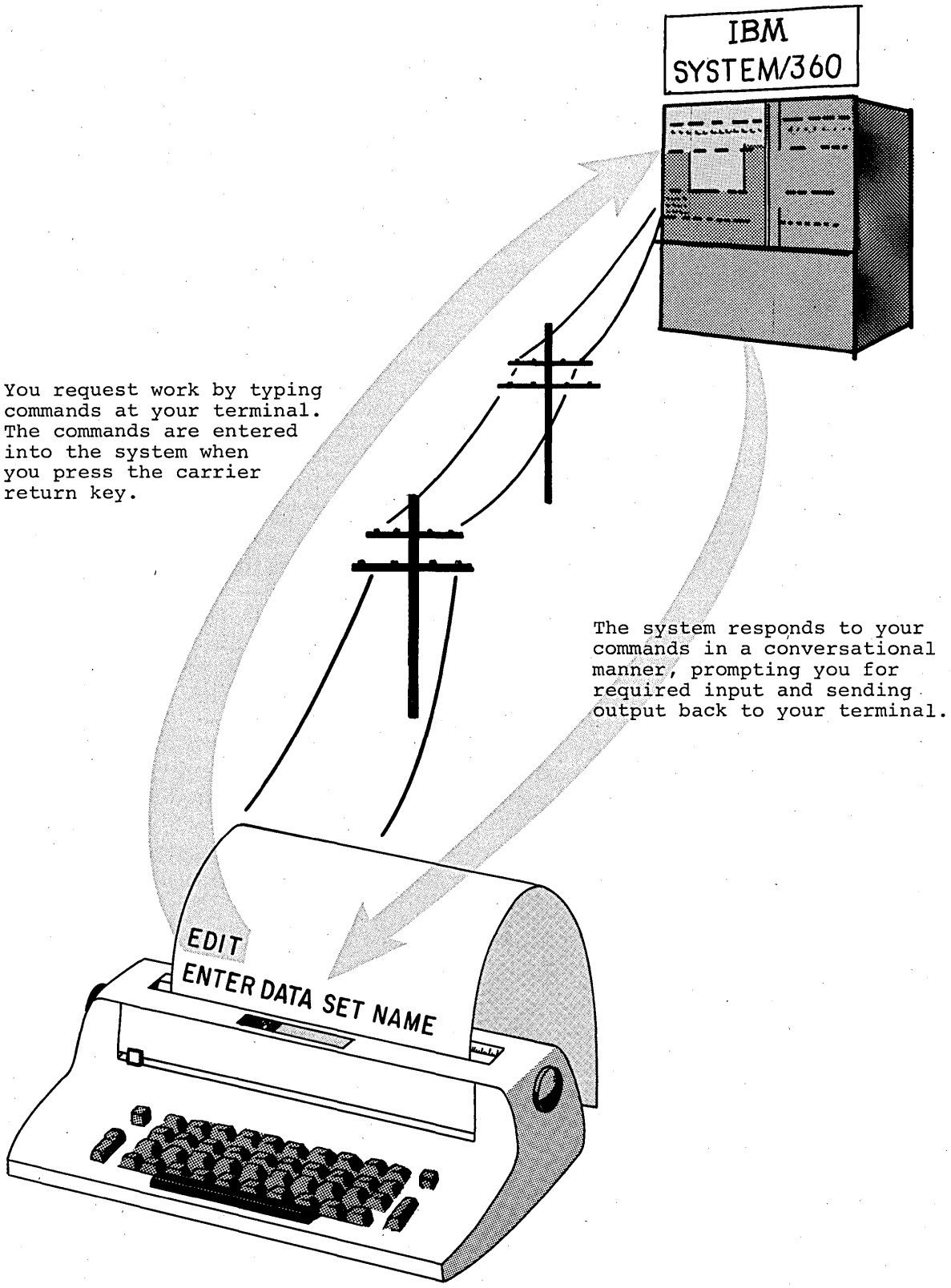

IBM
SYSTEM/360
You request work by typing commands at your terminal. The commands are entered into the system when you press the carrier return key.
The system responds to your commands in a conversational manner, prompting you for required input and sending output back to your terminal.
EDIT
ENTER DATA SET NAME

Introduction

TSO is the Time Sharing Option of the System/360 Operating System. TSO allows you and a number of other users to use the facilities of the system concurrently and in a conversational manner. You can communicate with the system by typing requests for work (commands) on a terminal which may be located far away from the system installation. The system responds to your requests by performing the work and sending messages back to your terminal. The messages tell you such things as what the status of the system is with regard to your work and what input is needed to allow the work to be done.

A command, then, is a request for work. By using different commands, you can have different kinds of work performed. You can store data in the system, change the data, and retrieve it at your convenience. You can create programs, test them, have them executed, and obtain the results at your terminal. The commands make the full capability of the system available at your terminal.

When you use a command to request work, the command establishes the scope of the work to the system. To provide flexibility and greater ease of use, the scope of some commands' work encompasses several operations that are identified separately. After entering the command, you may specify one of the separately identified operations by typing a subcommand. A subcommand, like a command, is a request for work; however, the work requested by a subcommand is a particular operation within the scope of work established by a command.

The commands and subcommands recognized by TSO form the TSO command language. The command language is designed to be easy to use. The command names and subcommand names are typically familiar English words, usually verbs, that describe the work to be done. The number of command names and subcommand names that you must learn has been kept to a minimum. The information that you must provide is defined by operands (words or numbers that accompany the command names and subcommand names). Most of the operands have default values that are used by the system if you choose to omit the operand from the command or subcommand. In addition, you can abbreviate many of the command names, subcommand names and operands. Together, the defaults and abbreviations decrease the amount of typing required.

This reference manual describes what each command can do and how to enter, or type in, a command at your terminal. Table 1 shows you the kinds of work you can accomplish by using the command language, and identifies most of the commands and subcommands that you can use to request each kind of work. A complete list of the commands, subcommands, and their abbreviations is located on the divider page that precedes the descriptions of the commands.

Additional commands and subcommands are available for a license fee as optional Program Products. This manual does not describe the use of Program Product commands; however, it is organized modularly so that the descriptions of the Program Product commands may be inserted in the proper alphabetical sequence.

Information concerning the IBM 2260 and 2265 Display Stations is for planning purposes only.

Table 1. Functions of the TSO Commands and Subcommands (Part 1 of 2)

FUNCTION		COMMAND	SUBCOMMAND
CONTROL YOUR TERMINAL SESSION	identify yourself to the system.....	LOGON	
	define your operational characteristics...	TERMINAL	
		PROFILE	
		EDIT.....	PROFILE
	display messages (notices and mail).....	LISTBC	
	send messages.....	SEND	
	obtain help from the system.....	HELP	
		OPERATOR...	HELP
		ACCOUNT....	HELP
	end your terminal session.....	LOGOFF	
	display session time used.....	TIME	
ENTER, MODIFY, STORE, AND RETRIEVE DATA	create a data set.....	EDIT	
	enter data into a data set.....	EDIT.....	INPUT
		EDIT.....	INSERT
	change data in a data set.....	EDIT.....	CHANGE
	edit data.....	EDIT.....	INSERT
	place data into columns.....	EDIT.....	TABSET
		EDIT.....	UP
		EDIT.....	DOWN
		EDIT.....	TOP
		EDIT.....	BOTTOM
	display referenced lines.....	EDIT.....	VERIFY
	renumber lines of data.....	EDIT.....	RENUM
	check the syntax of input statements.....	EDIT.....	SCAN
	delete lines of data from a data set.....	EDIT.....	DELETE
	delete an entire data set.....	DELETE	
	allocate a data set.....	ALLOCATE	
	free an allocated data set.....	FREE	
	copy a data set.....	COPY*	
	format a data set.....	FORMAT*	
		EDIT.....	FORMAT*
	merge two data sets.....	MERGE*	
		EDIT.....	MERGE*
	list the contents of a data set.....	LIST*	
		EDIT.....	LIST
	list the names of allocated data sets....	LISTALC	
	list the names of cataloged data sets....	LISTCAT	
	list information about your data sets....	LISTDS	
	store a data set.....	EDIT.....	SAVE
	rename a data set.....	RENAME	
	establish passwords for a data set.....	PROTECT	
	end the EDIT functions.....	EDIT.....	END

* optional Program Products, available for a license fee

Table 1. Functions of the TSO Commands and Subcommands (Part 2 of 2)

FUNCTION		COMMAND	SUBCOMMAND
DEVELOP PROGRAMS AND PROCESS DATA	create a program; enter it in a data set..	EDIT	
	convert PL/1 and FORTRAN statements.....	CONVERT	
	compile and execute a program.....	RUN	
		EDIT.....	RUN
	invoke a standard compiler.....	CALL	
	invoke the assembler prompter.....	ASM*	
	invoke the COBOL prompter.....	COBOL*	
	invoke the FORTRAN prompter.....	FORT*	
	linkage edit a compiled program.....	LINK	
	load and execute a load module.....	CALL	
		LOADGO	
	load and execute an object module.....	LOADGO	
	submit a job for batch processing.....	SUBMIT	
	cancel a batch job.....	CANCEL	
	display the status of a batch job.....	STATUS	
		OUTPUT	
	execute a procedure consisting of commands	EXEC	
TEST AND DEBUG A PROGRAM	initiate testing.....	TEST	
	load a load module for execution.....	TEST.....	LOAD
	set breakpoints for inspection.....	TEST.....	AT
	remove breakpoints.....	TEST.....	OFF
	establish base location for addresses.....	TEST.....	QUALIFY
	display absolute addresses.....	TEST.....	WHERE
	add symbols to symbol table.....	TEST.....	EQUATE
	initialize registers and start execution..	TEST.....	CALL
	start or restart program execution.....	TEST.....	GO
	get additional main storage.....	TEST.....	GETMAIN
	release main storage.....	TEST.....	FREEMAIN
	display contents of main storage.....	TEST.....	LIST
	display contents of registers.....	TEST.....	LIST
	display a Data Control Block.....	TEST.....	LISTDCB
	display a Data Extent Block.....	TEST.....	LISTDEB
	display a storage map.....	TEST.....	LISTMAP
	display the Program Status Word.....	TEST.....	LISTPSW
	display a Task Control Block.....	TEST.....	LISTTCB
	delete the program with no more testing...	TEST.....	RUN
	end testing.....	TEST.....	END
	display CPU time.....	TIME	
CONTROL THE SYSTEM	modify TSO options.....	OPERATOR...	MODIFY
	display system status.....	OPERATOR...	DISPLAY
	cancel a terminal user.....	OPERATOR...	CANCEL
	moniter terminal and job activities.....	OPERATOR...	MONITOR
	send messages to users.....	OPERATOR...	SEND
	stop monitoring.....	OPERATOR...	STOP
	maintain the user attribute data set.....	ACCOUNT..	
	add new user attributes.....	ACCOUNT....	ADD
	delete user attributes.....	ACCOUNT....	DELETE
	change user attributes.....	ACCOUNT....	CHANGE
	display user attributes.....	ACCOUNT....	LIST
	list user identifications.....	ACCOUNT....	LISTIDS

* optional Program Products, available for a license fee.

What You Must Know to Use the Commands

To use the TSO command language you should know:

- The syntax of a command.
- The way to enter a command.
- The data set naming conventions.

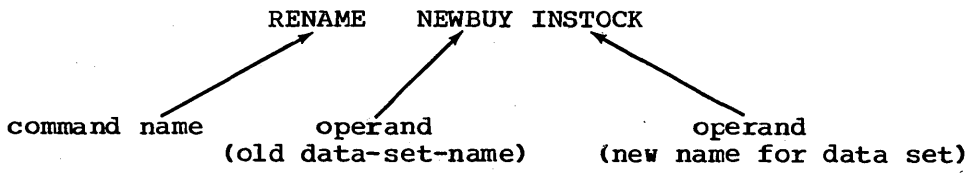
In addition, you should be aware of the aids available to you:

- The attention interruption.
- The HELP command.
- The messages that you receive from the system.

Note: In this manual, all references to terminal keyboards and keys apply specifically to the IBM 2741 Communications Terminal. For information concerning the use of other terminals refer to IBM System/360 Operating System: Time Sharing Option, Terminals, GC28-6762-0. Terminals which are equivalent to those explicitly supported may also function satisfactorily. The customer is responsible for establishing equivalency. IBM assumes no responsibility for the impact that any changes to the IBM-supplied products or programs may have on such terminals.

The Syntax of a Command

A command consists of a command name followed, usually, by one or more operands. A command name is typically a familiar English word, usually a verb, that describes the function of the command. For instance, the RENAME command changes the name of a data set. Operands provide the specific information required for the command to perform the requested operation. For instance, operands for the RENAME command identify the data set to be renamed and specify the new name:



Two types of operands are used with the commands: positional and keyword. Positional operands follow the command name and precede keywords.

Positional Operands

Positional operands are values that follow the command name in a prescribed sequence. The value may be one or more names, symbols, or integers. In the command descriptions within this manual, the positional operands are shown in lower case characters. A typical positional operand is:

data-set-name

What You Must Know to Use the Commands

You must replace "data-set-name" with an actual data set name when you enter the command.

When you want to enter a positional operand that is a list of several names or values, the list must be enclosed within parentheses. The names or values must not include unmatched right parentheses.

Keyword Operands

Keywords are specific names or symbols that have a particular meaning to the system. You can include keywords in any order following the positional operands. In the command descriptions within this book, keywords are shown in upper case characters. A typical keyword is:

TEST

In some cases you may specify values with a keyword. The value is entered within parentheses following the keyword. The way a typical keyword with a value appears in this book is:

LINESIZE(integer)

Continuing this example, you would select the number of characters that you want to appear in a line and substitute that number for the "integer" when you enter the operand:

LINESIZE(80)

You must enter keywords spelled exactly as they are shown or you may use an acceptable abbreviation. You may abbreviate any keyword by entering only the significant characters; that is, you must type as much of the keyword as is necessary to distinguish it from the other keywords of the command or subcommand. For instance, the LISTBC command has four keywords:

MAIL	NOTICES
NOMAIL	NONOTICES

The abbreviations are:

M for MAIL (also MA and MAI)
NOM for NOMAIL (also NOMA and NOMAI)
NOT for NOTICES (also NOTI, NOTIC, and NOTICE)
NON for NONOTICES (also NONO, NONOT, NONOTI, NONOTIC, and NONOTICE)

Delimiters

When you type a command, you should separate the command name from the first operand by one or more blanks. You should separate operands by one or more blanks or a comma. For instance, you can type the LISTBC command like this:

```
LISTBC NOMAIL NONOTICES
```

or like this:

```
LISTBC NOMAIL,NONOTICES
```

Enter a blank by pressing the space bar at the bottom of your terminal keyboard. You can also use the TAB key to enter one or more blanks.

Note: A keyword with a value is a single operand and must not contain delimiters; for instance, do not separate the keyword from the parentheses that enclose the value.

Notation Conventions

The notation used to define the command syntax and format in this publication is described in the following paragraphs.

1. The set of symbols listed below are used to define the format but you should never type them in the actual statement.

hyphen	-
underscore	_
braces	{}
brackets	[]
ellipsis	...

   The special uses of these symbols are explained in paragraphs 5-9.

2. You should type upper-case letters and words, numbers, and the set of symbols listed below in an actual command exactly as shown in the statement definition.

apostrophe	'
asterisk	*
comma	,
equal sign	=
parentheses	()
period	.

3. Lower-case letters, words, and symbols appearing in a command definition represent variables for which you should substitute specific information in the actual command.

   Example: If name appears in a command definition, you should substitute a specific value (for example, ALPHA) for the variable when you enter the command.

4. Stacked items represent alternatives. You should select only one such alternative.

   Example: The representation

   A
   B
   C

   indicates that either A or B or C is to be selected.

5. Hyphens join lower-case letters, words, and symbols to form a single variable.

   Example: If member-name appears in a command definition, you should substitute a specific value (for example, BETA) for the variable in the actual command.

6. An underscore indicates a default option. If you select an underscored alternative, you need not type it when you enter the command.

Example: The representation

$$\underline{\begin{matrix}A\\B\\C\end{matrix}}$$

indicates that you are to select either A or B or C; however, if you select B, you need not type it, because it is the default option.

7. Braces group related items, such as alternatives.

   Example: The representation

   $$\text{ALPHA}=(\left\{\underline{\begin{matrix}A\\B\\C\end{matrix}}\right\},D)$$

   indicates that you must choose one of the items enclosed within the braces. If you select A, the result is ALPHA=(A,D). If you select B, the result can be either ALPHA=(,D) or ALPHA=(B,D).

8. Brackets also group related items; however, everything within the brackets is optional and may be omitted.

   Example: The representation

   $$\text{ALPHA}=(\left[\begin{matrix}A\\B\\C\end{matrix}\right],D)$$

   indicates that you may choose one of the items enclosed within the brackets or that you may omit all of the items within the brackets. If you select B, the result is: ALPHA=(B,D). If you omit them all, the result is: ALPHA=(,D).

9. An ellipsis indicates that the preceding item or group of items can be repeated more than once in succession.

   Example:

   ALPHA[,BETA]...

   indicates that ALPHA can appear alone or can be followed by ,BETA any number of times in succession.

Subcommands

The work done by some of the commands is divided into individual operations. Each operation is defined and requested by a subcommand. To request one of the individual operations, you must first enter the command. You can then enter a subcommand to specify the particular operation that you want performed. You can continue entering subcommands until you enter the END subcommand.

The commands that have subcommands are ACCOUNT, CALC (a Program Product), EDIT, OPERATOR, OUTPUT and TEST. When you enter the ACCOUNT command you can then enter the subcommands for ACCOUNT. Likewise, when you enter the CALC, EDIT, OPERATOR, OUTPUT, or TEST commands you can enter appropriate subcommands.

The syntax of a subcommand is the same as that of a command. A subcommand consists of a subcommand name followed, usually, by one or more operands. The discussions of operands and delimiters apply to subcommands as well as commands.

How to Enter a Command

A terminal session is designed to be an uncomplicated process: you identify yourself to the system by entering the LOGON command and then request work from the system by entering other commands. To enter a command or subcommand:

1. Type the command or subcommand name and any operands that you select.
2. Press the carrier return key.

You can begin typing at any position on a line; you do not have to start at the lefthand margin. You can type command names and operands in either uppercase or lowercase characters. You may prefer to type your input in lowercase characters so that you can distinguish your input from the system's messages on your listing (the system prints in uppercase characters).

You can continue a line by placing a hyphen at the end of the line that is to be continued.

You can define your own character-deletion and line-deletion characters for correcting typing errors, or you can accept the characters that the system uses by default if you do not specify your own selection. The default characters for the IBM 2741 Communications Terminal are:

- The BACKSPACE key, to delete the preceding character on the line.
- The ATTN key, to delete the entire line (including continued lines).

For other defaults and for information concerning the use of other terminals refer to IBM System/360 Operating System: Time Sharing Option, Terminals, GC28-6762.

You may use the PROFILE command to define the keys that you want to use as the character-deletion and line-deletion characters.

Data Set Naming Conventions

A data set is a collection of data. Each data set stored in the system is identified by a unique data set name. The data set name allows the data to be retrieved and helps protect the data from unauthorized use.

The data set naming conventions for TSO simplify the use of data set names. When a data set name conforms to the conventions, you can refer to the data set by its fully qualified name or by an abbreviated version of the name. The following paragraphs:

1. Describe data set names in general.
2. Define the names that conform to the naming conventions for TSO.
3. Tell you how to enter a complete data set name, and how to enter the abbreviated version of a name that conforms to the TSO data set naming conventions.

What You Must Know to Use the Commands

Data Set Names in General

A data set name consists of one or more fields. Each field consists of one through eight alphameric characters and must begin with an alphabetic character. A simple data set name with only one field may be:

PARTS

A data set name that consists of more than one field is a "qualified" data set name. The fields in a qualified data set name are separated by periods. A qualified data set name may be:

PARTS.OBJ
or
PARTS.DATA

Partitioned Data Sets: A partitioned data set is simply a data set with the data divided into one or more independent groups called members. Each member is identified by a member name and can be referred to separately. The member name is enclosed within parentheses and appended to the end of the data set name:

PARTS.DATA(PART14)
member name

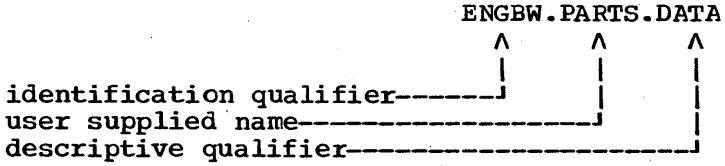
TSO Data Set Names

A data set name must be qualified in order to conform to the TSO data set naming conventions. The qualified name must consist of at least the two required fields of the following three:

1. You user identification (required).
2. A user-supplied name (optional).
3. A descriptive qualifier (required).

Normally all three names are used.

The total length of the data set name must not exceed 44 characters, including periods. A typical TSO data set name is:



The TSO data set naming conventions also apply to partitioned data sets. A typical TSO name for a member of a partiticned data set is:

ENGBW.PARTS.DATA(PART14)

Identification Qualifier: The identification qualifier is always the leftmost qualifier of the full data set name. For TSO, this qualifier is the user identification assigned to you by your installation.

User-supplied Name: You choose a name for the data sets that you want to identify. It can be a simple name or several simple names separated by periods.

Descriptive Qualifier: The descriptive qualifier is always the rightmost qualifier of the full data set name. To conform to the data set naming conventions, this qualifier must be one of the qualifiers listed in Table 2.

Table 2. Descriptive Qualifiers

Descriptive Qualifier	Data Set Contents
ASM	Assembler (F) input
BASIC	ITF:BASIC statements
FORT	FORTRAN statements
IPLI	ITF:PL/I statements
PLI	PL/I (F) statements
COBOL	American National Standard COBOL statements
TEXT	Uppercase and lowercase text
DATA	Uppercase text
CNTL	JCL and SYSIN for SUBMIT command
CLIST	TSO commands
STEX	STATIC external data from ITF:PLI
OBJ	Object module
LIST	Listings
LOAD	Load module
LINKLIST	Output listing from linkage editor
LOADLIST	Output listing from loader
TESTLIST	Output listing from TEST command
OUTLIST	Output listing from OUTPUT command

How to Enter Data Set Names

The data set naming conventions simplify the use of data set names. If the data set name conforms to the conventions, you may specify only the user-supplied name field and the descriptive qualifier when you refer to the data set. The system will add your user identification to the front of the name that you specify. When you are using the LINK command for example, the system will add both the user identification and the descriptive qualifier, allowing you to specify only the user-supplied name. For instance, you may refer to the data set named USERID.PARTS.OBJ by specifying only PARTS (when you are using LINK) or by specifying PARTS. OBJ (when you are using other commands). You may refer to a member of a partitioned data set USERID.PARTS.OBJ(PART14) by specifying PARTS(PART14) when you are using LINK or by specifying PARTS.OBJ (PART14) when you are using other commands.

When you specify an entire fully qualified data set name, as you must do if the name does not conform to the TSO data set naming conventions, you must enclose the entire name within apostrophes:

'JOED58.PROG.LIST'
or
'JOED58.PROG.FIRST'

Defaults for Data Set Names: When you specify only the user-supplied name, the system adds your user identification and, whenever possible, a descriptive qualifier. The system attempts to derive the descriptive qualifier from available information. For instance, if you specified ASM as an operand for the EDIT command, the system will assign ASM as the descriptive qualifier. If the information is insufficient, the system will issue a message at your terminal requesting the required

information. If you specify the name of a partitioned data set and do not include a required member name, the system will use TEMPNAME as the default member name. (If you are creating a new member, the member name will become TEMPNAME; if you are modifying an existing partitioned data set, the system will search for a member named TEMPNAME.) Table 3 presents a list of command names and the default descriptive qualifiers associated with each command.

Table 3. Descriptive Qualifiers Supplied by Default

	DESCRIPTIVE QUALIFIERS		
Command	Input	Output	Listing
ASM	ASM	OBJ	LIST
CALC	STEX	STEX	---
CALL	LOAD	---	---
COBOL	COBOL	OBJ	LIST
CONVERT	IPLI	PLI	---
	FORT	FORT	---
EXEC	CLIST	---	---
FORMAT	TEXT	---	LIST
FORT	FORT	OBJ	LIST
LINK	OBJ	LOAD	LINKLIST
	LOAD	---	---
LOADGO	OBJ	---	LOADLIST
	LOAD	---	---
OUTPUT	---	---	OUTLIST
RUN	ASM	---	---
	FORT	---	---
	BASIC	---	---
	COBOL	---	---
	IPLI	---	---
SUBMIT	CNTL	---	---
TEST	OBJ	---	TESTLIST
	LOAD	---	---

The following examples illustrate the default names supplied by the system.

If you specify:	The input data set name is:	The output data set name will be:
EDIT PARTS ASM	UID.PARTS.ASM	UID.PARTS.ASM
LINK PARTS	UID.PARTS.OBJ	UID.PARTS.LOAD(TEMPNAME)
CALL PARTS	UID.PARTS.LOAD(TEMPNAME)	---
EDIT PARTS(JAN) ASM	UID.PARTS.ASM(JAN)	UID.PARTS.ASM(JAN)
LINK PARTS(JAN)	UID.PARTS.OBJ(JAN)	UID.PARTS.LOAD(JAN)
CALL PARTS(JAN)	UID.PARTS.LOAD(JAN)	---
EDIT (PARTS) ASM	UID.ASM(PARTS)	UID.ASM(PARTS)
LINK (PARTS)	UID.OBJ(PARTS)	UID.LOAD(PARTS)
CALL (PARTS)	UID.LOAD(PARTS)	---

Note: In these examples, UID stands for your user identification. TEMPNAME is the membername supplied by the system.

SYSTEM-PROVIDED AIDS

Several aids are available for your use at the terminal:

- The attention interruption allows you to interrupt processing so that you can enter a command.
- The HELP command provides you with information about the commands.
- The conversational messages guide you in your work at the terminal.

The Attention Interruption

The attention interruption allows you to interrupt processing so that you can enter a command or subcommand. For instance, if you are executing a program and the program gets in a loop, you can use the attention interruption to halt execution. As another example, when you are having the data listed at your terminal and the data that you need has been listed, you may use the attention interruption to stop the listing operation instead of waiting until the entire data set has been listed.

You can use the attention interruption for access to the system at any time. If, when you receive an attention interruption, you decide that you want to continue with the operation that you interrupted, you can do so by pressing the carrier return key before you type anything else. You can also request an attention interruption at the command level, enter the TIME command, and then resume with the interrupted operation in the same manner.

If your terminal has an interruption facility, you can request an attention interruption by pressing the appropriate key (the ATTN key on IBM 2741 Communications Terminals). Whether or not your terminal has a key for attention interruptions, you can use the TERMINAL commmand to specify particular operating conditions that the system is to interpret as a request for an attention interruption. More specifically, you can specify a sequence of characters that the system is to interpret as a request for an attention interruption. In addition, you can request the system to pause after a certain number of seconds of processing time has elapsed or after a certain number of lines of output has been displayed at your terminal. When the system pauses, you can enter the sequence of characters that you define as a request for an attention interruption.

Note: When you are using the ATTN key as a line-delete character you must request ATTN twice in order to get an interruption. If you are also in the input mode of the EDIT command you must request ATTN three times to get an interruption.

The HELP Comnand

The HELP command provides you with information about the use, function, syntax, and operands of commands and subcommands. When you enter HELP, the system displays at your terminal a list of commands and a brief description of the function of each. By specifying a command name as an operand for the HELP command, you can get a list of operands and a description of the function and syntax of the command.

HELP is also a subcommand for all of the commands that have subcommands. By specifying a subcommand name as an operand for the HELP

subcommand, you can get a list of operands and a description of the function and syntax of the subcommand.

Messages

You receive three types of messages at your terminal:

Mode messages.
Prompting messages.
Informational messages.

A mode message tells you the system is ready to accept new input -- a command, a subcommand, or data. When the system is waiting for you to enter a command, the mode message displayed at your terminal is:

READY

Other mode messages may be displayed, when appropriate, to tell you that the system is waiting for you to enter a subcommand or data. In these cases, the mode message is the name of the current command or subcommand:

ACCOUNT
EDIT
INPUT
OPERATOR
OUTPUT
TEST
etc.

These mode messages are displayed when the mode changes.

A prompting message tells you that required information is missing and that you must take an explicitly described action in response. For instance, prompting messages prompt you to supply missing operands and to correct operands that you specified incorrectly. A typical prompting message is:

ENTER DATA SET NAME-

The system expects an immediate response to messages that end with a hyphen. Use the PROMPT or NOPROMPT operand of the PROFILE command to specify whether or not you want to receive prompting messages. You can stop a prompting sequence by requesting an attention interruption.

An informational message tells you about the status of the system and your terminal session. For instance, an informational message may tell you when program execution has terminated, or how much time you have used. Informational messages do not require a response.

In some cases, an informational message may serve as a mode message; for instance, an informational message that tells of the completion of a subcommand's operation also implies that you can enter another subcommand.

Levels of Messages: Prompting messages and informational messages may have additional messages associated with them. The additional messages explain the initial message more fully.

Prompting messages may have any number of additional messages; informational messages may have only one additional message. When an

additional informational message is available, the message at your terminal will end with a plus sign (+); prompting messages do not end with a plus sign, even though an additional message is available.

The Question Mark: To receive an additional message, you must enter a question mark (?) and a carrier return. When you enter a question mark, it must be placed in the first position on the line. You can continue entering question marks until no other message is available. When no other message exists, the system will display:

NO INFORMATION AVAILABLE

For example, a listing at your terminal may look like:

```
INVALID LINE NUMBER ENCOUNTERED+
?
USE EDIT WITH NONUM OPERAND
?
NO INFORMATION AVAILABLE
```

The following list contains informational messages that you might receive at your terminal and will require the attention of your installations's system programmer.

MESSAGE

```
BROADCAST DATA SET NOT ALLOCATED, DATA SET NOT ON VOLUME+
                    CATALOG INFORMATION INCORRECT

BROADCAST DATA SET NOT ALLOCATED, SYSTEM OR INSTALLATION ERROR+
                    CATALOG ERROR CODE 4
                    CATALOG ERROR CODE 14
                    CATALOG ERROR CODE 1C
                    DYNAMIC ALLOCATION ERROR CODE 104
                    DYNAMIC ALLOCATION ERROR CODE 108
                    DYNAMIC ALLOCATION ERROR CODE 10C
                    DYNAMIC ALLOCATION ERROR CODE 208
                    DYNAMIC ALLOCATION ERROR CODE 214
                    DYNAMIC ALLOCATION ERROR CODE 21C
                    DYNAMIC ALLOCATION ERROR CODE 1704
                    DYNAMIC ALLOCATION ERROR CODE 1718
                    DYNAMIC ALLOCATION ERROR CODE 4704
                    DYNAMIC ALLOCATION ERROR CODE 4708
                    DYNAMIC ALLOCATION ERROR CODE 470C
                    DYNAMIC ALLOCATION ERROR CODE 4734
                    DYNAMIC ALLOCATION ERROR CODE 4738

BROADCAST DATA SET NOT USABLE+
                    I/O SYNAD ERROR xxxxxxxx
                    OPEN ERROR CODE xxxxxxxx

DATA SET xxxxxxxx DELETED BUT xxxxxxxx STILL CATALOGUED+
                    CATALOG ERROR CODE 4
                    CATALOG ERROR CODE 14
                    CATALOG ERROR CODE 1C

DATA SET xxxxxxxx NOT ALLOCATED, DATA SET NOT ON VOLUME+
                    CATALOG INFORMATION INCORRECT

DATA SET xxxxxxxx NOT ALLOCATED, SYSTEM OR INSTALLATION ERROR+
                    CATALOG ERROR CODE 4
```

```
                    CATALOG ERROR CODE 14
                    CATALOG ERROR CODE 1C
                    DYNAMIC ALLOCATION ERROR CODE 104
                    DYNAMIC ALLOCATION ERROR CODE 108
                    DYNAMIC ALLOCATION ERROR CODE 10C
                    DYNAMIC ALLOCATION ERROR CODE 208
                    DYNAMIC ALLOCATION ERROR CODE 214
                    DYNAMIC ALLOCATION ERROR CODE 21C
                    DYNAMIC ALLOCATION ERROR CODE 1704
                    DYNAMIC ALLOCATION ERROR CODE 1718
                    DYNAMIC ALLOCATION ERROR CODE 4704
                    DYNAMIC ALLOCATION ERROR CODE 4708
                    DYNAMIC ALLOCATION ERROR CODE 470C
                    DYNAMIC ALLOCATION ERROR CODE 4734
                    DYNAMIC ALLOCATION ERROR CODE 4738

DATA SET xxxxxxxx NOT USABLE+
                    BLDL I/O ERROR
                    FIND I/O ERROR
                    I/O SYNAD ERROR xxxxxxxx
                    OPEN ERROR CODE xxxxxxxx
                    STOW I/O ERROR

DATA SET xxxxxxxx RENAMED BUT xxxxxxxx STILL CATALOGUED+
                    CATALOG ERROR CODE 4
                    CATALOG ERROR CODE 14
                    CATALOG ERROR CODE 1C

FILE SYSPROC NOT USABLE+
                    FIND I/O ERROR
                    I/O SYNAD ERROR xxxxxxxx
                    OPEN ERROR CODE xxxxxxxx

HELP DATA SET NOT ALLOCATED, DATA SET NOT ON VOLUME+
                    CATALOG INFORMATION INCORRECT

HELP DATA SET NOT ALLOCATED, SYSTEM OR INSTALLATION ERROR+
                    CATALOG ERROR CODE 4
                    CATALOG ERROR CODE 14
                    CATALOG ERROR CODE 1C
                    DYNAMIC ALLOCATION ERROR CODE 104
                    DYNAMIC ALLOCATION ERROR CODE 108
                    DYNAMIC ALLOCATION ERROR CODE 10C
                    DYNAMIC ALLOCATION ERROR CODE 208
                    DYNAMIC ALLOCATION ERROR CODE 214
                    DYNAMIC ALLOCATION ERROR CODE 21C
                    DYNAMIC ALLOCATION ERROR CODE 1704
                    DYNAMIC ALLOCATION ERROR CODE 1718
                    DYNAMIC ALLOCATION ERROR CODE 4704
                    DYNAMIC ALLOCATION ERROR CODE 4708
                    DYNAMIC ALLOCATION ERROR CODE 470C
                    DYNAMIC ALLOCATION ERROR CODE 4734
                    DYNAMIC ALLOCATION ERROR CODE 4738

HELP DATA SET NOT USABLE+
                    FIND I/O ERROR
                    I/O SYNAD ERROR xxxxxxxx
```

```
HISTORY NOT AVAILABLE+
                    REQUIRED VOLUME NOT MOUNTED
                    DATA SET NOT ON VOLUME
                    I/O ERROR DURING OBTAIN, CODE xxxx
                    LOCATE ERROR CODE 4
                    LOCATE ERROR CODE 24

LOGON TERMINATED - SYSTEM ERROR

MEMBERS NOT AVAILABLE+
                    DIRECTORY STRUCTURE ERROR
                    I/O SYNAD ERROR DURING DIRECTORY SEARCH xxxxxxxx

SYSTEM ERROR+
                    DATA SET xxxxxxxx NOT UNALLOCATED, DYNAMIC
                    ALLOCATION ERROR CODE xxxx
                    DATA SET xxxxxxxx NOT UNALLOCATED, CATALOG ERROR
                    CODE xxxx

SYSTEM FAILURE - ALL USERS TERMINATED
SYSTEM FAILURE - PLEASE LOGON AGAIN

UNABLE TO DELETE DATA SET xxxxxxxx+
                    SCRATCH ERROR CODE 4
                    SCRATCH ERROR CODE 6
                    STOW ERROR CODE 16

UNABLE TO MODIFY PROTECTION FLAGS OF DATA SET xxxxxxxx+
                    I/O ERROR WHILE UPDATING SECURITY FLAGS

UNABLE TO PROTECT DATA SET+
                    I/O ERROR IN PASSWORD DATA SET

USER ATTRIBUTE DATA SET NOT ALLOCATED, DATA SET NOT ON VOLUME+
                    CATALOG INFORMATION INCORRECT

USER ATTRIBUTE DATA SET NOT USABLE+
                    BLDL I/O ERROR
                    I/O SYNAD ERROR xxxxxxxx
                    OPEN ERROR CODE xxxxxxxx
                    STOW I/O ERROR

xxxxxxxx ENDED DUE TO ERROR+
                    SYSTEM ABEND CODE xxxxxxxx
```

This section contains descriptions of the TSC commands. The commands are presented in alphabetical order. Subcommands are presented in alphabetical order following the command to which they apply. A boldface heading on each page identifies the information contained on the page. The boldface headings and the alphabetical organization allow you to locate particular commands as you would locate a subject in a dictionary or encyclopedia.

COMMAND (Abbreviation) SUBCOMMAND (abbreviation)
ACCOUNT
ADD (A)
CHANGE (C)
DELETE (D)
END
HELP (H)
LIST (L)
LISTIDS (LISTI)
ALLOCATE (ALLOC)
*ASM
*CALC
*DELETE (D)
*END
*HELP (H)
*SAVE
CALL
CANCEL
*COBOL (COB)
*CONVERT (CON)
*COPY
DELETE (D)
EDIT (E)
BOTTOM (B)
CHANGE (C)
DELETE (D)
DOWN
END
FIND (F)
*FORMAT (FORM)
HELP (H)
INPUT (I)
INSERT (IN)
LIST (L)
*MERGE (M)
PROFILE (PROF)
RENUM (REN)
RUN (R)
SAVE (S)
SCAN (SC)
TABSET (TAB)
TOP
UP
VERIFY (V)
EXEC (EX)
*FORMAT (FORM)
*FORT
FREE
HELP (H)
LINK
*LIST (L)
LISTALC (LISTA)
LISTBC (LISTB)
LISTCAT (LISTC)

COMMAND(Abbreviation) SUBCOMMAND(Abbreviation)
LISTDS (LISTD)
LOADGO (LOAD)
LOGOFF
LOGON
*MERGE
OPERATOR (OPER)
CANCEL (C)
DISPLAY (D)
END
HELP (H)
MODIFY (F)
MONITOR (MN)
SEND
STOP (P)
OUTPUT (OUT)
CONTINUE (CONT)
END
HELP (H)
SAVE (S)
PROFILE (PROF)
PROTECT (PROT)
RENAME (REN)
RUN (R)
SEND (SE)
STATUS (ST)
SUBMIT (SUB)
TERMINAL (TERM)
TEST
AT
CALL
DELETE (D)
DROP
END
HELP (H)
EQUATE (EQ)
FREEMAIN (FREE)
GETMAIN (GET)
GO
LIST (L)
LISTDCB
LISTDEB
LISTMAP
LISTPSW
LISTTCB
LOAD
OFF
QUALIFY (Q)
RUN (R)
WHERE (W)
TIME
**END
**PROC
**WHEN

*Optional Program Product commands available for a license fee.
**For use in command procedures.

ACCOUNT Command

Use the ACCOUNT command and subcommands to update the entries in the User Attribute Data Set (UADS). (You can use this command only if your installation has given you the authority to do so.) Basically, the UADS is a list of terminal users who are authorized to use TSO. The UADS contains information about each of the users. The information in the UADS is used to regulate access to the system.

Subcommands

You cannot accomplish any work with the ACCOUNT command until you use a subcommand to define the operation that you want to perform. The subcommands and the operations that they define are:

ADD	Add new entries to the UADS; add new data to existing entries.
CHANGE	Change data in specific fields of UADS entries.
DELETE	Delete entries or parts of entries from the UADS.
END	Terminate the ACCOUNT command.
HELP	Obtain help from the system.
LIST	Display the contents of an entry in the UADS.
LISTIDS	Display the user identifications for all entries.

The subcommands cannot be used until you have entered the ACCOUNT command. Each subcommand is discussed separately following the format of the ACCOUNT command.

There is an entry in the UADS for each terminal user. Each entry consists of the following information:

1. A user identification.
2. One or more passwords, or a single null field, associated with the user identification.
3. One or more account numbers, or a single null field, associated with each password.
4. One or more procedure names associated with each account number. Each procedure name identifies a procedure that is invoked when the user begins a terminal session by entering the LOGON command.
5. The region size requirements for each procedure.
6. The name of the group of devices that the user will use when he does not request specific devices.
7. The authority to use or a restriction against using the ACCOUNT command.
8. The authority to use or a restriction against using the OPERATOR command.

9. The authority to use or restriction against using the SUBMIT, STATUS, CANCEL, and OUTPUT commands.

The organization of the information contained in the UADS is shown in Figure 2. Figure 3 shows the simplest structure that an entry in the UADS can have, and Figure 4 shows a more complex structure.

COMMAND	OPERANDS
ACCOUNT	

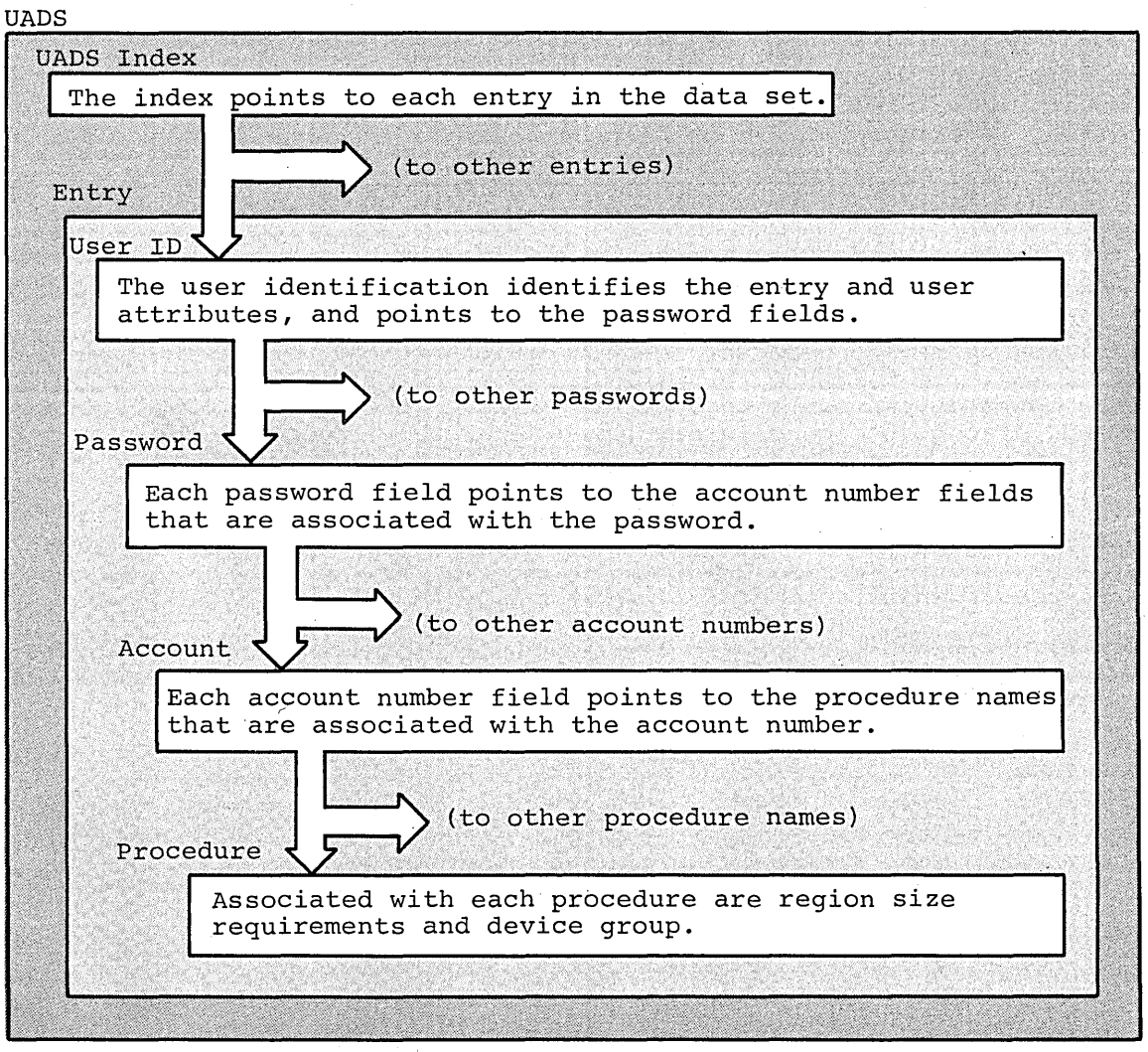


Figure 2. Organization of the UADS Data Set

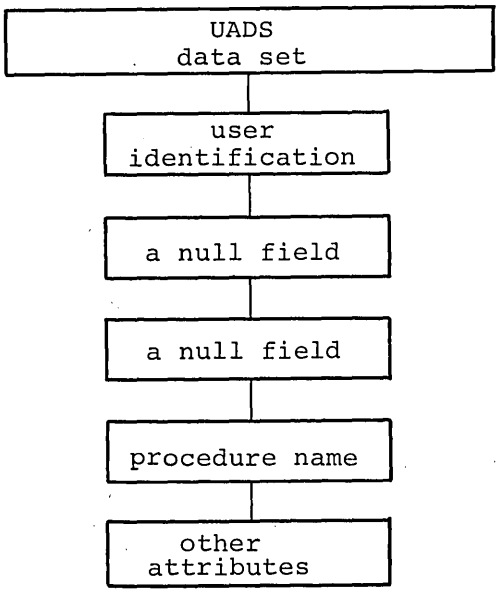


Figure 3. The Simplest Structure That an Entry in the UADS Can Have

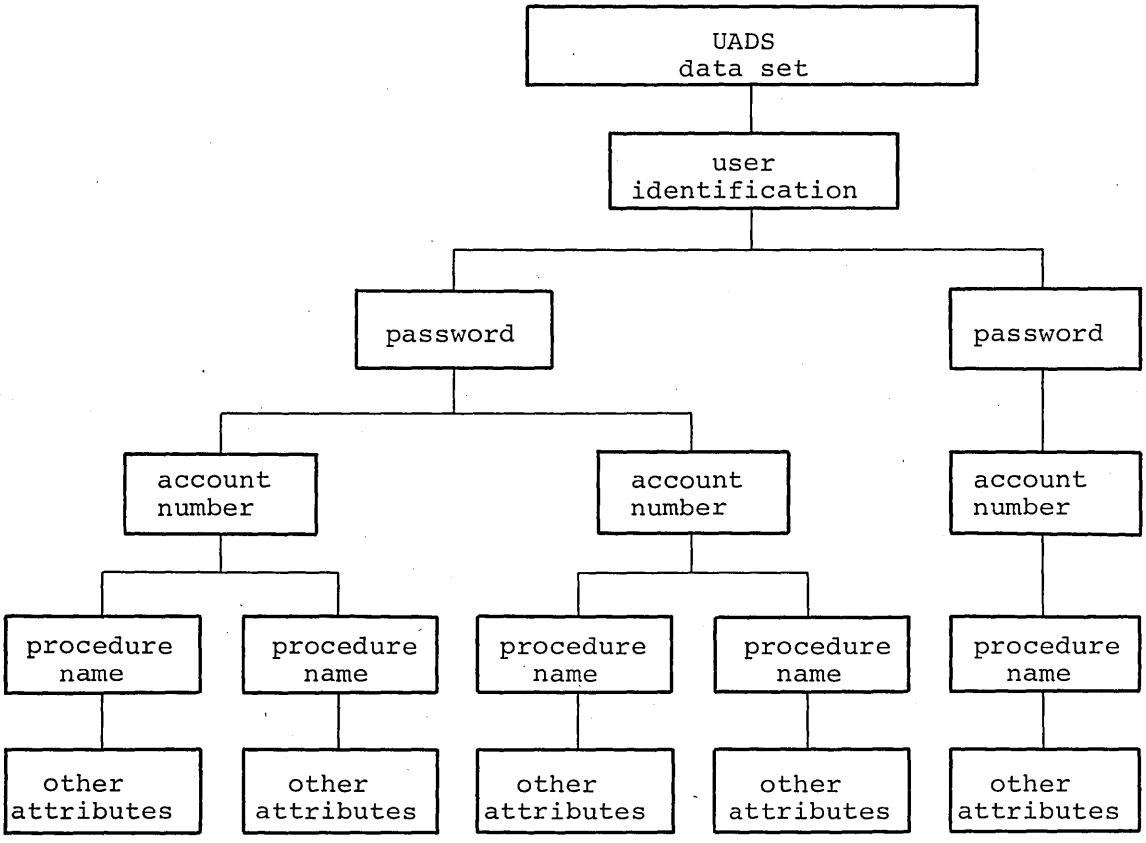


Figure 4. A Complex Structure For an Entry in the UADS

ACCOUNT Command
ADD Subcommand

Use the ADD subcommand to add new data to the User Attribute Data Set (UADS). Each terminal user has an entry in the UADS. Each entry contains several items of data. The data that you want to add may be additional data for an existing entry, or it may be an entire new entry.

SUBCOMMAND	OPERANDS
{ADD / A}	({user-identity / *} [password [account [procedure]]])
	[DATA([[passwords] accounts] procedures)]
	[SIZE(integer)]
	[UNIT(name)]
	[MAXSIZE(integer) / NOLIM]
	[ACCT / NOACCT] [OPER / NOOPER] [JCL / NOJCL]

user-identity
: specifies a user identification that identifies the UADS entry. The user identification is composed of 1-7 alphameric characters that begin with an alphabetic or national character. The entry that this field identifies may be:

  - An existing entry to which new data is to be added.
  - A new entry that is to be added to the UADS.

*
: specifies that all fields corresponding to the position of the asterisk are to be considered valid for the operation of the subcommand. When you are creating a new entry, the asterisk indicates a null field.

password
: specifies a word that the user must enter before he can use the system. The word must be composed of 1-8 alphameric characters and must begin with an alphabetic or national character (#, $, @). The password helps indicate the structure in the UADS to which data is being added, or, when you are adding an entire new entry, the password is part of the data being added.

account
: specifies an account number used for administrative purposes. The account number helps indicate the structure in the UADS to which data is being added, or, when you are adding an entire new entry, the account number is part of the data being added.

  For TSO, an account number must not exceed 40 characters, and must not contain a blank, tab, quotation mark, apostrophe, comma, semicolon, or line control character. A right parenthesis is permissable only when a left parenthesis precedes it somewhere in the account number.

procedure
specifies the name of a procedure that is invoked when the user enters the LOGON command. The procedure name is composed of 1-8 alphameric characters that begin with an alphabetic character. You should not specify this field for the first positional operand unless you are adding an entire new entry to the UADS.

DATA(passwords and/or accounts and/or procedures)
specifies that data is to be added to an existing entry. The data to be added is enclosed within parentheses following the DATA keyword. The system adds the data specified with this keyword to the structure identified by the first positional operand. More specifically, the data is added to the entry starting with the field following the last field specified in the first positional operand.

passwords
specifies a password or a list of passwords to be added to the existing entry at the location indicated by the first positional operand. When you specify a list of passwords, the list must be enclosed within a separate set of parentheses embedded within the set of parentheses required for the DATA keyword. Each password must be composed of 1-8 alphameric characters and must begin with an alphabetic or national character.

accounts
specifies an account number or a list of account numbers to be added to the existing entry. When you specify a list of account numbers, the list must be enclosed within a separate set of parentheses embedded within the set of parentheses required for the DATA keyword. An account number must not exceed 40 characters and must not contain a blank, tab, quotation mark, semicolon, or line control character; a right parenthesis is permissable only when a left parenthesis balances it somewhere in the account number. No more than 255 identical account numbers may exist under one user entry.

procedures
specifies a procedure name or a list of procedure names to be added to the existing entry. Each procedure name is composed of 1-8 alphameric characters that begin with an alphabetic character. When you specify a list of procedure names, in addition to one or more other fields, the list must be enclosed within a separate set of parentheses embedded within the set of parentheses required for the DATA keyword. You should specify the region size requirements for each procedure by using the SIZE keyword. No more than 255 identical procedure names may exist under one user entry.

SIZE(integer)
specifies the region size, in 1024 byte units, that the user will have assigned to him if he does not specify a size himself. The integer specified must not exceed 65,534. If you omit the SIZE keyword or if you specify SIZE(0), the default value is the minimum region size.

UNIT(name)
specifies the name of the group of devices that the user identified by the first positional operand will use when he does not request specific devices. You can specify a UNIT attribute for each unique combination of password, account, and procedure in the entry.

MAXSIZE(integer)
specifies the maximum region size, in 1024 byte units, that the user identified by the first operand can request at LOGON. The integer must not exceed 65,534. If you omit the MAXSIZE keyword or if you specify MAXSIZE(0), the default of NOLIM is assumed. Use this operand only when you add a complete entry to the UADS.

NOLIM
If NOLIM is specified, no maximum region size limit is enforced. This is the default when neither MAXSIZE nor NOLIM is specified. Use this operand only when you add a complete entry to the UADS.

ACCT
specifies that the user identified by the first operand can use the ACCOUNT command, thereby controlling access to the time sharing system. Use this operand only when you add a complete entry to the UADS.

NOACCT
specifies that the user identified by the first operand cannot use the ACCOUNT command. This is the default when neither ACCT nor NOACCT is specified. Use this operand only when you add a complete entry to the UADS.

OPER
specifies that the user identified by the first operand can use the OPERATOR command. Use this operand only when you add a complete entry to the UADS.

NOOPER
specifies that the user identified by the first operand cannot use the OPERATOR command. This is the default when neither OPER nor NOOPER is specified. Use this operand only when you add a complete entry to the UADS.

JCL
specifies that the user identified by the first operand can use the SUBMIT, STATUS, CANCEL, and OUTPUT commands. Use this operand only when you add a complete entry to the UADS.

NOJCL
specifies that the user identified by the first operand cannot use the SUBMIT, STATUS, CANCEL, and OUTPUT commands. This is the default when neither JCL nor NOJCL is specified. Use this operand only when you add a complete entry to the UADS.

ACCOUNT Command
ADD Subcommand

Example 1

Operation: Add a new entry to the UADS.

Known: The user identification..... KALTPT
The password..... XAYBZC
The account number..... 32058
The procedure name..... MYLOG
The user cannot use the ACCOUNT command.
The user cannot use the OPERATOR command.
The user can use the SUBMIT command.
The user's maximum allowable region size..... 153,600 bytes
The region size requirements for the procedure... 81,920 bytes
The name of the group of devices allowed..... SYSDA

```
ADD (KALTPT XAYBZC 32058 MYLOG) NOACCT NOOPER JCL -
MAXSIZE(150) SIZE(80) UNIT(SYSDA)
```

Example 2

Operation: Add a new password, account number, and procedure name to an existing entry in the UADS. Also include the region size requirements for the procedure.

Known: The user identification for the entry..... SLAT2
The new password..... MZ3TII
The new account number..... 7116166
The new procedure name..... AMABALA
The region size requirements for the procedure... 92,160 bytes

```
ADD (SLAT2) DATA(MZ3TII 7116166 AMABALA) SIZE(90)
```

Example 3

Operation: Continuing example 2, add a new account number, 288104, to an entry in the UADS.

Known: The user identification for the entry..... SLAT2
The password for the entry..... MZ3TII
The new account number..... 288104
The input procedure name..... MYLOG
The region size requirements for the procedure... 116,736 bytes
The device group to be used..... SYS2301

```
ADD (SLAT2 MZ3TII) DATA(288104 MYLOG) SIZE(114) UNIT(SYS2301)
```

Example 4

Operation: Add a new procedure name and region size requirements for the procedure to all entries in the UADS.

Known: The input procedure name..... MYLOG
The region size requirements..... 74,752 bytes

```
ADD (* * *) DATA(MYLOG) SIZE(73)
```

Example 5

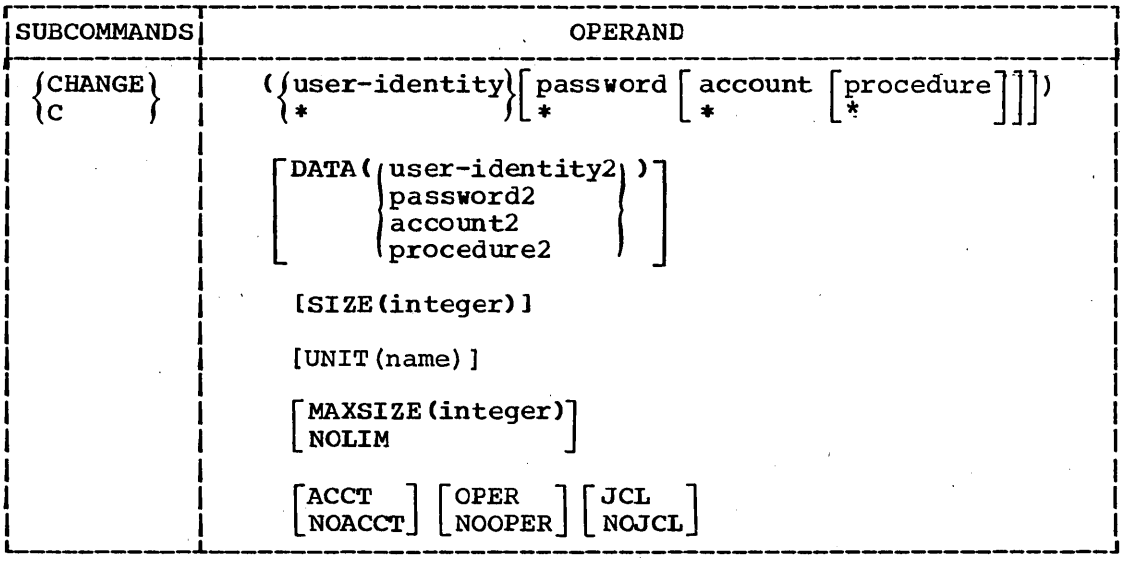
Operation: Add a new account number and procedure name to all structures for a particular entry in the UADS.

Known: The user identification for the entry..... WMROEL
The input account number..... 5707471
The input procedure name..... LOGPROC
The region size requirements..... 102,400 bytes

```
ADD (WMROEL *) DATA(5707471 LOGPROC) SIZE(100)
```

ACCOUNT Command
CHANGE Subcommand

Use the CHANGE subcommand to change existing fields of data within entries in the UADS.



user-identity
: specifies the existing user identification that identifies the UADS entry.

*
: specifies that all fields corresponding to the position the asterisk are to be considered valid for the operation of the subcommand.

password
: specifies an existing password that a user must enter before he can use the system. The password helps locate the data being changed, and, when you are changing a password, identifies the data being changed.

account
: specifies an existing account number. The account number helps locate the data being changed, and, when you are changing an account number, identifies the data being changed.

procedure
: specifies an existing name of a procedure. The procedure name, when specified, is the data being changed.

DATA(user identity2 and/or password2 and/or account2 and/or procedure2)
: specifies the replacement data. The data enclosed within parentheses following the DATA keyword is used by the system to replace the data identified by the last field of the first operand.

user identity2
: specifies a user identification to replace the existing user identity. The user identification is composed of 1-7 alphameric characters that begin with an alphabetic or national character.

password2
specifies a password to replace the existing password. The password must be composed of 1-8 alphameric characters and must begin with an alphabetic or national character.

account2
specifies an account number to replace the existing acccunt number. The acccunt number is composed of 1-40 characters and must not contain a blank, tab, quotation mark, semicclon, apostrophe, comma, or line control character. A right parenthesis is permissable only when a left parenthesis balances it somewhere in the account number.

procedure2
specifies a procedure name to replace the existing procedure name. The procedure name is composed of 1-8 alphameric characters and must begin with an alphabetic character.

SIZE(integer)
specifies the region size, in 1024 byte units, that is specified on the JCL EXEC statement of the procedure whose name is being added to the UADS. The integer must not exceed 65,534. If you specify SIZE(0), the minimum region size is assumed.

UNIT(name)
specifies the name of the group of devices that the user will use when he does not request specific devices.

MAXSIZE(integer)
specifies the maximum region size, in 1024 byte units, that the user may request at LOGON. The integer must not exceed 65,534. If you specify MAXSIZE(0), the default of NOLIM is assumed.

NOLIM
specifies that the user is not restricted to a maximum region size.

ACCT
specifies that the user can use the ACCOUNT command thereby controlling access to the time sharing system.

NOACCT
specifies that the user cannot use the ACCOUNT command.

OPER
specifies that the user can use the OPERATOR command.

NOOPER
specifies that the user cannot use the OPERATOR command.

JCL
specifies that the user can use the SUBMIT, STATUS, CANCEL, and OUTPUT commands.

NOJCL
specifies that the user cannot use the SUBMIT, STATUS, CANCEL, and OUTPUT commands.

Example 1

Operation: Change an account number for a particular entry in the UADS. At the same time authorize the user to issue the ACCOUNT and OPERATOR commands.

Known: The user identification for the entry..... TOC23
The password..... AOX3P
The old account number..... 2E29705
The new account number..... 2E26705

```
CHANGE (TOC23 AOX3P 2E29705) DATA(2E26705) ACCT OPER
```

Example 2

Operation: Authorize all users to issue the SUBMIT command.

```
CHANGE (*) JCL
```

The asterisk in the first positional operand specifies that all user identities are considered valid for the operation of this subcommand.

Example 3

Operation: Change the user identification for an entry in the UADS.

Known: The existing user identification..... SWECORP
The new user identification..... SWECP01

```
CHANGE (SWECORP) DATA(SWECP01)
```

Example 4

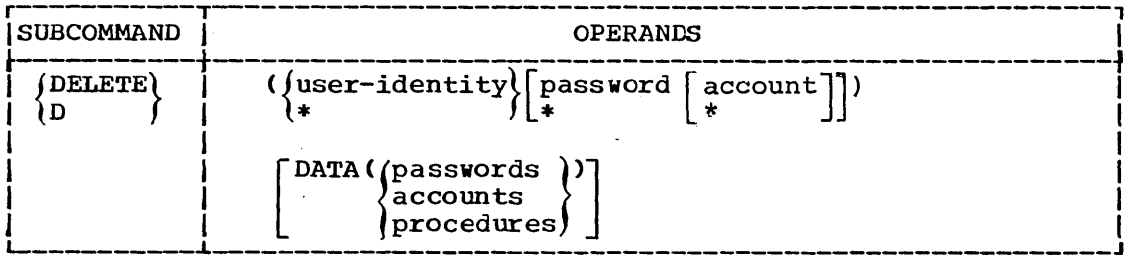
Operation: Change the name of a procedure for an entry that consists of a user identification, a procedure name, and attributes (no password or account number).

Known: The user identification..... WSNCD
The old procedure name..... TTURM
The new procedure name..... TML

```
CHANGE (WSNCD * * TTURM) DATA(TML)
```

ACCOUNT Command
DELETE Subcommand

Use the DELETE subcommand to delete data from the User Attribute Data Set (UADS). Each terminal user has an entry in the UADS. Each entry contains several items of data. The data thay you want to delete may be a part of an existing entry, or it may be an entire existing entry.



user-identity
: specifies a user identification which identifies the UADS entry. The user identification is composed of 1-7 alphameric characters that begin with an alphabetic or national character.

*
: specifies that all fields corresponding to the position of the asterisk are to be considered valid for the operation of the subcommand.

password
: specifies a word that a user must enter before he can use the system. The word must be composed of 1-8 alphameric characters and must begin with an alphabetic or national character. The password helps indicate the particular existing structure from which data is being deleted, or, when you are deleting a password, the password is the data being deleted.

account
: specifies an account number used for administrative purposes. The account number helps indicate the structure from which data is being deleted, or, when you are deleting an account number, the account number is the data being deleted.

  For TSO, an account number must not exceed 40 characters, and must not contain a blank, tab, quotation mark, semicolon, apostrophe, comma, or line control character. A right parenthesis is permissable only when a left parenthesis precedes it somewhere in the account number.

DATA(passwords or accounts or procedures)
: specifies the data that is to be deleted from an existing entry. The data to be deleted is enclosed within parentheses fcllowing the DATA keyword.

passwords
: specifies a password or a list of passwords to be deleted from the existing entry at the location indicated by the first pcsitional operand. Each password must be composed of 1-8 alphameric characters, and must begin with an alphabetic or national character.

ACCOUNT Command
DELETE Subcommand

accounts
: specifies an account number or a list of account numbers to be deleted from the existing entry. An account number must not exceed 40 characters, and must not contain a blank, tab, quotation mark, apostrophe, comma, semicolon, or line control character. A right parenthesis is permissable only when a left parenthesis balances it somewhere in the account number.

procedures
: specifies a procedure name or a list of procedure names to be deleted from the existing entry. Each procedure name is composed of 1-8 alphameric characters and must begin with an alphabetic character.

The Contents of an Entry in the UADS: Each entry in the UADS consists of the following information:

(These four items correspond to the fields of the first positional operand and the DATA keyword for this subcommand. These items are the only items that you can delete separately. To delete items 5-9, you must delete the entire entry.)

1. A user identification.
2. One or more passwords, or a single null field, associated with the user identification.
3. One or more account numbers, or a single null field, associated with each password.
4. One or more procedure names associated with each account number. Each procedure name identifies a procedure that is invoked when the user begins a terminal session by entering the LOGON command.

(These last five items can be deleted only when the entire entry is deleted.)

5. The region size requirements for each each procedure.
6. The name of the group of devices that the user will use when he does not request specific devices.
7. The authority to use, or a restriction against using, the ACCOUNT command.
8. The authority to use, or a restriction against using, the OPERATOR command.
9. The authority to use, or a restriction against using, the SUBMIT, STATUS, CANCEL, and OUTPUT commands.

Deleting an Entire Entry: To delete an entire entry from the UADS, you only need to know the user identification for the entry. You must specify the user identification as the first and only field of the first positional operand.

Deleting Data from an Existing Entry: To use the DELETE subcommand to delete data from an existing entry, you must identify:

a. The location within the entry.
b. The data that you want to delete.

Example 1

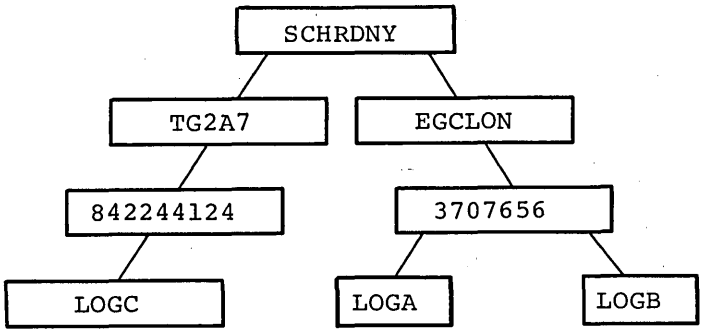
Operation: Delete an entire entry from the UADS.

Known: The user identification for the entry..... VASHTAR

```
DELETE (VASHTAR)
```

Example 2

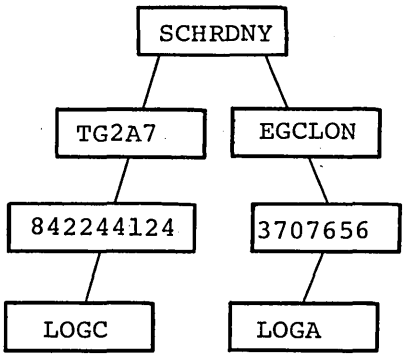
Operation: Delete a procedure name from an entry in the UADS having the following index structure.



Known: The user identification..... SCHRDNY
The password..... EGCLON
The account number..... 3707656
The procedure name to be deleted..... LOGB

```
DELETE (SCHRDNY EGCLON 3707656) DATA(LOGB)
```

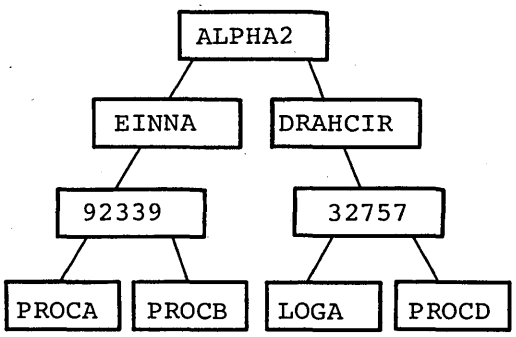
The resultant index structure is:



ACCOUNT Command
DELETE Subcommand

Example 3

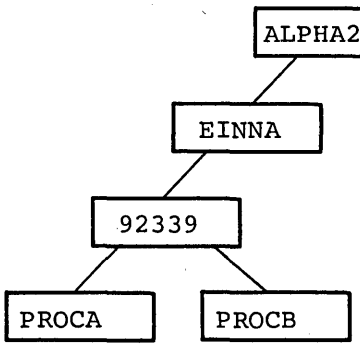
Operation: Delete an account number from an entry in the UADS having the following index structure.



Known: The user identification..... ALPHA2
The password..... DRAHCIR
The account number to be deleted..... 32757

```
DELETE (ALPHA2 DRAHCIR) DATA(32757)
```

The resultant index structure is:



ACCOUNT Command
END Subcommand

Use the END subcommand to terminate operation of the ACCOUNT command. After entering the END subcommand, you may enter new commands.

SUBCOMMAND	OPERANDS
END	

ACCOUNT Command
HELP Subcommand

Use the HELP subcommand to find out how to use ACCOUNT and the ACCOUNT subcommands. When you enter the HELP subcommand, the system responds by printing out explanatory information at your terminal. You may request:

- A list of available subcommands.
- An explanation of the function, syntax, and operands of a specific subcommand.

The HELP subcommand actually causes the system to execute a function of the HELP command; therefore, you may consult the discussion of the HELP command if you desire more detailed information.

SUBCOMMAND	OPERANDS
{HELP / H}	[subcommand-name] [FUNCTION] [SYNTAX] [OPERANDS[(list-of-operands)] [ALL]

subcommand-name
specifies the subcommand that you want to have clarified. If you omit this operand, the system will display a list of ACCOUNT subcommands.

FUNCTION
specifies that you want a description of the referenced subcommand's function.

SYNTAX
specifies that you want a definition of the proper syntax for the referenced subcommand.

OPERANDS (list-of-operands)
specifies that you want an explanation of the operand applicable to the referenced subcommand.

The list of operands specifies the particular keywords that you want to have explained. If you do not specify any keywords, all of the applicable keywords will be included. You must use one or more blanks or a comma as a delimiter between the keywords in the list.

ALL
specifies that you want a description of the function, the syntax, and the operands of the subcommand that you specified. This is the default if no operand is specified.

Example 1

Operation: Have a list of available subcommands displayed at your terminal.

```
HELP
```

Example 2

Operation: Obtain all available information about a particular subcommand.

Known: The subcommand name..... ADD

```
H ADD
```

Example 3

Operation: Have a list of the operands for a particular subcommand displayed at your terminal.

Known: The subcommand name..... LIST

```
h list operands
```

ACCOUNT Command
LIST Subcommand

Use the LIST subcommand to display entries in the User Attribute Data Set (UADS) or to display fields of data from within particular entries.

SUBCOMMAND	OPERANDS
{LIST / L}	({user-identity / *} [password [* [account [* [procedure]]]]])

user-identity
: specifies a user identification that identifies the UADS entry. The user identification is composed of 1-7 alphameric characters that begin with an alphabetic or national character.

*
: specifies that all fields corresponding to the position of the asterisk are to be considered valid for the operation of the subcommand.

password
: specifies a word that a user must enter before he can use the system. The word must be composed of 1-8 alphameric characters and must begin with an alphabetic or national character. The password helps indicate the structure to be displayed.

account
: specifies an account number used for administrative purposes. The account number helps indicate the structure to be displayed. For TSO, an account number must not exceed 40 characters, and must not contain a blank, tab, quotation mark, apostrophe, comma, semicolon, or line control character. A right parenthesis is permissable only when a left parenthesis precedes it somewhere in the account number.

procedure
: specifies the name of a procedure that is invoked when the user enters the LOGON command. The procedure name helps indicate the particular structure to be displayed. The procedure name is composed of 1-8 alphameric characters and must begin with an alphabetic character.

Example 1

Operation: List the contents of the UADS.

```
LIST (*)
```

ACCOUNT Command
LIST Subcommand

Example 2

Operation: List all of a particular entry in the UADS.

Known: The user identification..... JOTSOP

```
LIST (JOTSOP)
```

Example 3

Operation: List all of the account numbers for a particular entry.

Known: The user identifcation..... EVOTS
The password..... ROOLF

```
LIST (EVOTS ROOLF *)
```

ACCOUNT Command
LISTIDS Subcommand

Use the LISTIDS subcommand to have a list of the user identifications in the User Attribute Data Set (UADS) displayed at your terminal.

SUBCOMMAND	OPERANDS
{LISTIDS {LISTI	

Example 1

Operation: List all user identifications in the UADS.

```
LISTIDS
```

ALLOCATE Command

Use the ALLOCATE command to allocate, dynamically, the data sets required by a program that you intend to execute.

COMMAND	OPERANDS
{ALLOCATE / ALLOC}	{DATASET({* / data-set-name}) [FILE(name)] / FILE(name) [DATASET({* / data-set-name})]}
	[OLD / SHR / MOD / NEW / SYSOUT]
	[VOLUME(serial)]
	[SPACE(quantity [increment]) BLOCK(block-length)]
	[DIR(integer)]

DATASET(data-set-name or *)
specifies the name of the data set that is to be allocated. The data set name must include the descriptive (rightmost) qualifier and may contain a member name in parentheses. (See the data set naming conventions.)

You may substitute an asterisk (*) for the data set name to indicate that you want to have your terminal allocated for input and output. If you use an asterisk (*), only the FILE operand is recognized by the system. All other operands are ignored.

In general, you may specify either or both the DATASET and FILE keywords; however, the data set name must be specified if the status of the data set is OLD or SHR, or if it is MOD and the data set currently exists. You will be prompted to supply the name of a MOD data set if you omit the SPACE operand, indicating that the data set currently exists. The SPACE operand must be specified when the data set is NEW.

The system generates names for SYSOUT data sets; therefore, you should not specify a data set name when you allocate a SYSOUT data set. If you do, the system ignores it.

FILE(name)
specifies the name to be associated with the data set. It may contain no more than eight characters. This name must match the data definition (DD) name in the Data Control Block (DCB) that is associated with the data set. For PL/I, this name is the file name in a DECLARE statement and has the form "DCL filename FILE"; for instance, DCL MASTER FILE. For COBOL, this name is the external-name used in the ASSIGN TO clause. For FORTRAN, this name

is the data set reference number that identifies a data set and has the form "FTxxFyyy;" for instance, FT06F002.

If you omit this operand, the system assigns an available file name (ddname) from a data definition statement in the procedure that is invoked when you enter the LOGON command.

OLD
indicates that the data set currently exists and that you require exclusive use of the data set. The data set should be cataloged. If it is not, you must specify the VOLUME operand. OLD data sets are retained by the system when you free them from allocation.

SHR
indicates that the data set currently exists but that you do not require exclusive use of the data set. Other tasks may use it concurrently. SHR data sets are retained by the system when you free them.

MOD
indicates that you want to append data to the end of the data set. If the data set is actually new, you must also specify the SPACE operand. MOD data sets are retained by the system when you free them if you specify a data set name; they are deleted if you do not specify a data set name.

NEW
indicates that the data set does not exist and that it is to be created. You must specify the SPACE and BLOCK operands for NEW data sets. For new partitioned data sets you must also specify the DIR operand. NEW data sets are kept and cataloged if you specify a data set name. They are deleted if you do not specify a data set name.

SYSOUT
indicates that the data set is to be a system output data set. Output data will be initially written on a direct access device and later transcribed from the direct access device to the final output device. The final output device may be a unit record device (such as a printer or a terminal) or a magnetic tape device. The output class to which this data set is assigned is that of the message class. (See also the publication IBM System/360 Operating System, Supervisor and Data Management Services, GC28-6646.) After transcription by an output writer, SYSOUT data sets are deleted. You may specify space values with the SPACE operand; if you do not, default space values are provided by the system.

If you do not specify OLD, SHR, MOD, NEW, or SYSOUT, the system assigns a default value depending on the BLOCK, SPACE, and DIR operands. If you specify the BLOCK, SPACE, and DIR operands, the status defaults to NEW; otherwise, it defaults to OLD.

To change the output class refer to the FREE command and to the OUTPUT command.

VOLUME(serial)
specifies the serial number of the direct access volume on which a new data set is to reside or on which an old data set is located. If you do not specify a serial number, new data sets are allocated to any eligible direct access volume.

BLOCK(block-length)
specifies the average block length (in bytes) of the records that are to be written to the data set. The BLOCK operand is required for new data sets. You must specify the SPACE operand when you specify this operand. You may also specify BLOCK for SYSOUT data sets if the default values are not acceptable.

SPACE(quantity,increment)
specifies the amount of space to be reserved for the new data set. The amount of space is determined by multiplying the "block length" (specified by the BLOCK(block-length) keyword) by the "quantity" value of the SPACE(quantity,increment) keyword. SPACE is required for new data sets and may be specified for SYSOUT data sets. You must specify the BLOCK operand when you specify this operand.

quantity
specifies the primary number of blocks to be allocated for the data set.

increment
specifies a secondary number of blocks to be allocated for the data set each time the previously allocated space has been exhausted. A maximum of 15 secondary blocks may be allocated.

DIR(integer)
specifies the number of 256 byte records that are to be allocated for the directory of a new partitioned data set. This operand must be specified if you are allocating a new partitioned data set. You must also specify the BLOCK and SPACE operands.

Example 1

Operation: Allocate an existing cataloged data set containing input data for a program. The data set name conforms to the data set naming conventions, and you need exclusive use of the data.

Known: The name of the data set..... REB35.INPUT.DATA

```
ALLOCATE DATASET(INPUT.DATA) OLD
```

Example 2

Operation: Allocate a new data set to contain the output from a program.

Known: The name that you want to give the data set REB35.OUTPUT.DATA
The block length..... 1056 bytes
The number of blocks expected to be used... 50

```
ALLOCATE DATASET(OUTPUT.DATA) NEW SPACE(50,10) BLOCK(1056)
```

Example 3

Operation: Allocate your terminal as a temporary input data set.

```
ALLOCATE DATASET(*) FILE(FT01F001)
```

Example 4

Operation: Allocate an existing data set that is not cataloged and whose name does not conform to the data set naming conventions.

Known: The data set name..... SYS1.PTIMAC.AM
The volume serial number..... B99RS2
The DD name..... SYSLIB

```
alloc dataset('sys1.ptimac.am') file(syslib) volume(b99rs2) shr
```

Example 5

Operation: Allocate a new partitioned data set.

Known: The data set name..... JOHNS.OVERHEAD.TEXT
The block length..... 256 bytes
The number of blocks..... 500
The number of directory records..... 50

```
ALLOC DATASET(OVERHEAD.TEXT) NEW BLOCK(256) SPACE(500) DIR(50)
```

ASM Command

The ASM command is provided as part of the optional TSO ASM Prompter program product which is available for a license fee.

Use the ASM command to process data sets and produce object modules. The prompter requests required information and enables you tc correct your errors at the terminal.

CALC Command

The CALC command is provided as part of the optional ITF:PL/I program product which is available for a license fee.

Use the CALC command to execute ITF:PL/I statements in desk calculator mode; that is, to have statements interpreted and executed as you enter them.

CALL Command

Use the CALL command to load and execute a program that exists in executable (load module) form. The program may be user-written, or it may be a system module such as a compiler, sort, or utility program.

You must specify the name of the program (load module) to be processed. It must be a member of a partitioned data set.

You may specify a list of parameters to be passed to the specified program. The system formats this data so that when the program receives control, register one contains the address of a fullword. The three low order bytes of this fullword contain the address of a halfword field. This halfword field is the count of the number of bytes of information contained in the parameter list. The parameters immediately follow the halfword field.

If the program terminates abnormally, you are notified of the condition and may enter a TEST command to examine the failing program.

COMMAND	OPERANDS
CALL	data-set-name ['parameter-string']

data-set-name
specifies the name of the member of a partitioned data set that contains the program to be executed. You must enclose the member name within parentheses. When the name of the partitioned data set conforms to the data set naming conventions, the system will add the necessary qualifiers to make the name fully qualified. The system will supply .LOAD as a default for the descriptive qualifier and (TEMPNAME) as the default for a member name. If the name of the partitioned data set does not conform to the data set naming conventions, it must be included with the member name in the following manner:

```
data-set-name(membername)
```

If you specify a fully qualified name, enclose it in apostrophes (single quotes) in the following manner:

```
'USERID.MYPROGS.LOADMOD(A)'
'SYS1.LINKLIB(IEUASM)'
```

parameter-string
specifies up to 100 characters of information that you want to pass to the program as a parameter list. When passing parameters to a program, you should use the standard linkage conventions.

Example 1

Operation: Execute a load module.

Known: The name of the load module..... BARB01.PEARL.LOAD(TEMPNAME)
Parameters..... 10,18,23

```
CALL PEARL '10 18 23'
```

Example 2

Operation: Execute a load module.

Known: The name of the load module..... SHEP.MYLIB.LOAD(COS1)

```
CALL MYLIB(COS1)
```

Example 3

Operation: Execute a load module.

Known: The name of the load module..... BCMD93.LOAD(SIN1)

```
CALL (SIN1)
```

CANCEL Command

Use the CANCEL command to halt processing of conventional batch jobs that you have submitted from your terminal. If several jobs have the same jobname, the system cancels only the first one it finds with that name. A message will be displayed at your terminal to advise you of the action taken by the system. A message will also be displayed at the system operator's console when a job is canceled.

Only authorized users can use this command (see the ACCOUNT command). This command is generally used in conjunction with the SUBMIT, STATUS, and OUTPUT commands.

COMMAND	OPERANDS
{CANCEL} {C }	(job-name-list)

(job-name-list)
specifies the names of the jobs that you want to cancel. The name of a job that you submit from your terminal consists of your user identification plus one or more alphameric characters up to a maximum of eight characters. You can only cancel jobs that have a userid that is identical to the one with which you logged on.

Note: When you specify a list of several job names, you must separate the jobnames with standard delimiters and you must enclose the entire list within parentheses.

Example 1

Operation: Cancel a conventional batch job.

Known: The name of the job..... JE024A1

```
CANCEL JE024A1
```

Example 2

Operation: Cancel several conventional batch jobs.

Known: The names of the jobs..... D58BOBTA
D58BOBTB
D58BOBTC

```
C (D58BOBTA D58BOBTB D58BOBTC)
```

COBOL Command

The COBOL command is provided as part of the optional COBOL Prompter program product which is available for a license fee.

Use the COBOL command to compile an American National Standard (ANS) COBOL programs. This command reads and interprets statements for the American National Standard COBOL version 3 compiler and prompts you for any information that you have omitted or entered incorrectly. It also allocates required data sets and passes parameters to the compiler.

CONVERT Command

The CONVERT command is provided as part of the optional ITF:PL/I and BASIC program product or the Code and Go program product which is available for a license fee.

Use the CONVERT command to convert language statements contained in data sets to a form suitable for a compiler other than the one for which they were originally intended. The conversions that can be accomplished with this command are:

FROM	TO
Statements suitable for the TSO ITF:PLI compiler (a Program Product)	Statements suitable for the PL/I (F) compiler
Free format statements suitable for the Code and Go FORTRAN compiler (a Program Product)	Fixed format statements suitable for the FORTRAN (G1) compiler and all the FORTRAN compilers provided with the Operating System
Fixed format statements suitable for the FORTRAN (GI) compiler	Free format statements suitable for the Code and Go FORTRAN compiler (a Program Product)
Statements in an ITF/OS collection	A form acceptable by TSO

COPY Command

The COPY command is provided as part of the optional TSO Data Utilities: COPY, FORMAT, LIST, MERGE program product which is available for a license fee.

Use the COPY command to copy sequential or partitioned data sets. You can also use this command to:

- Add members to or merge partitioned data sets.
- Resequence line numbers of copied records.
- Change the record length, the block size, and the record format when copying into a sequential data set.

DELETE Command

Use the DELETE command to delete one or more data sets or one or more members of a partitioned data set.

If the data set is cataloged, the system removes the catalog entry. The catalog entry for a partitioned data set is removed only when the entire partitioned data set is deleted. The system deletes a member of a partitioned data set by removing the member name from the directory of the partitioned data set.

Members of a partitioned data set and aliases for any members must each be deleted explicitly. That is, when you delete a member, the system does not remove any alias names of the member; likewise, when you delete an alias name, the member itself is not deleted.

After you delete a protected data set, you should use the PROTECT command to update the password data set to reflect the change. This will prevent your having insufficient space for future entries.

COMMAND	OPERANDS
{DELETE / D}	(data-set-list) [PURGE / NOPURGE]

data-set-list
: specifies the name of a data set or a member of a partitioned data set, or a list of names of data sets and/or members (see data set naming conventions). If you specify a list, it must be enclosed within parentheses.

  If you want to delete several data sets having similar names, you may insert an asterisk into the data set name at the point of dissimilarity. That is, all data sets whose names match except at the position where the asterisk is placed will be deleted. However, you may use only one asterisk per data set name, and you must not place it in the first position.

  For instance, suppose that you have several data sets named:

```
ROGERA.SOURCE.PLI
ROGERA.SOURCE2.PLI
ROGERA.SOURCE2.TEXT
ROGERA.SOURCE2.DATA
```

  If you specify:

```
DELETE SOURCE2.*
```

  the only data set remaining will be

```
ROGERA.SOURCE.PLI
```

PURGE
: specifies that the data set is to be deleted even if its expiration date has not elapsed. This operand is ignored by the system if you are deleting a member of a partitioned data set. The PURGE keyword applies to all data sets specified in a list.

NOPURGE
specifies that you want the system to check the expiration date for the data set. Only if the expiration date has elapsed will the data set be deleted. The NOPURGE keyword applies to all data sets specified in a list. This is the default if neither PURGE nor NOPURGE is specified.

Example 1

Operation: Delete a member of a partitioned data set.

Known: The data set name and member name..... BAN00.INCREASE.FORT(HOOF)

```
DELETE INCREASE.FORT(HOOF)
```

Example 2

Operation: Delete several data sets.

Known: The name of the data sets..... JWSD58.CMDS.TEXT
JWSD58.UTILS.OBJ
JWSD58.BUDGET.ASM

```
DELETE (CMDS.TEXT UTILS.OBJ BUDGET.ASM)
```

Example 3

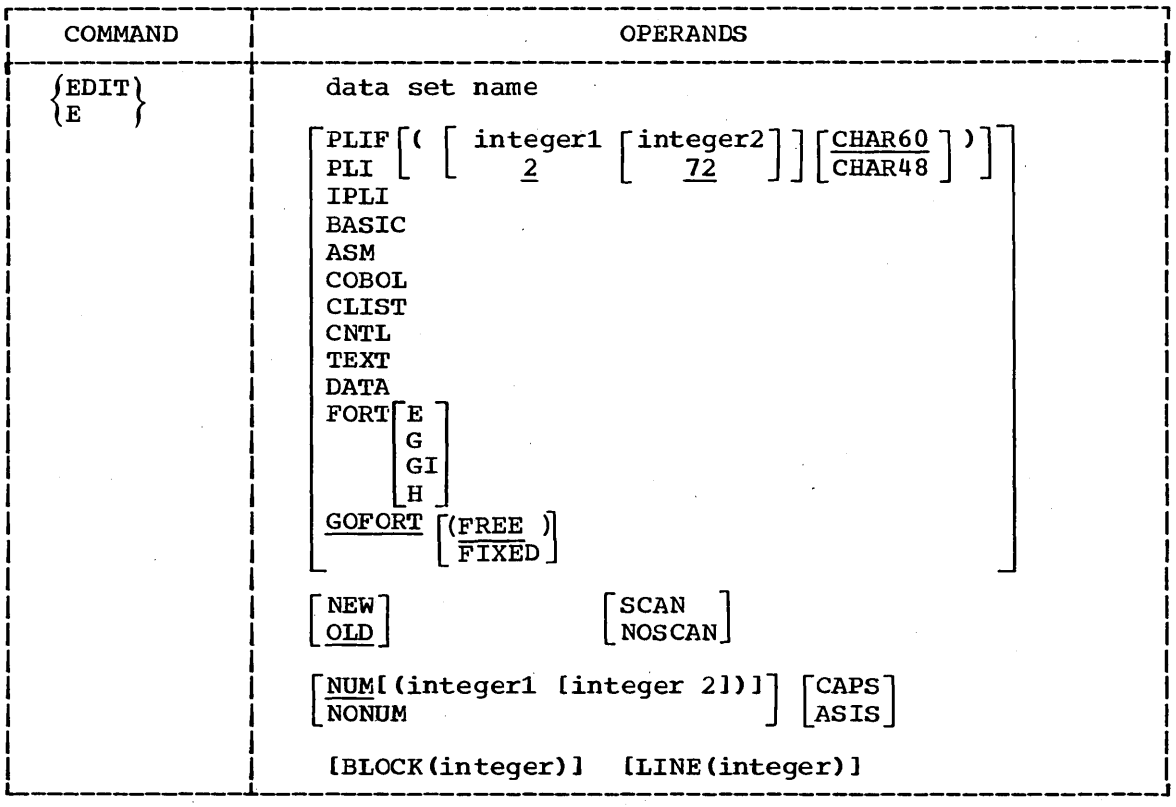
Operation: Delete a data set even if its expiration date has not expired.

Known: The name of the data set REB1.SCHEDULE.OBJ

```
D SCHEDULE.OBJ PURGE
```

EDIT Command

Use the EDIT command to enter and modify data in the system.



data-set-name
: specifies the name of the data set that you want to create or edit. (See data set naming conventions.)

PLIF
: specifies that the data set specified by the first operand is for PLIF statements.

PLI
: specifies that the data set identified by the first operand is for PL/I statements. The statements may be for the PLI optimizing compiler or the PLI checkout compiler.

integer1 and integer2
: the optional values contained within the parentheses are applicable only when you request syntax checking. The integer1 and integer2 values define the column boundaries for your input statements. The position of the first character of a line, as determined by the left margin adjustment on your terminal, is column 1. The value for integer1 specifies the column where each input statement is to begin. The statement can extend from the column specified by integer1 up to and including the column specified as a value for integer2. If you omit integer1 you must omit integer2, and the default values are columns 2 and 72; however, you can omit integer2 without omitting integer1.

CHAR48 or CHAR60
CHAR48 specifies that the PL/I source statements are written using the character set that consists of 48 characters. CHAR60 specifies that the source statements are written using the character set that consists of 60 characters. If you omit both CHAR48 and CHAR60, the default value is CHAR60.

IPLI(CHAR48 or CHAR60)
specifies that the data set identified by the first operand is for PL/I statements that may be processed by the ITF:PLI Program Product. CHAR48 or CHAR60 are used as described in the PLI operand description.

BASIC
specifies that the data set identified by the first operand is for BASIC statements that may be processed by the ITF:BASIC Program Product.

ASM
specifies that the data set identified by the first operand is for assembler language statements.

COBOL
specifies that the data set identified by the first operand is for COBOL statements.

CLIST
specifies that the data set identified by the first operand is for a command procedure and will contain TSO commands and subcommands as statements or records in the data set.

CNTL
specifies that the data set identified by the first operand is for Job Control Language (JCL) statements and SYSIN data to be used with the SUBMIT command.

TEXT
specifies that the data set identified by the first operand is for text that may consist of both uppercase and lowercase characters.

DATA
specifies that the data set identified by the first operand is for data that may be subsequently retrieved or used as input data for processing by an application program.

FORT
specifies that the data set identified by the first operand is for FORTRAN statements.

FORTE
specifies that the data set identified by the first operand is for FORTRAN (E) statements.

FORTG
specifies that the data set identified by the first operand is for FORTRAN (G) statements.

FORTGI
specifies that the data set identified by the first operand is for FORTRAN (G1) statements. You may use FORT as an abbreviation for this operand. This is the default value if no other FORTRAN language level is specified with the FORT operand.

FORTH
specifies that the data set identified by the first operand is for FORTRAN (H) statements.

GOFORT(FREE or FIXED)
specifies that the data set identified by the first operand is for statements that are suitable for processing by the Code and Go FORTRAN Program Product.

FREE specifies that the statements are of variable lengths and do not conform to set column requirements. This is the default value if neither FREE nor FIXED is specified. FIXED specifies that statements adhere to standard FORTRAN column requirements and are 80 bytes long.

Note: The PLI, IPLI, BASIC, ASM, FORT, FORTE, FORTG, FORTGI, FORTH, GOFORT, COBOL, CLIST, CNTL, TEXT and DATA operands specify the type of data set you want to edit or create. You must specify one of these whenever:

a. The data set name does not follow data set naming conventions.
b. You did not specify a descriptive qualifier for the data set name.

If the data set type is not defined by a descriptive qualifier in either (a) or (b) above, the system prompts you for it.

The system will also prompt you for the data set type if the rightmost qualifier of the data set name is not an acceptable descriptive qualifier for EDIT and no data set type was specified on the EDIT command.

NEW
specifies that the data set named by the first operand does not exist. If an existing cataloged data set already has the data set name that you specified, the system notifies you when you try to save it; otherwise, the system allocates your data set when you save it.

If you specify NEW without specifying a member name, the system allocates a sequential data set for you when you save it. If you specify NEW and include a member name the system allocates a partitioned data set and creates the indicated member when you try to save it.

OLD
specifies that the data set named on the EDIT command already exists. When you specify OLD and the system is unable to locate the data set, you will be notified and you will have to reenter the EDIT command.

If you specify OLD without specifying a member name, the system will assume that your data set is sequential: if the data set is in fact a partitioned data set, the system will assume that the member name is TEMPNAME. If you specify OLD and include a member name, the system will notify you if your data set is not partitioned.

SCAN
specifies that each line of data you enter into the system is to be checked for correct syntax on a statement by statement basis. Syntax checking is performed only for GOFORT, FORTH, FORT, FORTE, FORTG, FORTGI, BASIC, PL/I, and IPLI statements.

NOSCAN
specifies that syntax checking is not to be performed. This is the default value if neither SCAN nor NOSCAN is specified.

NUM(integer1 integer2)
specifies that the lines of the data set records are numbered. You may specify integer1 and integer2 for ASM type data sets only. Integer1 specifies, in decimal, the starting column (73-80) of the line number. Integer2 specifies, in decimal, the length (8 or less) of the line number. Integer1 plus integer2 cannot exceed 81. If integer1 and integer2 are not specified, the line numbers will default according to the type of data set being created or edited (see Table 4). NUM is the default value if you omit both NUM and NONUM.

NONUM
specifies that your data set records dc not contain line numbers. Do not specify this keyword for the BASIC, IPLI, and GOFORT data set types, since they must always have line numbers. The default is NUM.

CAPS
specifies that all input data is to be converted to uppercase characters. If you omit both CAPS and ASIS, then CAPS is the default except when the data set type is TEXT.

ASIS
specifies that input is to retain the same form (upper and lower case) as entered.

BLOCK(integer)
specifies the maximum length, in bytes, for blocks of records of a new data set. Specify this operand only when creating a new data set. You cannot change the block size of an existing data set. If you omit this operand, it will default according to the type of data set being created. Default block sizes are described in Table 4. If different defaults are established at system generation (SYSGEN) time, Table 4 values may not be applicable. The blocksize (BLOCK) for data sets that contain fixed length records must be a multiple of the record length (LINE); for variable length records, the blocksize must be a multiple of the record length plus 4.

LINE(integer)
specifies the length of the records to be created for a new data set. Specify this operand only when creating a new data set. The new data set will be composed of fixed length records with a logical record length equal to the specified integer. You cannot change the logical record size of an existing data set. If you specify this operand and the data set type is ASM, FORT, FORTE, FORTG, FORTGI, FORTH, COBOL or CNTL the integer must be 80. If this operand is omitted, the line size defaults according to the type of data set being created. Default line sizes for each data set type may be found in Table 4.

This command is the primary facility for entering data into the system. Therefore, almost every application involves some use of EDIT. With EDIT, you can create, modify, store, retrieve, and delete data sets with sequential organization, including members of partitioned data sets. These data sets may contain:

- Source programs composed of programming language statements (PL/1, COBOL, FORTRAN, etc.).
- Data used as input to a program.
- Text used for information storage and retrieval.
- Commands, subcommands, and/or data (Command Procedure).

Table 4. Default Values for LINE and BLOCK Operands

DATA SET	DSORG	LRECL		BLOCK SIZE		LINE NUMBERS	CAPS/ASIS	
		LINE(n) (Note1)		BLOCK(n)		NUM (n,m)	CAPS/ASIS	
		default	specif.	default	specif.	default (n,m) spec.	default	CAPS Required
ASM	PS/PO	80	=80	1680	≤default	Last 8 73≤n≤80	CAPS	Yes
COBOL	PS/PO	80	=80	400	≤default	First 6	CAPS	Yes
CNTL	PS/PO	80	=80	1680	≤default	Last 8	CAPS	Yes
FORT(all)	PS/PO	80	=80	400	≤default	Last 8	CAPS	Yes
PLIF	PS/PO	80	≤100	400	≤default	Last 8	CAPS	Yes
DATA	PS/PO	80	≤255	1680	≤default	Last 8	CAPS	No
TEXT	PS/PO	255	(Note 2)	1680	≤default	(Note 3)	ASIS	No
CLIST	PS/PO	255	(Note 2)	1680		(Note 3)	CAPS	Yes
GOFORT	PS/PO	255	(Note 2)	1680	≤default	(Note 3)	CAPS	No
BASIC	PS/PO	120	(Note 2)	1680	≤default	(Note 3)	CAPS	Yes
IPLI	PS/PO	120	(Note 2)	1680	≤default	(Note 3)	CAPS	Yes
(or user supplied data set type -- See Note 4)								
PLI	PS/PO	104	≤100	500	≤default	(Note 3)	CAPS	Yes

Note 1: The default or maximum allowable block size may be specified at SYSGEN time.

Note 2: Specifying a LINE value results in fixed length records with a LRECL, equal to the specified value. The specified value must always be equal to or less than the default. If the LINE keyword is ommitted, variable length records will be created.

Note 3: The line numbers will be contained in the last eight bytes of all fixed length records and in the first eight bytes of all variable length records.

Note 4: If the user desires that additional data set types are to be recognized by the EDIT command, he need only add an entry to a table of constants which describes the data set attributes. The EDIT program will support data sets with the following attributes:

Data Set Organization-	Must be either sequential or partitioned
Record formats-	Fixed or Variable
Logical Record Size-	Less than or equal to 255 characters
Block Sizes-	User specified -- but must be less than or equal to track length
Sequence Nos.-	V type: First 8 characters F type: Last 8 characters

You can also use the EDIT command to:

- Compile, load, and execute a source program.
- Test and debug a source program.

These operations are defined and controlled by using the EDIT operands and subcommands.

Modes of Operation

The EDIT command has two modes of operation: input mode and edit mode. You enter data into a data set when you are in input mode. You enter subcommands and their operands when you are in edit mode.

You must specify a data set name when you enter the EDIT command. If you specify a new data set name and the NEW operand, the system allocates a new data set dynamically and places you in input mode. If you specify the name of an existing data set and the OLD operand, the system opens the existing data set and places you in edit mode.

Input Mode

In input mode, you type a line of data and then enter it into the data set by pressing your terminal's carrier return key. You can enter lines of data as long as you are in input mode. One typed line of input becomes one record in the data set.

When you want to enter a statement that is too long for a single line, you can continue the statement onto a second line. Use a hyphen at the end of the first line to indicate the continuation. The statement will then occupy two lines in the data set but the system will concatenate them for syntax scanning.

If you enter a command or subcommand while you are in input mode, the system will add it to the data set as input data.

Line Numbers: Unless you specify otherwise, the system assigns a line number to each line as it is entered. Line numbers make editing much easier, since you can refer to each line by its own number.

Each line number consists of not more than eight digits, with the significant digits justified on the right and preceded by zeros. Line numbers are placed at the beginning of variable length records and at the end of fixed length records (exception: line numbers for COBOL fixed length records are placed in the first six positions at the beginning of the record). When you are working with a data set that has line numbers, you can have the new line number listed at the start of each new input line. If you are creating a data set without line numbers, you can request that a prompting character be displayed at the terminal before each line is entered. Otherwise, none will be issued.

Record Format: Record formats and sizes may vary according to the type of data set. In all cases, the length of your records must not exceed 255 characters. All input records will be converted to upper case characters, except when you specify the ASIS or TEXT operand. The TEXT operand also specifies that character-deleting indicators will be recognized, but all other characters will be added to the data set unchanged. More specific considerations are:

All Assembler source data sets must consist of fixed length records 80 characters in length. These records may or may not have line numbers. If the records are line-numbered, the number can be located anywhere within columns 73 to 80.

You can create a variety of FORTRAN data sets: FORTE; FORTG; FORTGI; FORTH; and GOFORT. You can enter GOFORT input statements in "free form", that is, there are no specific columns which your data must go into. Free form FORTRAN data will be stored in variable length records. When you signify that a line will be continued by ending it with a hyphen, the system will remove the hyphen from all fixed length records but will not remove it from variable length records. If you use fixed length records for GOFORT, FORTE, FORTG, FORTGI or FORTH, all records are 80 characters long. In addition, the fixed length records must adhere to the column restrictions of the FORTRAN compilers. You can accomplish this by establishing settings with the TABSET subcommand before you enter your source data, or by using the system defaults.

PLI and BASIC data sets may consist of either fixed length or variable length records. All records must contain line numbers. Fixed-length records may be specified up to 120 characters in length. The default is variable-length records with the line number contained in the first eight characters.

Syntax Checking: You can have each line of input checked for proper syntax. The system will check the syntax of statements for data sets having FORT, PLI, IPLI, and BASIC descriptive qualifiers. Input lines will be collected within the system until a complete statement is available for checking.

When an error is found during syntax checking, an appropriate error message is issued and edit mode is entered. You can then take corrective action, using the subcommands. When you wish to resume input operations, press your terminal's carrier return key without typing any input. Input mode is then entered and you can continue where you left off. Whenever statements are being checked for syntax during input mode, the system will prompt you for each line to be entered unless you specify the NOPROMPT operand for the INPUT subcommand.

Edit Mode

You can enter subcommands to edit data sets when you are in Edit Mode. You can edit data sets that have line numbers by referring to the number of the line that you want to edit. This is called line - number editing. You can also edit data by referring to specific items of text within the lines. This is called context editing. A data set having no line numbers may be edited only by context. Context editing is performed by using subcommands that refer to the current line value or a character combination, such as with the FIND or CHANGE subcommands. There is a pointer within the system that points to a line within the data set. Normally, this pointer points to the last line that you referred to. You can use subcommands to change the pointer so that it points to any line of data that you choose. You may then refer to the line that it points to by specifying an asterisk (*) instead of a line number. Table 5 shows where the pointer points at completion of each subcommand.

When you edit data sets with line numbers, the line number field will not be involved in any modifications made to the record except during renumbering. Also, the only editing operations that will be performed

across record boundaries will be the CHANGE, RENUM, and FIND subcommands (the TEXT operand must have been specified for the EDIT command in these two instances).

Table 5. Values of the Line Pointer Referred to by an Asterisk (*)

Edit Subcommands	Value of the Pointer at Completion of Subcommand
BOTTOM	Last line (or line zero for empty data sets)
CHANGE	Last line changed
DELETE	Line preceding deleted line (or line zero for empty data sets)
DOWN	Line after last line referred to (or line zero for empty data sets)
END	No change
FIND	Found line, if any, else no change
FORMAT(a program product)	No change
HELP	No change
INPUT	Last line entered
INSERT	Last line entered
Insert/Replace/Delete	Inserted line or line preceding the deleted line
LIST	Last line listed
MERGE(a program product)	Last line
PROFILE	No change
RENUM	Same relative record
RUN	No change
SAVE	No change
SCAN	Last line referred to, if any
TABSET	No change
TOP	Zero value
UP	Line before last line referred to (or line zero for empty data sets)
VERIFY	No change

Changing From One Mode to Another

If you specify an existing data set name as an operand for the EDIT command, you begin processing in edit mode. If you specify a new data set name or an old data set with no records, as an operand for the EDIT command, you will begin processing in input mode. You will change from edit mode to input mode when:

1. You press the carrier return key without typing anything first.
2. You enter the INPUT subcommand.
3. You enter the INSERT subcommand with no operands.

You will switch from input mode to edit mode when:

1. You press the carrier return key without typing anything first.
2. You cause an attention interruption.
3. There is no more space for records to be inserted into the data set and resequencing is not allowed.
4. When an error is discovered by the syntax checker.

Data Set Disposition

The system assumes a disposition of (NEW,CATLG) for new data sets and (OLD,KEEP) for existing data sets.

Tabulation Characters

When you enter the EDIT command into the system, the system establishes a list of tab setting values for you, depending on the data set type. These are logical tab setting values and may or may not represent the actual tab setting on your terminal. You can establish your own tab settings for input by using the TABSET subcommand. A list of the default tab setting values for each data set type is presented in the TABSET subcommand description. The system will scan each input line for tabulation characters (the characters produced by pressing the TAB key on the terminal). The system will replace each tabulation character by as many blanks as are necessary to position the next character at the appropriate logical tab setting.

When tab settings are not in use, each tabulation character encountered in all input data will be replaced by a single blank. You can also use the tabulation character to separate subcommands from their operands.

Executing User Written Programs

You can compile and execute the source statements contained in certain data set types by using the RUN subcommand. The RUN subcommand makes use of optional Program Products; the specific requirements are discussed in the description of the RUN subcommand.

Terminating the EDIT Command

You can terminate the EDIT operation at any time by switching to edit mode (if you are not already in edit mode) and entering the END subcommand. Before terminating the EDIT command, you should be sure to store all data that you want to save. You can use the SAVE subcommand for this purpose.

Example 1

Operation: Create a data set to contain a COBOL program.

Known: The user-supplied name for the new data set. PARTS
The fully qualified name will be..... BOBD58.PARTS.COBOL
Line numbers are to be assigned.

```
EDIT PARTS NEW COBOL
```

Example 2

Operation: Create a data set to contain a program written in FORTRAN to be processed by the FORTRAN (G1) compiler.

Known: The user-supplied name for the new data set..... HYDRLICS
The fully qualified name will be..... DEPT90.HYDRLICS.FORT
The input statements are not to be numbered.
Syntax checking is desired.
Block size..... 400
Line length must be..... 80
The data is to be changed to all upper case.

```
EDIT HYDRLICS NEW FORT NONUM SCAN
```

or

```
e hydrlics ne fort scan non
```

Example 3

Operation: Add data to an existing data set containing input data for a program.

Known: The name of the data set..... FHETD58.MANHRS.DATA
Block size..... 1680
Line length..... 80
Line numbers are desired.
The data is to be upper case.
Syntax checking is not applicable.

```
e manhrs.data
```

Example 4

Operation: Create a data set for a Command Procedure.

Known: The user supplied name for the data set..... CMDPROC

```
E CMDPROC NEW CLIST
```

Example 5

Operation: Create a data set to contain a PL/I PROGRAM.

Known: The user-supplied name for the data set..... WEATHER
The column requirements for input records
left margin..... Cclumn 1
right margin..... Cclumn 68
The allowed character set..... 48 characters
Line numbers are desired.
Each statement is to be checked for proper syntax.
The default BLOCK and LINE value are acceptable.

```
edit weather new pli(1 68 char48)  scan
```

Subcommands for EDIT

Use the subcommands while in edit mode to edit and manipulate data. The format of each subcommand is similar to the format of all the commands. Each subcommand, therefore, is presented and explained in a manner similar to that for a command. Table 6 contains a brief summary of each subcommand's function.

Table 6. Subcommands Used With the Edit Command

BOTTOM	Moves the pointer to the last line.
CHANGE	Modifies a character string.
DELETE	Removes records.
DOWN	Moves the pointer toward the end of the data.
END	Terminates the EDIT command.
FIND	Locates a character string.
FORMAT (available as an optional Program Product)	Formats and lists data.
HELP	Explains available subcommands.
INPUT	Prepares the system for data input.
INSERT	Inserts records.
LIST	Prints out specific lines of data.
MERGE (available as an optional Program Product)	Combines all or parts of data sets.
PROFILE	Specifies your selected 'delete' indicators.
RENUM	Numbers or renumbers lines of data
RUN	Compiles, loads, and executes the data set.
SAVE	Retains the data set.
SCAN	Controls syntax checking.
TABSET	Sets the Tabs.
TOP	Moves the pointer to the first line of data set.
UP	Moves the pointer toward the start of data set.
VERIFY	Lists each line referenced by the pointer.
Insert/Replace/Delete	Inserts,replaces, or deletes a line.

BOTTOM Subcommand

Use the BOTTOM subcommand to change the current line pointer so that it points to the last line of the data set being edited. This subcommand may be useful when subsequent subcommands such as INPUT or MERGE must begin at the end of the data set.

SUBCOMMAND	OPERANDS
{BOTTOM {B	

CHANGE Subcommand

Use the CHANGE subcommand to modify a sequence of characters (a character-string) in a line or in a range of lines.

SUBCOMMAND	OPERANDS
{CHANGE / C}	[line-number-1 [line-number-2] / * [count1]] {string1 [string2 [special-delimiter[ALL]]] / count2}

line-number-1
: specifies the number of a line you want to change. When used with line number 2, it specifies the first line of a range of lines.

line-number-2
: specifies the last line of a range of lines that you want to change.

*
: specifies that the line pointed to by the line pointer in the system is to be used. If you do not specify a line number or an asterisk, the current line will be the default value.

count1
: specifies the number of lines that you want to change, starting at the position indicated by the asterisk (*).

string1
: specifies a sequence of characters (a character string) that you want to change. The sequence must be preceded by an extra character that serves as a special delimiter. The extra character may be any printable character other than a number, blank, tab, comma, semicolon, parenthesis, or asterisk. The extra character must not appear in the character string. Do not put a standard delimiter between the extra character and the string of characters because the delimiter will be treated as a character in the character string.

  The specified lines are displayed at your terminal up to and including the sequence of characters that you specified for string1. You can then edit the lines as you please.

string2
: specifies a sequence of characters that you want to use as a replacement for ' string1'. Like string1, string2 must be preceded by an extra character that serves as a special delimiter. This character must be the same as the extra character used for string1.

  The specified lines are scanned for occurrences of the sequence of characters specified for string1. If you specify the ALL operand, each occurrence of string1 in the range of lines is replaced by the sequence of characters that you specify for string2. If you do not specify the ALL operand, only the first occurrence of string1 will be replaced by string2.

ALL
specifies that every occurrence of ' string1' within the specified line or range of lines will be replaced by ' string2'.

count2
specifies a number of characters to be displayed at your terminal, starting at the beginning of each specified line.

Combinations of Operands: You can enter several different combinations of these operands. The system interprets the operands that you enter according to the following rules:

- When you enter a single number and no other operands, the system assumes that you are accepting the default value of the asterisk (*) and that the number is a value for the "count2" operand.
- When you enter two numbers and no other operands, the system assumes that they are "line number 1" and "count2" respectively.
- When you enter two operands and the first is a number and the second begins with a character that is not a number, the system assumes that they are "line number 1" and "string1".
- When you enter three operands and they are all numbers, the system assumes that they are "line number 1", "line number 2" and "count2".
- When you enter three operands and the first two are numbers but the last begins with a character that is not a number, the system assumes that they are "line number 1", "line number 2" and "string1".

Example 1

Operation: Change a sequence of characters in a particular line of a line numbered data set.

Known: The line number..... 57
The old sequence of characters..... parameter
The new sequence of characters..... operand

```
CHANGE 57 XparameterXoperand
```

Example 2

Operation: Change a sequence of characters wherever it appears in several lines of a line numbered data set.

Known: The starting line number..... 24
The ending line number..... 82
The old sequence of characters..... i.e.
The new sequence of characters..... e.g.

```
change 24 82 !i.e. !e.g. !all
```

The blanks following the string1 and string2 examples (i.e. and e.g.) are treated as characters.

Example 3

Operation: Change part of a line in a line numbered data set.

Known: The line number..... 143
The number of characters in the line preceding the characters to be changed..... 18

```
CHANGE 143 18
```

This form of the subcommand causes the first 18 characters of line number 143 to be listed at your terminal. You complete the line by typing the new information and enter the line by pressing the RETURN key. All of your changes will be incorporated into the data set.

Example 4

Operation: Change part of a particular line of a line numbered data set.

Known: The line number..... 103
A string of characters to be changed..... 315 h.p. at 2400

```
CHANGE 103 M315 h.p. at 2400
```

This form of the subcommand causes line number 103 to be searched until the characters "315 h.p. at 2400" are found. The line is displayed at your terminal up to the string of characters. You can then complete the line and enter the new version into the data set.

Example 5

Operation: Change the values in a table.

Known: The line number of the first line in the table..... 387
The line number of the last line in the table..... 406
The number of column containing the values..... 53

```
CHANGE 387 406 53
```

Each line in the table is displayed at your terminal up to the column containing the value. As each line is displayed, you can type in the new value. The next line will not be displayed until you complete the current line and enter it into the data set.

Example 6

Operation: Add a sequence of characters to the front of the line that is currently referred to by the pointer within the system.

Known: The sequence of characters..... In the beginning

```
CHANGE * //In the Beginning
```

DELETE Subcommand

Use the DELETE Subcommand to remove one or more records from the data set being edited.

Upon completion of the delete operation, the current line pointer will point to the line that preceded the deleted line.

SUBCOMMAND	OPERANDS
{DELETE / D}	[line-number-1 [line-number-2] / * [count]]

line-number-1
: specifies the line to be deleted; or the first line of a range of lines to be deleted.

line-number-2
: specifies the last line of a range of lines to be deleted.

*
: specifies that the first line to be deleted is the line indicated by the current line pointer in the system. This is the default if no line is specified.

count
: specifies the number of lines to be deleted, starting at the location indicated by the preceding operand.

Example 1

Operation: Delete the line being referred to currently.

```
DELETE *
```

or

```
DELETE
```

or

```
D *
```

or

```
D
```

or

```
*
```

Any of the preceding command combinations or abbreviations will cause the deletion of the line referred to currently. The last instance is actually a use of the insert/replace/delete function.

Example 2

Operation: Delete a particular line from the data set.

Known: The line number..... 04

```
DELETE 4
```

Leading zeroes are not required.

Example 3

Operation: Delete several consecutive lines from the data set.

Known: The number of the first line..... 18
The number of the last line..... 36

```
DELETE 18 36
```

Example 4

Operation: Delete several lines from a data set with no line numbers. The current line pointer in the system points to the first line to be deleted.

Known: The number of lines to be deleted..... 18

```
DELETE * 18
```

DOWN Subcommand

Use the DOWN subcommand to change the current line pointer so that it points to a line that is closer to the end of the data set.

SUBCOMMAND	OPERANDS
DOWN	[count]

count
specifies the number of lines between the one prior to the line currently referred to and the line to which you want to refer. If you omit this operand, the default is one.

Example 1

Operation: Change the pointer so that it points to the next line.

```
DOWN
```

Example 2

Operation: Change the pointer so that you can refer to a line that is located closer to the end of the data set than the line currently pointed to.

Known: The number of lines from the present position to the new position..... 18

```
DOWN 18
```

END Subcommand

Use the END subcommand to terminate operation of the EDIT command. After entering the END subcommand, you may enter new commands. If you have modified your data set and have not entered the SAVE subcommand, the system will ask you if you want to save the modified data set. If so, you can then enter the SAVE subcommand. If you do not want to save the data set, re-enter the END subcommand.

SUBCOMMAND	OPERANDS
END	

FIND Subcommand

Use the FIND subcommand to locate a specified sequence of characters. The system begins the search at the line referred to by the current line pointer in the system, and continues until the character string is found or the end of the data set is reached. If you want to ignore the first part of each line in the search, you may specify the number of characters to be ignored at the start of each line.

SUBCOMMAND	OPERANDS
FIND	string [count]

string
: specifies the sequence of characters (the character string) that you want to locate. This sequence of characters must be preceded by an extra character that serves as a special delimiter. The extra character may be any printable character other than a number, semicolon, blank, tab, comma, parenthesis, or asterisk. You must not use the extra character in the character string. Do not put a delimiter between the extra character and the string of characters.

  If you do not specify a string, then the string you specified the last time you used the FIND subcommand will be the default. If no default is available, you will be prompted.

count
: specifies the position within each line at which you want the search for the string to begin. For instance, if you want to ignore the first 5 positions on a line you must specify the digit 6 for the count operand. When you use this operand, you must separate it and the string operand with another extra character identical to the one preceding the string operand.

Example 1

Operation: Locate a sequence of characters in a data set.

Known: The sequence of characters..... ELSE GO TO COUNTER1

```
FIND XELSE GO TO COUNTER1
```

Example 2

Operation: Locate a particular instruction in a data set containing an assembler language program.

Known: The sequence of characters..... LA 3,BREAK
The instruction begins in column 10.

```
FIND 'LA 3,BREAK '10
```

EDIT Command
FORMAT Subcommand

The FORMAT subcommand is provided as part of the optional TSO Data Utilities: COPY, FORMAT, LIST, MERGE program product which is available for a license fee.

Use the FORMAT subcommand to format textual output. This subcommand provides the facilities to:

- Print a heading on each page.
- Center lines of text between margins.
- Control the amount of space for all four margins.
- Justify left and right margins of text.
- Number pages of output consecutively.
- Halt printing when desired.
- Print multiple copies of selected pages.
- Control line and page length.
- Control paragraph indentation.

EDIT Command
HELP Subcommand

Use the HELP subcommand to find out how to use EDIT and the EDIT subcommands. When you enter the HELP subcommand, the system responds by printing out explanatory information at your terminal. You may request:

- A list of available subcommands.
- An explanation of the function, syntax, and operands of a specific subcommand.

The HELP subcommand actually causes the system to execute a function of the HELP command; therefore, you may consult the discussion of the HELP command if you desire more detailed information.

SUBCOMMAND	OPERANDS
{HELP} {H }	[subcommand-name] [FUNCTION] [SYNTAX] [OPERANDS[(list-of-operands)] [ALL]

subcommand-name
specifies the subcommand that you want to have clarified. If you omit this operand, the system will display a list of EDIT subcommands.

FUNCTION
specifies that you want a description of the referenced subcommand's function.

SYNTAX
specifies that you want a definition of the proper syntax for the referenced subcommand.

OPERANDS(list-of-operands)
specifies that you want an explanation of the keyword operands applicable to the referenced subcommand.

The list of operands specifies the particular keywords that you want to have explained. If you do not specify any keywords, all of the applicable keywords will be included. You must use one or more blanks or a comma as a delimiter between the keywords in the list.

ALL
specifies that you want a description of the function, the syntax, and the operands of the subcommand that you specified. This is the default if no operand is specified.

Example 1

Operation: Have a list of available subcommands displayed at your terminal.

```
HELP
```

Example 2

Operation: Obtain all available information about a particular subcommand.

Known: The subcommand name..... FIND

```
H FIND
```

Example 3

Operation: Have a list of the operands for a particular subcommand displayed at your terminal.

Known: The subcommand name..... LIST

```
h list operands
```

EDIT Command
INPUT Subcommand

Use the INPUT subcommand to put the system in input mode so that you can add new data to a new or existing data set.

SUBCOMMAND	OPERANDS
{INPUT / I}	[line-number [increment]][R] [PROMPT / NOPROMPT]
	* 10 I

line-number
specifies the line number and location for the first new line of input.

increment
specifies the amount that you want each succeeding line number to be increased. If you omit this operand, the default is 10.

*
specifies that the next new line of input will either replace or follow the line pointed to by the current line pointer, depending on whether you specify the R or I operand.

R
specifies that you want to replace existing lines of data and insert new lines into the data set. This operand is ignored if you fail to specify either a line number or an asterisk. If the specified line already exists, the old line will be replaced by the new line. If the specified line is vacant, the new line will be inserted at that location.

I
specifies that you want to insert new lines into the data set without altering existing lines of data. This operand is ignored if you fail to specify either a line number or an asterisk.

PROMPT
specifies that you want the system to display either a line number or, if the data set is not line-numbered, a prompting character before each new input line. If you omit this operand, the default is:

a. The value (either PROMPT or NOPROMPT) that was established the last time you used input mode.

b. PROMPT, if this is the first use of input mode and the data set has line numbers.

c. NOPROMPT, if this is the first use of input mode and the data set does not have line numbers.

NOPROMPT
specifies that you do not want to be prompted.

EDIT Command
INPUT Subcommand

Example 1

Operation: Add and replace data in an old data set.

Known: The data set is to contain line numbers.
Prompting is desired.
The ability to replace lines is desired.
The first line number..... 2
The increment value for line numbers..... 2

```
INPUT 2 2 R PROMPT
```

The listing at your terminal will resemble the following sample listing with your input in lower case and the computers response in upper case.

```
edit query cobol old

EDIT

input 2 2 r prompt

INPUT

00002 identification division
00004 program-id.query
00006
```

Example 2

Operation: Insert data in an existing data set.

Known: The data set contains text for a report.
The data set does not have line numbers.
The ability to replace lines is not necessary.
The first input data is "New research and development activities will" which is to be placed at the end of the data set.

```
INPUT
```

The listing at your terminal will resemble the following sample listing:

```
edit forecast.text old text nonum asis
EDIT
input
INPUT
New research and development activities will
```

EDIT Command
INSERT Subcommand

Use the INSERT subcommand to insert one or more new lines of data into the data set. Input data is inserted following the location pointed to by the line pointer in the system. You may change the position pointed to by the line pointer by using the BOTTOM, DOWN, TOP, UP, and FIND subcommands.

SUBCOMMANDS	OPERANDS
{INSERT} {IN }	[insert-data]

insert-data
specifies the complete sequence of characters that you wish to insert into the data set at the location indicated by the line pointer. When the first character of the inserted data is a tab, no delimiter is required between the command and the data. Only a single delimiter is recognized by the system. If you enter more than one delimiter, all except the first are considered to be input data.

Example 1

Operation: Insert a single line into a data set.

Known: The line to be inserted is:

"UCBFLG DS AL1 CONTROL FLAGS"

The location for the insertion follows the 71st line in the data set.

The current line pointer points to the 74th line in the data set.

Before entering the INSERT subcommand, the current line pointer must be moved up 3 lines to the location where the new data will be inserted.

```
INSERT UCBFLG DS AL1 CONTROL FLAGS
```

The listing at your terminal will be similar to the following sample listing.

```
edit iomodule old asm
EDIT
up 3
insert ucbflg ds al1 control flags
```

EDIT Command
INSERT Subcommand

Example 2

Operation: Insert several lines into a data set.

Known: The data set contains line numbers.
The inserted lines are to follow line number 00280.
The current line pointer points to line number 00040.
The lines to be inserted are:
"J.W.HOUSE 13-244831 24.73"
"T.N.HOWARD 24-782095 3.05"
"B.H.IRELAND 04-007830 104.56"

Before entering the INSERT subcommand the current line pointer must be moved down 24 lines to the location where the new data will be inserted.

```
INSERT
```

The listing at your terminal will be similar to the following sample listing:

```
edit sales old data
EDIT
down 24
insert
INPUT
00281 j.w.house   13-244831 24.73
00282 t.n.howard  24-782095 3.05
00283 b.h.ireland 04-007830 104.56
```

New line numbers are generated in sequence beginning with the number one greater than the one pointed to by the current line pointer. When no line can be inserted, you will be notified. No resequencing will be done.

EDIT Command
INSERT/REPLACE/DELETE Function

The INSERT/REPLACE/DELETE function lets you insert, replace, or delete a line of data without specifying a subcommand name. To insert or replace a line, all you need to do is indicate the location and the new data. To delete a line, all you need to do is indicate the location. You can indicate the location by specifying a line number or an asterisk. The asterisk means that the location to be used is pointed to by the line pointer within the system. You can change the line pointer by using the UP, DOWN, TOP, BOTTOM, and FIND subcommands so that the proper line is referred to.

SUBCOMMAND	OPERANDS
	{line-number} [string] {*}

line-number
: specifies the number of the line you want to insert, change, or delete.

*
: specifies that you want to insert, change, or delete the line at the location pointed to by the line pointer in the system. You can use the TOP, BOTTOM, UP, DOWN, and FIND subcommands to change the line pointer without modifying the data set you are editing.

string
: specifies the sequence of characters that you want to either insert into the data set or to replace an existing line. If this operand is omitted and a line exists at the specified location, the existing line is deleted. When the first character of "string" is a tab, no delimiter is required between this operand and the preceding operand. Only a single delimiter is recognized by the system. If you enter more than one delimiter, all except the first are considered to be input data.

How the System Interprets the Operands: When you specify only a line number or an asterisk, the system deletes a line of data. When you specify a line number or asterisk followed by a sequence of characters, the system will replace the existing line with the specified sequence of characters or, if there is no existing data at the location, the system will insert the sequence of characters into the data set at the specified location.

Example 1

Operation: Insert a line into a data set.

Known: The number to be assigned to the new line..... 62
The data..... "OPEN INPUT PARTS-FILE"

```
    62  OPEN INPUT PARTS-FILE
```

Example 2

Operation: Replace an existing line in a data set.

Known: The number of the line that is to be replaced..... 287
The replacement data..... "GO TO HOURCOUNT;"

```
|     287  GO TO HOURCOUNT;                                                |
```

Example 3

Operation: Replace an existing line in a data set that does not have line numbers.

Known: The line pointer in the system points to the line that is to be replaced.
The replacement data is..... "58 PRINT USING 120,S"

```
|     *  58 PRINT USING 120,S                                              |
```

Example 4

Operation: Delete an entire line.

Known: The number of the line..... 98
The current line pointer in the system points to line 98.

```
|98                                                                        |
```

or

```
|*                                                                         |
```

EDIT Command
LIST Subcommand

Use the LIST subcommand to display one or more lines of your data set at your terminal.

SUBCOMMAND	OPERANDS
{LIST / L}	[line-number-1 [line-number-2]] [* [count]]
	[NUM / SNUM]

line-number-1
: specifies the number of the line that you want to be displayed at your terminal.

line-number-2
: specifies the number of the last line that you want displayed. When you specify this operand, all the lines from line number 1 through line number 2 are displayed.

*
: specifies that the line referred to by the line pointer in the system is to be displayed at your terminal. You can change the line pointer by using the UP, DOWN, TOP, BOTTOM, and FIND subcommands without modifying the data set you are editing.

count
: specifies the number of lines that you want to have displayed, starting at the location referred to by the line pointer.

NUM
: specifies that line numbers are to be displayed with the text. This is the default value if both NUM and SNUM are omitted. If your data set does not have line numbers, this operand will be ignored by the system.

SNUM
: specifies that line numbers are to be omitted.

Example 1

Operation: List an entire data set.

```
LIST
```

Example 2

Operation: List part of a data set that has line numbers.

Known: The line number of the first line to be displayed..... 27
The line number of the last line to be displayed..... 44
Line numbers are to be included in the list.

```
LIST 27 44
```

Example 3

Operation: List part of a data set that does not have line numbers.

Known: The line pointer in the system points to the first line to be listed.
The section to be listed consists of 17 lines.

```
LIST * 17
```

EDIT Command
MERGE Subcommand

The MERGE subcommand is provided as part of the optional TSO Data Utilities: COPY, FORMAT, LIST, MERGE program product which is available for a license fee.

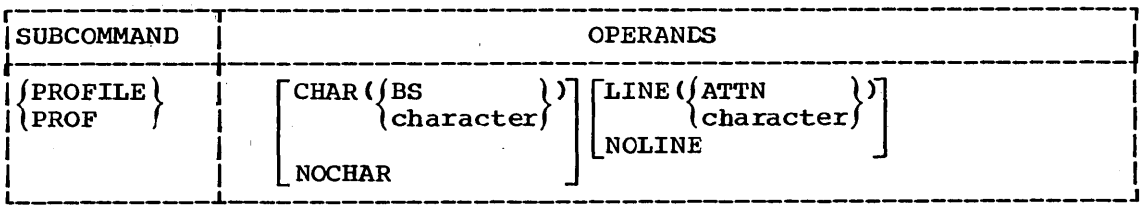
Use the MERGE subcommand to:

- Merge all or part of a data set into a specific area within another data set or within itself.
- Resequence line numbers in a merged data set or member.

EDIT Command
PROFILE Subcommand

Use the PROFILE subcommand to specify the character-deletion and/or line-deletion indicators that you want to use at your terminal.

Initially, a user profile is prepared for you when arrangements are made for you to use the system. You change the characteristics of your user profile by using the PROFILE subcommand with the appropriate operands. Only the characteristics that you specify by operands will change; other characteristics remain unchanged. You must specify at least one operand or the subcommand will be ignored by the system. (See the PROFILE command.)



CHAR(BS or character)
specifies the character or terminal keyboard key that you want to use at your terminal to delete a character from a line.

BS specifies that the backspace key is to be your character-deletion indicator. (This is the initial value that is in effect until changed specifically.)

Character specifies the particular character or key that you want to use as your character-deletion indicator. You should not specify a blank, comma, tab, asterisk, parenthesis, colon, or apostrophe.

NOCHAR
specifies that you do not want to use the character-deleting indicator.

LINE(ATTN or character)
specifies the character or key that you want to use at your terminal to delete an entire line. You should not specify a blank, comma, tab, asterisk, parenthesis, colon, or apostrophe.

ATTN specifies that an attention interruption is to delete a line. (This is the initial value that is in effect until changed specifically.)

Character specifies the particular character or key that you want to use as your line deletion indicator.

NOLINE
specifies that you do not want to use the line-deletion indicator.

EDIT Command
PROFILE Subcommand

Example 1

Operation: Specify that the backspace key is used for deleting a character and that the ATTN key is used for deleting a line.

```
PROFILE  CHAR(BS) LINE(ATTN)
```

Example 2

Operation: Specify that an exclamation mark is used for deleting a character and that a pound sign is used for deleting a line.

```
PROFILE  CHAR(!) LINE(#)
```

EDIT Command
RENUM Subcommand

Use the RENUM subcommand to:

- Assign a line number to each record of a data set that does not have line numbers.
- Renumber each record in a data set that has line numbers.

New line numbers are placed in the last eight character positions of fixed length records (except for COBOL data sets), or in the first eight character positions of variable length records. Line numbers for COBOL data sets are placed in the first six positions. If variable length records were not numbered previously, the records will be lengthened so that the eight-character fields can be prefixed to each record. If the record cannot be extended eight characters, you are notified. Any information in the last positions of fixed length records is replaced by the line numbers.

In all cases the specified (or default) increment value becomes the line increment for the data set.

SUBCOMMAND	OPERANDS
{RENUM / REN}	[new-line-number [increment [old-line-number]]]

new-line-number
specifies the first line number to be assigned to the data set. If this operand is omitted, the first line number will be 10.

increment
specifies the amount by which each succeeding line number is to be incremented. (The default value is 10.) You cannot use this operand unless you specify a new line number.

old-line-number
specifies the location within the data set where renumbering will begin. If this operand is omitted, renumbering will start at the beginning of the data set. The old line number should be equal to or less than the new line number. You cannot use this operand unless you specify a value for the increment operand.

Example 1

Operation: Renumber an entire data set.

```
RENUM
```

Example 2

Operation: Renumber part of a data set.

Known: The old line number..... 17
The new line number..... 21
The increment..... 1

```
REN 21 1 17
```

EDIT Command
RUN Subcommand

Use the RUN subcommand to compile, load, and execute the source statements in data set that you are editing. The RUN subcommand is designed specifically for use with certain program products; it selects and invokes the particular program product needed to process your source statements. The following table shows which program product is selected to process each type of source statement. (Appendix A contains references to additional information about the program products.)

If your program or data set contains statements of this type (see EDIT):	Then the following Program Product is needed:
IPLI	ITF:PL/I (Shared Language Component and PL/I Processor)
BASIC	ITF:BASIC (Shared Language Component and BASIC Processor)
GOFORT	Code and Go FORTRAN
FORT	TSO FORTRAN Prompter and FORTRAN IV(G1)
COBOL	TSO COBOL Prompter and American National Standard COBOL Version 3
ASM	TSO ASM Prompter

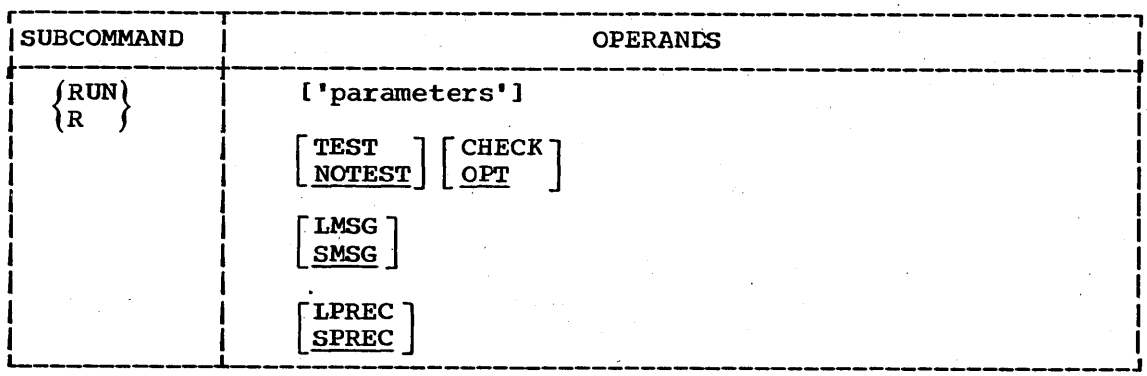
Programs containing statements suitable for the following IBM-supplied language processors can be compiled and executed by using the CALL command.

ASM (F), PL/1 (F), COBOL (E) or (F), FORTRAN (E), (G) or (H)

You can use the CONVERT command to convert ITF:PL/I and Code and Go FORTRAN statements to a form suitable for the PL/1 and FORTRAN compilers, respectively.

When the descriptive qualifier for your data set name is .FORT, the Code and Go Fortran compiler is invoked unless you specify another compiler with the EDIT command.

EDIT Command
RUN Subcommand



'parameters'
specifies a string of up to 100 characters that is passed to the program that is to be executed. You may specify this operand only for data sets with the ASM and FORT descriptive qualifiers.

TEST
specifies that testing will be performed during execution. This operand is valid for ITF:PL/I and ITF:BASIC Program Product programs only.

NOTEST
specifies that no testing will be done. If you omit both TEST and NOTEST, the default value is NOTEST.

LMSG
specifies that you want to receive complete diagnostic messages. This operand is valid for the optional ITF:PL/I, ITF:BASIC and Code and Go FORTRAN Program Products only.

SMSG
specifies that you want to receive the short, concise diagnostic messages. If you omit both LMSG and SMSG, the default value is SMSG.

LPREC
specifies that you want long precision arithmetic calculations (valid only for the ITF:BASIC Program Product).

SPREC
specifies that you want short precision arithmetic calculations. If you omit both LPREC and SPREC, the default value is SPREC.

CHECK
specifies that a PLI Checkout data set is being edited.

OPT
specifies that a PLI Optimizing Source data set is being edited.

Example 1

Operation: Compile and execute the data being edited by the EDIT command.

Known: The EDIT command is being used currently.
The data set contains statements prepared for the optional ITF:BASIC Program Product compiler.
The systems contains the optional ITF:BASIC Program Product.
Default values for the RUN subcommand are suitable.

```
RUN
```

Example 2

Operation: Execute an assembler language program contained in the data set referred to by the EDIT command.

Known: The parameters to be passed to the program are: '1024,PAYROLL'

```
RUN '1024 PAYROLL'
```

EDIT Command
SAVE Subcommand

Use the SAVE subcommand to have your data set retained as a permanent data set. If you use SAVE without an operand, the updated version of your data set replaces the original version. When you specify a new data set name as an operand, both the original version and the updated version of the data set are saved.

SUBCOMMAND	OPERANDS
{SAVE S}	[data-set-name]

data-set-name
specifies a new data set name that will be assigned to your edited data set. The new name may be different from the current name. (See the data set naming conventions.)

If you use SAVE without an operand, the updated version of your data set replaces the original version. When you specify a new data set name as an operand, both the original version and the updated version of the data set are saved.

Example 1

Operation: Save the data set that has just been edited by the EDIT command.

Known: The system is in edit mode.
The user supplied name that you want to give the data set is INDEX.

```
SAVE  INDEX
```

EDIT Command
SCAN Subcommand

Use the SCAN subcommand to request syntax checking services for statements that will be processed by the PL/I(F), FORTRAN(G), or FORTRAN(H) compiler or by the Code and Go FORTRAN, FORTRAN IV (GI), ITF:BASIC or ITF:PL/I Program Products. You can have each statement checked as you enter it or you can have an entire program checked.

SUBCOMMAND	OPERANDS
{SCAN / SC}	{line-number-1 [line-number-2] / * [count]} [ON / OFF]

line-number-1
: specifies the number of a line to be checked for proper syntax.

line-number-2
: specifies that all lines between line number 1 and line number 2 are to be checked for proper syntax.

*
: specifies that the line at the location indicated by the line pointer in the system is to be checked for proper syntax. The line pointer can be changed by the TOP, BOTTOM, UP, DOWN, and FIND subcommands.

count
: specifies the number of lines you want checked for proper syntax.

ON
: specifies that each line is to be checked for proper syntax as it is entered.

OFF
: specifies that each line is not to be checked as it is entered.

Example 1

Operation: Have each line of a FORTRAN program checked for proper syntax as it is entered.

```
SCAN  ON
```

Example 2

Operation: Have all the statements in a data set checked for proper syntax.

```
SCAN
```

Example 3

Operation: Have several statements checked for proper syntax.

Known: The number of the first line to be checked..... 62
The number of the last line to be checked..... 69

```
SCAN  62 69
```

Example 4

Operation: Check several statements for proper syntax.

Known: The line pointer points to the first line to be checked.
The number of lines to be checked..... 7

```
SCAN  *  7
```

EDIT Command
TABSET Subcommand

Use the TABSET subcommand to:

- Establish or change the tabulation settings (the tab values that are to be translated into blanks by the system).
- Void any existing tabulation settings.

The basic form of the subcommand causes tabulation characters to be translated into blanks corresponding to the column requirements for the data set type. For instance, if the name of the data set being edited has FORT as a descriptive qualifier, the first tabulation setting will be in column 7. The values in Table 7 will be in effect when you first enter the EDIT command.

Table 7. Default Tab Settings

Data Set Name Descriptive Qualifier	Default Tab Settings Columns
PLI	5,10,15,20,25,30,35,40,45,50
PLIF	5,10,15,20,25,30,35,40,45,50
FORT(FORTRAN IV (GI) and Code and Go FORTRAN Program Products)	7,72
ASM	10,16,31,72
COBOL	8,12,72
TEXT	5,10,15,20,30,40
DATA	10,20,30,40,50,60
CLIST	10,20,30,40,50,60
CNTL	10,20,30,40,50,60
IPLI(ITF:PL/I Program Product)	5,10,15,20,25,30,35,40,45,50
BASIC(ITF:BASIC Program Product)	10,20,30,40,50,60
COBOL	8,12,72

SUBCOMMAND	OPERANDS
{TABSET / TAB}	[ON(integer-list) / OFF / IMAGE]

ON(integer-list)
specifies that tab settings are to be translated into blanks by the system. If you specify ON without an integer list, the existing or default tab settings are used. You can establish new values for tab settings by specifying the numbers of the tab columns as values for the integer list. A maximum of ten values is allowed. If you omit both ON and OFF the default value is ON.

OFF
specifies that there is to be no translation of tabulation characters.

IMAGE
specifies that the next input line will define new tabulation settings. The next line that you type should consist of blanks and "t"s, with the location of the "t"s indicating the column positions for the tab settings (a maximum of 10 settings is allowed). Do not use the tab key to produce the new image line.

EDIT Command
TABSET Subcommand

Example 1

Operation: Establish standard tab settings for your data set.

```
TAB
```

Example 2

Operation: Establish tabs for columns 2, 18, and 72.

```
TAB  ON (2 18 72)
```

Example 3

Operation: Use an example to establish tab settings.

Known: The example is:

```
"          t    t          t  "
```

```
TAB IMAGE
           t    t          t
```

EDIT Command
TOP Subcommand

Use the TOP subcommand to change the line pointer in the system so that it points to the beginning of the data set. That is, the pointer will point to the position preceding the first record of an unnumbered data set, or the pointer will point to line number zero of a data set that has line numbers.

This subcommand is useful in setting the line pointer to the proper position for subsequent subcommands that need to start their operations at the beginning of the data set. For data sets that have line numbers, there may or may not be a record with line number zero. In the event that the data set is empty you will be notified and the asterisk takes on a zero value. If the data set begins with line number zero, you cannot position the current line pointer before the first record without renumbering one or more records.

SUBCOMMAND	OPERANDS
TOP	

Example 1

Operation: Move the line pointer to the beginning of your data set.

```
TOP
```

EDIT Command
UP Subcommand

Use the UP subcommand to change the line pointer in the system so that it points to a record nearer the beginning of your data set. If the use of this command causes the line pointer to point to the first record of your data set, you will be notified.

SUBCOMMAND	OPERANDS
UP	[count]

count
specifies the number of lines toward the beginning of the data set that you want to move the current line pointer. If count is omitted, the pointer will be moved only one line.

Example 1

Operation: Change the pointer so that it refers to the preceding line.

```
UP
```

Example 2

Operation: Change the pointer so that it refers to a line located 17 lines before the location currently referred to.

```
UP 17
```

EDIT Command
VERIFY Subcommand

Use the VERIFY subcommand to display the line that is currently pointed to by the line pointer in the system. Every time the pointer changes, the line to which it points after the change will be displayed at your terminal.

SUBCOMMAND	OPERANDS
[VERIFY / V]	[ON / OFF]

ON
: specifies that you want to have the line that is referred to by the line pointer displayed at your terminal each time the line pointer changes. This is the default if you omit both ON and OFF.

OFF
: specifies that you do not want to have this service.

Example 1

Operation: Have the line that is referred to by the line pointer displayed at your terminal each time the line pointer changes.

```
VERIFY
```

or

```
VERIFY ON
```

Example 2

Operation: Terminate the operations of the VERIFY subcommand.

```
VERIFY OFF
```

EXEC Command

Use the EXEC command to execute a command procedure (see section entitled "Command Procedure Statements").

You can specify the EXEC command in two ways:

1. The explicit form, where you enter EXEC followed by the name of the data set that contains the command procedure.

2. The implicit form, where you do not enter EXEC but only enter the name of the member of the command procedure library (a partitioned data set) that contains the command procedure.

Some of the commands in a command procedure may have symbolic values for operands. When you specify the EXEC command, you may supply actual values for the system to use in place of the symbolic values.

COMMAND	OPERANDS
{EXEC / EX}	data-set-name ['value-list'] [NOLIST / LIST]
	procedure-name [value-list]

data-set-name
specifies the name of the data set containing the command procedure to be executed. If the descriptive qualifier for the data set is not CLIST (as in BOB.FORTCOMP.CLIST) you must enclose the fully qualified name within apostrophes. (See the data set naming conventions.)

procedure-name
specifies a member of a command procedure library that is invoked when you enter the LOGON command. The library must previously have been defined in the SYSPROC DD statement of the logon procedure or with the ALLOCATE command.

value-list
specifies the actual values that are to be substituted for the symbolic values in the command procedure. The symbolic values are defined by the operands of the PROC statement in the command procedure. The actual values that are to replace the symbolic values defined by positional operands in the PROC statement must be in the same sequence as the positional operands. The actual values that are to replace the symbolic values defined by keywords in the PROC statement must follow the positional values, but may be in any sequence. When you use the explicit form of the command, the value list must be enclosed in apostrophes. If apostrophes appear within the list, then you must provide two apostrophes in order to print one.

NOLIST
specifies that the commands and subcommands will not be listed at the terminal. The system assumes NOLIST for implicit and explicit EXEC commands.

LIST
specifies that commands and subcommands will be listed at the terminal as they are executed. This operand is valid only for the explicit form of EXEC.

Example 1

Operation: Execute a command procedure to invoke the PL/I compiler.

Known: The name of the data set that contains the command procedure is RBJ2I.PLIC.CLIST.

The command procedure consists of:

```
PROC 1 NAME
ALLOCATE DATASET(&NAME..PLI) FILE(SYSIN)
ALLOCATE DATASET(&NAME..LIST) FILE(SYSPRINT) BLOCK(80) SPACE(300,100)
ALLOCATE DATASET(&NAME..OBJ) FILE(SYSLIN) BLOCK(80) SPACE(250,100)
ALLOCATE FILE(SYSUT1) BLOCK(1024) SPACE(60,60)
ALLOCATE FILE(SYSUT3) BLOCK(80) SPACE(250,100)
CALL 'SYS1.LINKLIB(IEMAA)' 'LIST,ATR,XREF,STMT'
FREE FILE(SYSUT1,SYSUT3,SYSIN,SYSPRINT)
```

The name of your program is 'EXP'.
You want to have the names of the commands in the command procedure displayed at your terminal as they are executed.

```
EXEC PLIC 'EXP' LIST
```

The listing at your terminal will be similar to:

```
exec plic 'exp' list

ALLOCATE DATASET(EXP.PLI) FILE(SYSIN)
ALLOCATE DATASET(EXP.LIST) FILE(SYSPRINT) BLOCK(80) SPACE(300,100)
ALLOCATE DATASET(EXP.OBJ) FILE(SYSLIN) BLOCK(80) SPACE(250,100)
ALLOCATE FILE(SYSUT1) BLOCK(1024) SPACE(60,60)
ALLOCATE FILE(SYSUT3) BLOCK(80) SPACE(250,100)
CALL 'SYS1.LINKLIB(IEMAA)' 'LIST,ATR,XREF,STMT'
FREE FILE(SYSUT1,SYSUT3,SYSIN,SYSPRINT)
READY
```

Example 2

Operation: Suppose that the command procedure in Example 1 was stored in a command procedure library. Execute the command procedure using the implicit form of EXEC.

Known: The name of the member of the partitioned data set that contains the command procedure is PLIC

```
plic exp
```

FORMAT Command

The FORMAT command is provided as part of the optional TSO Data Utilities: COPY, FORMAT, LIST, MERGE program product which is available for a license fee.

Use the FORMAT command to format textual output. This command provides the facilities to:

- Print a heading on each page.
- Center lines of text between margins.
- Control the amount of space for all four margins.
- Justify left and right margins of text.
- Number pages of output consecutively.
- Halt printing when desired.
- Print multiple copies of selected pages.
- Control line and page length.
- Control paragraph identation.
- Store a data set that has already been formatted.
- Print all or part of a sequential or partitioned data set.

FORT Command

The FORT command is provided as part of the optional FORTRAN Prompter program product which is available for a license fee.

Use the FORT command to compile a FORTRAN IV (G1) program. You will be prompted for any information that you have omitted or entered incorrectly. It also allocates required data sets and passes parameters to the FORTRAN IV (G1) compiler.

FREE Command

Use the FREE command to release ("de-allocate") previously allocated data sets that you no longer need. You can also use this command to change the output class of SYSOUT data sets.

The maximum number of data sets that may be allocated to you at any one time depends on the number of Data Definition (DD) statements in the procedure that is invoked when you LOGON. The allowable number must be large enough to accomodate:

- Data sets allocated via the LOGON and ALLOCATE commands.
- Data sets allocated dynamically, and later freed automatically, by the system's command processors.

The data sets allocated by the LOGON and ALLOCATE commands are not freed automatically. To avoid the possibility of reaching your limit and being denied necessary resources, you should use the FREE command to release these data sets when they are no longer needed.

When you free SYSOUT data sets, you may change their output class to make them available for processing by an output writer.

When you enter the LOGOFF command, all data sets allocated to you are freed by the system.

COMMAND	OPERANDS
FREE	{DATASET(list-of-data-set-names)} {FILE(list-of-file-names)} [SYSOUT(class)]

DATASET(list-of-data-set-names)
specifies one or more data set names that identify the data sets that you want to free. (See the data set naming conventions.) If you omit this operand, you must specify the FILE operand.

FILE(list-of-file-names)
specifies one or more file names that identify the data sets to be freed. If you omit this operand, you must specify the DATASET operand.

SYSOUT(class)
specifies an output class which is represented by a single character. All of the system output (SYSOUT) data sets specified in the DATASET and FILE operands will be assigned to this class and placed in the output queue for processing by an output writer (see IBM System/360 Operating System: Supervisor and Data Management Services, GC28-6646). If you do not specify a new class, the SYSOUT data sets that are freed will remain in the message class.

Example 1

Operation: Free a data set by specifying its data set name.

Known: The data set name..... T0C903.PROGA.LOAD

```
FREE DATASET(PROGA.LOAD)
```

Example 2

Operation: Free three data sets by specifying their data set names.

Known: The data set names..... LIRPA.PB99CY.ASM
LIRPA.FIRSTQTR.DATA
LIRPA.LOOF.MSG

```
FREE DATASET(PB99CY.ASM,FIRSTQTR.DATA,'LIRPA.LOOF.MSG')
```

Example 3

Operation: Free five data sets by specifying data set names or data definition names. Change the output class for any SYSOUT data sets being freed.

Known: The name of a data set..... DNIW.HCRAM.FORT
The filenames (data definition names) of
4 data sets..... SYSUT1
SYSUT3
SYSIN
SYSPRINT
The new output class..... B

```
FREE DATASET(HCRAM.FORT) FILE(SYSUT1,SYSUT3,SYSIN,SYSPRINT) SYSOUT(B)
```

HELP Command

Use the HELP command to obtain information about the function, syntax, and operands of commands and subcommands. This reference information is contained within the system and is displayed at your terminal in response to your request for help.

COMMAND	OPERANDS
{HELP / H}	[command-name] [FUNCTION] [SYNTAX] [OPERANDS(list-of-operands)] [ALL]

command-name
specifies the name of the command that you want to know more about.

FUNCTION
specifies that you want to know more about the purpose and operation of the command.

SYNTAX
specifies that you want to know more about the syntax required to use the command properly.

OPERANDS(list-of-operands)
specifies that you want to see explanations of the operands for the command. When you specify the keyword OPERANDS and omit any values, all operands will be described. You can specify particular keyword operands that you want to have described by including them as values within parenthesis following the keyword. If you specify a list of more than one operand, the operands in the list must be separated by commas or blanks.

ALL
specifies that you want to see all information available concerning the command or subcommand. This is the default value if no other KEYWORD operand is specified.

HELP Information: The scope of available information ranges from general to specific. The HELP command with no operands produces a list of valid commands and their basic functions. From the list you can select the command most applicable to your needs. If you need more information about the selected command, you may use the HELP command again, specifying the selected command name as an operand. You will then receive:

1. A brief description of the function of the command.
2. The format and syntax for the command.
3. A description of each operand.

You can obtain information about a command only when the system is ready to accept a command.

HELP Command

If you do not want to have all of the detailed information, you may request only the portion that you need.

The information about the commands is contained in a cataloged partitioned data set named SYS1.HELP. Information for each command is kept in a member of the partitioned data set. The HELP command causes the system to select the appropriate member and display its contents at your terminal.

Figure 5 shows the hierarchy of the sets of information available with the HELP command. Figure 5 also shows the form of the command necessary to produce any particular set.

Example 1

Operation: Obtain a list of all available commands.

```
HELP
```

Example 2

Operation: Obtain all the information available for the ALLOCATE command.

```
HELP ALLOCATE
```

Example 3

Operation: Have a description of the XREF, MAP, COBLIB, and OVLY operands for the LINK command displayed at your terminal.

```
H LINK OPERANDS(XREF,MAP,COBLIB,OVLY)
```

Example 4

Operation: Have a description of the function and syntax of the LISTBC command displayed at your terminal.

```
h listbc function syntax
```

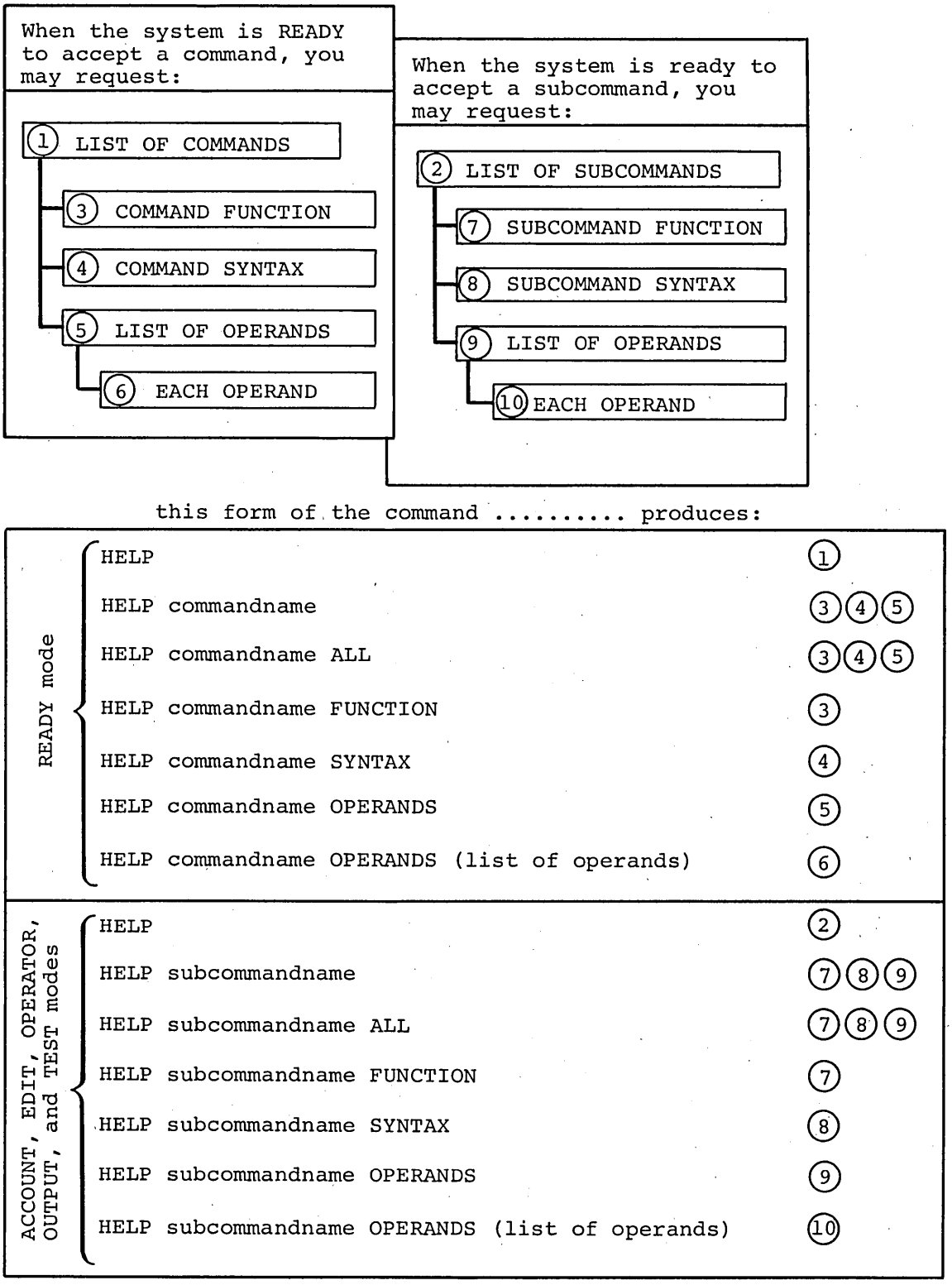


Figure 5. Information Available Through the HELP Command

LINK Command

Use the LINK command to invoke the linkage editor service program. Basically, the linkage editor converts one or more object modules (the output modules from compilers) into a load module that is suitable for execution. In doing this, the linkage editor changes all symbolic addresses in the object modules into relative addresses. You can find a complete description of the functions of the linkage editor in the publication IBM System/360 Operating System: Linkage Editor and Loader, GC28-6538.

The linkage editor provides a great deal of information to help you test and debug a program. This information includes a cross-reference table and a map of the module that identifies the location of control sections, entry points, and addresses. You can have this information listed at your terminal or saved in a data set on some device.

You can specify all the linkage editor options explicitly or you can accept the default values. The default values are satisfactory for most uses. By accepting the default values, you simplify the use of the LINK command.

If the module that you want to process has a simple structure (that is, it is self contained and does not pass control to other modules) and you do not require the extensive listings produced by the linkage editor and you do not want a load module, you may want to use the LOADGO command as an alternative to the LINK command.

LINK Command

COMMAND	OPERANDS
LINK	(data-set-list) [LOAD[(data-set-name)]] [PRINT({ * / data-set-name }) NOPRINT] [LIB(data-set-list)] [PLILIB] [PLICMIX] [PLIBASE] [FORTLIB] [COBLIB] [MAP / NOMAP] [NCAL / NONCAL] [LIST / NOLIST] [LET / NOLET] [XCAL / NOXCAL] [XREF / NOXREF] [REUS / NOREUS] [REFR / NOREFR] [SCTR / NOSCTR] [OVLY / NOOVLY] [RENT / NORENT] [SIZE(integer1 integer2)] [NE / NONE] [OL / NOOL] [DC / NODC] [HIAR / NOHIAR] [TEST / NOTEST] [TERM / NOTERM] [DCBS(blocksize)]

(data-set-list)
specifies the names of one or more data sets containing your object modules and/or linkage editor control statements. (See the data set naming conventions). The specified data sets will be concatenated within the output load module in the sequence that they are included in this operand. You may substitute an asterisk (*) for a data set name to indicate that you will enter control statements from your terminal. The system will prompt you to enter the control statements. A null line indicates the end of your data. The publication IBM System/360 Operating System: Linkage Editor and Loader, GC28-6538, contains a description of the control statements.

LOAD(data-set-name)
specifies the name of the partitioned data set that will contain the load module after processing by the linkage editor (see the data set naming conventions). If you omit this operand, the system will generate a name according to the data set naming conventions.

PRINT(data-set-name or *)
specifies that linkage editor listings are to be produced and

placed in the specified data set. When you omit the data set name, the data set that is generated is named according to the data set naming conventions. You may substitute an asterisk (*) for the data set name if you want to have the listings displayed at your terminal. This is the default value if you specify the LIST, MAP, or XREF operand.

NOPRINT
specifies that no linkage editor listings are to be produced. This operand causes the MAP, XREF, and LIST options to become invalid. This is the default value if both PRINT and NOPRINT are omitted, and you do not use the LIST, MAP, or XREF operand.

LIB(data-set-list)
specifies one or more names of library data sets to be searched by the linkage editor to locate load modules referred to by the module being processed (that is, to resolve external references). (See the data set naming conventions.) When you specify more than one name, the names must be separated by a comma.

PLILIB
specifies that the partitioned data set named SYS1.PL1LIB is to be searched by the linkage editor to locate load modules that are referred to by the module being processed.

PLIBASE
specifies that the partitioned data set named SYS1.PLIBASE is to be searched to locate load modules referred to by the module being processed.

PLICMIX
specifies that the partitioned data set named SYS1.PLICMIX is to be searched to locate load modules referred to by the module being processed.

FORTLIB
specifies that the partitioned data set named SYS1.FORTLIB is to be searched by the linkage editor to locate load modules referred to by the module being processed.

COBLIB
specifies that the partitioned data set named SYS1.COBLIB is to be searched by the linkage editor to locate load modules referred to by the module being processed.

MAP
specifies that the PRINT data set is to contain a map of the output module consisting of the control sections, the entry names, and (for overlay structures) the segment number.

NOMAP
specifies that a map of the output module is not to be listed. This is the default value if both MAP and NOMAP are omitted.

NCAL
specifies that the automatic library call mechanism is not to be invoked to locate the modules that are referred to by the module being processed when the object module refers to other load modules.

NONCAL
specifies that the modules referred to by the module being processed are to be located by the automatic library call mechanism when the object module refers to other load modules. This is the default value if both NCAL and NONCAL are omitted.

LIST
specifies that a list of all linkage editor control statements is to be placed in the PRINT data set.

NOLIST
specifies that a listing of linkage editor control statements is not to be produced. This is the default value if both LIST and NOLIST are omitted.

LET
specifies that the output module is permitted to be marked as executable even though a severity 2 error is found (a severity 2 error indicates that execution of the output module may be impossible).

NOLET
specifies that the output module be marked non-executable when a severity 2 error is found. This is the default value if both LET and NOLET are omitted.

XCAL
specifies that the output module is permitted to be marked as executable even though an exclusive call has been made between segments of an overlay structure. Because the segment issuing an exclusive call is overlaid, a return from the requested segment can be made only by another exclusive call or a branch.

NOXCAL
specifies that both valid and invalid exclusive calls will be marked as errors. This is the default value if both XCAL and NOXCAL are omitted.

XREF
specifies that a cross-reference table is to be placed on the PRINT data set. The table includes the module map and a list of all address constants referring to other control sections. Since the XREF operand includes a module map, both XREF and MAP cannot be specified for a particular LINK command.

NOXREF
specifies that a cross-reference listing is not to be produced. This is the default value if both XREF and NOXREF are omitted.

REUS
specifies that the load module is to be marked serially reusable if the input load module was reenterable or serially reusable. The RENT and REUS operand are mutually exclusive. The REUS operand must not be specified if the OVLY or TEST operands are specified.

NOREUS
specifies that the load module is not to be marked reusable. This the default value if both REUS and NOREUS are omitted.

REFR
specifies that the load module is to be marked refreshable if the input load module was refreshable and the OVLY and TEST operands were not specified.

NOREFR
specifies that the load module is not to be marked refreshable. This is the default value if both REFR and NOREFR are omitted.

SCTR
specifies that the load module created by the linkage editor can be either scatter loaded or block loaded. If you specify SCTR, do not specify OVLY.

NOSCTR
specifies that scatter loading is not permitted. This is the default value if both SCTR and NOSCTR are omitted.

OVLY
specifies that the load module is an overlay structure and is therefore suitable for block loading only. If you specify OVLY, do not specify SCTR.

NOOVLY
specifies that the load module is not an overlay structure. This is the default value if both OVLY and NOOVLY are omitted.

RENT
specifies that the load module is marked reenterable provided the input load module was reenterable and that neither the OVLY nor the TEST operand was specified.

NORENT
specifies that the load module is not marked reenterable. This is the default value if both RENT and NORENT are omitted.

SIZE(integer1,integer2)
specifies the amount of main storage to be used by the linkage editor. The first integer (integer1) indicates the maximum allowable number of bytes. Integer2 indicates the number of bytes to be used as the load module buffer, which is the main storage area used to contain input and output data. If this operand is omitted, SIZE defaults to the size specified at system generation (SYSGEN).

NE
specifies that the output load module cannot be processed again by the linkage editor or loader. The linkage editor will not create an external symbol dictionary. If you specify either MAP or XREF, this operand is invalid.

NONE
specifies that the output load module can be processed again by the linkage editor and loader and that an external symbol dictionary is present. This is the default value if both NE and NONE are omitted.

OL
specifies that the output load module can be brought into main storage only by the LOAD macro instruction.

NOOL
specifies that the load module is not restricted to the use of the LOAD macro instruction for loading into main storage. This is the default value if both OL and NOOL are omitted.

DC
specifies that the output module can be reprocessed by the linkage editor (E).

NODC
specifies that the load module cannot be reprocessed by the linkage editor (E). This is the default value if both DC and NODC are omitted.

HIAR
specifies that the control sections within the output module are to be marked for loading into either processor storage or IBM 2361 core storage. The linkage editor control statement HIARCHY assigns the appropriate hierarchy to the control sections. When you specify HIAR, the load module is marked suitable for scatter loading.

NOHIAR
specifies that no hierarchy assignments are to be made to the output load module. This is the default value if both HIAR and NOHIAR are omitted.

TEST
specifies that the symbol tables created by the assembler and contained in the input modules are to be placed into the output module.

NOTEST
specifies that no symbol table is to be retained in the output load module. This is the default value if both TEST and NOTEST are omitted.

TERM
specifies that you want error messages directed to your terminal as well as to the PRINT data set. This is the default value if both TERM and NOTERM are omitted.

NOTERM
specifies that you want error messages directed only to the PRINT data set and not to your terminal.

DCBS(blocksize)
specifies the blocksize of the records contained in the output load module "blocksize" must be an integer.

Example 1

Operation: Combine three object modules into a single load module.

Known: The names of the object modules in the sequence that the modules must be in..... DEPT03.GSALESA.OBJ
DEPT03.GSALESB.OBJ
DEPT03.NSALES.OBJ

You want all of the linkage editor listings to be produced and directed to your terminal.

The name for the output load module..... DEPT03.SALESRPT.LOAD(TEMPNAME)

```
LINK  (GSALESA,GSALESB,NSALES) LOAD(SALESRPT) PRINT(*)
XREF  LIST
```

Example 2

Operation: Create a load module from an object module, an existing load module, and a standard processor library.

Known: The name of the object module..... XRDJA3.M33THRUST.OBJ

The name of the load module..... XRDJA3.M33PAYLD.LOAD(MOD1)

The name of the standard processor library used resolving external references in the object module..... SYS1.PL1LIB

The name of the output load module. XRDJA3.M33PERFORM.LOAD(MOD2)

```
link (m33thrust,*) load (m33perform(mod2)) print (*) plilib map list
```

The listing at your terminal will be:

```
allocate dataset(m33payld.load) file (ld1)
link (m33thrust,*) load (m33perform(mod2)) print(*) plilib map list
IKJ76080A  ENTER CONTROL STATEMENTS -
include ld2(mod1)
(null line)
IKJ76111I  END OF CONTROL STATEMENTS
```

LIST Command

The LIST command is provided as part of the optional TSO Data Utilities: COPY, FORMAT, LIST, MERGE program product which is available for a license fee.

Use the LIST command to display a sequential data set or a member of a partitioned data set. You can arrange fields within records for output; you can include or suppress record numbers; you can list all or part of a particular line of data, and you can list a single line of data, a group of lines, or a whole data set.

LISTALC Command

Use the LISTALC command to obtain a list of the names of the data sets allocated to you. The list also specifies the number of data sets that the system will allow to be allocated to you dynamically. In addition, you can also obtain information about the status and history of each data set, names of the members of partitioned data sets, and system-generated names assigned to data sets.

COMMAND	OPERANDS
{LISTALC / LISTA}	[STATUS] [HISTORY] [MEMBERS] [SYSNAMES]

STATUS
specifies that you want information about the status of each data set. This operand provides you with:

- The data definition name (DDNAME) for the data set.
- The scheduled and conditional dispositions of the data set. The keywords denoting the dispositions are CATLG, DELETE, KEEP and UNCATLG. The scheduled disposition is the normal disposition and precedes the conditional disposition when listed. The conditional disposition takes effect if an abnormal termination occurs. CATLG means that the data set is retained and its name is in the system catalog. DELETE means that references to the data set are to be removed from the system and the space occupied by the data set is to be released. KEEP means that the data set is to be retained. UNCATLG means that the data set name is removed from the catalog but the data set is retained.

HISTORY
specifies that you want to obtain information about the history of each data set. This operand provides you with:

- The creation date.
- The expiration date.
  Note: All data sets created by dynamic allocation will have creation and expiration dates of 00/00/00.
- An indication as to whether or not the data set has password protection.
- The data set organization (DSORG). The listing will contain:

  PS for sequential
  PO for partitioned
  IS for indexed sequential
  DA for direct access
  ** for unspecified
  ?? for any other specification

MEMBERS
specifies that you want to obtain the library member names of each partitioned data set having your user's identification as the leftmost qualifier of the data set name. Aliases will be included.

SYSNAMES
specifies that you want to obtain the fully qualified names of data sets having system-generated names.

LISTALC Command

Example 1

Operation: Obtain a list of the names of all the data sets allocated to you.

```
LISTALC
```

Example 2

Operation: Obtain a list of the names of all the data sets allocated to you. At the same time obtain the creation date, the expiration date, password protection, and data set organization for each data set allocated to you.

```
LISTA HISTORY
```

Example 3

Operation: Obtain all available information about the data sets allocated to you.

```
lista members history status sysnames
```

The output at your terminal will be similar to the following listing:

```
listalc mem status sysnames history

--DSORG--CREATED--EXPIRES---SECURITY---DDNAME---DISP

RRED95.ASM
  PS      00/00/00 00/00/00  WRITE       EDTDUMY1 KEEP

RRED95.EXAMPLE
  PO      00/00/00 00/00/00  PROTECTED   EDTDUMY2 KEEP,KEEP

--MEMBERS--
  MEMBER1
  MEMBER2

SYS70140.T174803.RV000.TSOSPEDT.R0000001

  **      00/00/00 00/00/00  NONE        SYSUT1   DELETE

3 DATA SETS CAN BE ALLOCATED DYNAMICALLY
  EDTDUMY3
  SYSIN
  SYSPRINT

READY
```

LISTBC Command

Use the LISTBC command to obtain a listing of the contents of the SYS1.BRODCAST data set. The SYS1.BRODCAST data set contains messages of general interest (NOTICES) that are sent from the system to all terminals and messages directed to a particular user (MAIL). The system deletes MAIL messages from the data set after they have been sent. NOTICES must be deleted explicitly by the operator.

COMMAND	OPERANDS
{LISTBC / LISTB}	[MAIL / NOMAIL] [NOTICES / NONOTICES]

MAIL
specifies that you want to receive the messages from the broadcast data set that are intended specifically for you. This is the default value if both MAIL and NOMAIL are omitted.

NOMAIL
specifies that you do not want to receive messages intended specifically for you.

NOTICES
specifies that you want to receive the messages from the broadcast data set that are intended for all users. This is the default value if both NOTICES and NONOTICES are omitted.

NONOTICES
specifies that you do not want to receive the messages that are intended for all users.

Example 1

Operation: Specify that you want receive all messages.

```
LISTBC
```

Example 2

Operation: Specify that you want to receive only the messages intended for all terminal users.

```
listbc nomail
```

LISTCAT Command

Use the LISTCAT command to obtain a list of the names of your cataloged data sets.

The system catalog is a data set that contains the location of other data sets. The catalog is organized into levels of indexes that connect the data set names to corresponding locations (volumes and data set sequence numbers). Each qualifier in the data set name (see the data set naming conventions) corresponds to one of the indexes in the catalog. For instance, suppose that a data set named D58JCD.GSCORE.DATA is cataloged. The catalog has a master index that contains D58JCD as an entry. This entry includes the location of an index named D58JCD. The index named D58JCD contains GSCORE as an entry that includes the location of an index named GSCORE. The index named GSCORE contains DATA as an entry that includes the location of the data set.

The LISTCAT command, when entered with no operands, produces a list of all cataloged data sets that have your user identification as the leftmost qualifier. You can request a partial, more specific list by identifying the index level that you want to have listed. You can specify any index level in the catalog.

COMMAND	OPERANDS
{LISTCAT / LISTC}	[HISTORY] [MEMBERS] [VOLUMES] [LEVEL(index)]

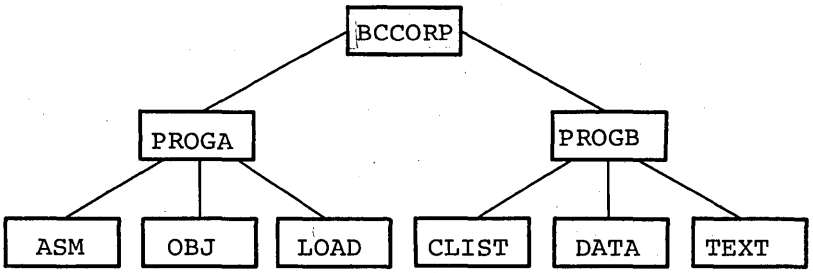
HISTORY
specifies that you want information about the history of each data set. This operand provides you with:

- The creation date.
- The expiration date.
  Note: All data set created by dynamic allocation will have creation and expiration dates of 00/00/00.
- An indication as to whether or not the data set has password protection.
- The data set organization (DSORG).

MEMBERS
specifies that you want a list of names for the members of each partitioned data set. Alias names will be included.

VOLUMES
specifies that you want the volume identification (VOLID) for each volume on which the data sets reside. A volume may be a reel of tape, a disk pack, a bin in a data cell, or a drum.

LEVEL(index)
specifies that you want the names of only a portion of the cataloged data sets. You indicate an index level by including one or more data set name qualifiers for 'index'. All data sets at an index level that is lower than the one that you indicate will be listed. For instance, if you have an index structure such as:



and you specify LEVEL(BCCORP.PROGA), you will receive:

```
ASM (meaning  BCCORP.PROGA.ASM)
OBJ (meaning  BCCORP.PROGA.OBJ)
LOAD (meaning BCCORP.PROGA.LOAD)
```

The specified index must begin with the highest level of qualification (for example, your user identification, or SYS1). You may also include one asterisk in your specified index qualification. The asterisk indicates that all qualifiers corresponding to the position of the asterisk are to be considered as if each was specified explicitly. The asterisk must not be placed at the highest or lowest level.

Example 1

Operation: List the names of all of your cataloged data sets.

```
LISTCAT
```

Example 2

Operation: List the names of all of your cataloged data sets; include their history and the volumes that they reside on.

```
LISTCAT HISTORY VOLUMES
```

The listing produced at your terminal will appear similar to the following simulated listing.

```
READY

listcat history volumes

--DSORG--CREATED---EXPIRES---SECURITY

CLIST.FLOWCHRT
  PS     07/11/66   09/14/70   NONE

--VOLUMES--
  D58LIB
```

```
XERPT.TEXT
  PS      00/00/00   00/00/00   NONE


--VOLUMES--
  D58LIB

READY
```

Example 3

Operation: List the names, history and volumes of a particular selection of your cataloged data sets.

The names of your data sets..... RCHD58.FLOW1.FORT
RCHD58.FLOW2.FORT
RCHD58.FLOW3.FORT

```
LISTCAT LEVEL(RCHD58.*.FORT) HISTORY VOLUMES
```

The listing produced at your terminal will appear similar to the following simulated listing.

```
READY

listcat level(rchd58.*.fort) volumes history

--DSORG--CREATED---EXPIRES---SECURITY

RCHD58.FLOW1.FORT
  PS      00/00/00   00/00/00   NONE

--VOLUMES--
  D58CAT

RCHD58.FLOW2.FORT
  PS      00/00/00   00/00/00   PROTECTED

--VOLUMES--
  D58CAT

RCHD58.FLOW3.FORT
  PS      00/00/00   00/00/00   WRITE

--VOLUMES--
  D58CAT

READY
```

LISTDS Command

Use the LISTDS command to have the attributes of specific data sets displayed at your terminal. You can obtain:

- The volume identification (VOLID) of the volume on which the data set resides. A volume may be a disk pack, a bin in a data cell, or a drum.
- The record format (RECFM), the logical record length (LRECL), and the blocksize (BLKSIZE) of the data set.
- The data set organization (DSORG).
- Directory information for members of partitioned data sets if you specify the data set name in the form data set name(membername).
- Creation date, expiration date, and security attributes
- File name and disposition.
- Data set control blocks (DSCB).

COMMAND	OPERANDS
{LISTDS / LISTD}	(data-set-list) [STATUS] [HISTORY] [MEMBERS] [LABEL]

(data-set-list)
specifies one or more data set names (see the data set naming conventions). This operand identifies the data sets that you want to know more about. Each data set specified must be currently allocated or available from the catalog, and must reside on a currently active volume.

STATUS
specifies that you want the following additional information:

- The data definition (DD) name DDNAME currently associated with the data set.
- The currently scheduled data set disposition and the conditional disposition. The keywords denoting the dispositions are CATLG, DELETE, KEEP, and UNCATLG. The scheduled disposition is the normal disposition and precedes the conditional disposition when listed. The conditional disposition takes effect if an abnormal termination occurs. CATLG means that the data set is cataloged. DELETE means that the data set is to be removed. KEEP means that the data set is to be retained. UNCATLG means that the name is removed from the catalog but the data set is retained.

HISTORY
specifies that you want to obtain the creation and expiration dates for the specified data sets (all data set created by dynamic allocation will have creation and expiration dates of 00/00/00), and to find out whether or not the data sets are password protected.

MEMBERS
specifies that you want a list of all the members of a partitioned data set including any aliases.

LABEL
specifies that you want to have the entire data set control block (DSCB) listed at your terminal. This operand is applicable only to direct access data sets. The listing will be in hexadecimal notation.

Example 1

Operation: List the basic attributes of a particular data set.

Known: The data set name..... RCHD95.CIR.OBJ

```
LISTDS CIR
```

The listing produced at your terminal will be similar to the listing shown below.

```
READY

listds cir

RCHD95.CIR.OBJ
--RECFM-LRECL-BLKSIZE-DSORG
  FB     80     80       PS

--VOLUMES--
  D95LIB

READY
```

Example 2

Operation: List the basic attributes and the DSCBs for a particular data set.

Known: The data set name..... RCHD95.IKJEHDS1.LOAD

```
listd ikjehds1 label
```

LOADGO Command

Use the LOADGO command to load a compiled or assembled program into main storage and begin execution.

The LOADGO command will load object modules produced by a compiler or assembler, and load modules produced by the linkage editor. (If you want to load and execute a single load module, the CALL command is more efficient.) The LOADGO command will also search a call library (SYSLIB) or a resident link pack area, or both, to resolve external references.

The LOADGO command invokes the system loader to accomplish this function. The loader combines basic editing and loading services of the linkage editor and program fetch in one job step (see the publication IBM System/360 Operating System: linkage Editor and Loader, GC28-6538). Therefore, the load function is equivalent to the link edit and go function.

The LOADGO command does not produce load modules for program libraries, and it does not process linkage editor control statements such as INCLUDE, NAME, OVERLAY, etc.

COMMAND	OPERANDS
{LOADGO / LOAD}	(data-set-list) ['parameters']
	[PRINT ({* / data-set-name}) / NOPRINT]
	[LIB(data-set-list)]
	[PLILIB] [PLIBASE] [PLICMIX] [FORTLIB] [COBLIB]
	[TERM / NOTERM] [RES / NORES] [MAP / NOMAP] [CALL / NOCALL] [LET / NOLET]
	[SIZE(integer-name)]
	[EP(entry-name)]
	[NAME(program-name)]

(data-set-list)
specifies the names of one or more object modules and/or load modules to be loaded and executed. The names may be data set names, names of members of partitioned data sets, or both (see the data set naming conventions). When you specify more than one name, the names must be enclosed within parentheses and separated from each other by a standard delimiter (blank or comma).

'parameters'
specifies any parameters that you want to pass to the program to be executed.

PRINT(data-set-name or *)
specifies the name of the data set that is to contain the listings

produced by the LOADGO command. If you omit the data set name, the generated data set will be named according to the data set naming conventions. You may substitute an asterisk (*) for the data set name if you want to have the listings displayed at your terminal. This is the default if you specify the MAP operand.

NOPRINT
specifies that no listings are to be produced. This operand negates the MAP operand. This is the default value if both PRINT and NOPRINT are omitted, and you do not use the MAP operand.

TERM
specifies that you want any error messages directed to your terminal as well as the PRINT data set. This is the default value if both TERM and NOTERM are omitted.

NOTERM
specifies that you want any error messages directed only to the PRINT data set.

LIB(data set list)
specifies the names of one or more library data sets that are to be searched to find modules referred to by the module being processed (that is, to resolve external references).

PLILIB
specifies that the partitioned data set named SYS1.PLILIB is to be searched to locate load modules referred to by the module being processed.

PLIBASE
specifies that the partitioned data set named SYS1.PLIBASE is to be searched to locate load modules referred to by the module being processed.

PLICMIX
specifies that the partitioned data set named SYS1.PLICMIX is to be searched to locate load modules referred to by the module being processed.

COBLIB
specifies that the partitioned data set named SYS1.COBLIB is to be searched to locate load modules referred to by the module being processed.

FORTLIB
specifies that the partitioned data set named SYS1.FORTLIB is to be searched to locate load modules referred to by the module being processed.

RES
specifies that the link pack area is to be searched for load modules (referred to by the module being processed) before the specified libraries are searched. This is the default value if both RES and NORES are omitted. If you specify the NOCALL operand the RES operand is invalid.

NORES
specifies that the link pack area is not to be searched to locate modules referred to by the module being processed.

MAP
specifies that a list of external names and their absolute storage addresses are to be placed on the PRINT data set. This operand is ignored when NOPRINT is specified.

NOMAP
specifies that external names and addresses are not to be contained in the PRINT data set. This is the default value if both MAP and NOMAP are omitted.

CALL
specifies that the data set specified in the LIB operand is to be searched to locate load modules referred to by the module being processed. This is the default value if both CALL and NOCALL are omitted.

NOCALL
specifies that the data set specified by the LIB operand will not be searched to locate modules that are referred to by the module being processed. The RES operand is invalid when you specify this operand.

LET
specifies that execution is to be attempted even if a severity 2 error should occur. (A severity 2 error indicates that execution may be impossible.)

NOLET
specifies that execution is not to be attempted if a severity 2 error should occur. This is the default value if both LET and NO are omitted.

SIZE(integer)
specifies the size, in bytes, of dynamic main storage that can be used by the loader. If this operand is not specified, then the size defaults to the size specified at System Generation (SYSGEN).

EP(entry-name)
specifies the external name for the entry point to the loaded program. You must specify this operand if the entry point of the loaded program is in a load module other than the primary input module. (The primary input module is the first one that you name in the data set list.)

NAME(program-name)
specifies the name that you want assigned to the loaded program.

Example 1

Operation: Load and execute an object module.

Known: The name of the data set..... SHEPD58.CSINE.OBJ

```
LOADGO  CSINE  PRINT(*)
```

Example 2

Operation: Combine an object module and a load module, and then load and execute them.

Known: The name of the data set
containing the object module..... LARK.HINDSITE.OBJ
The name of the data set
containing the load module..... LARK.THERMOS.LOAD(COLD)

```
LOAD  (HINDSITE THERMOS(COLD)) PRINT(*) LIB('SYS1.SORTLIB')
NORES MAP SIZE(44K) EP(START23) NAME(THERMSIT)
```

LOGOFF Command

Use the LOGOFF command to terminate your terminal session.

Before you enter the LOGOFF command, you should use the EDIT command's SAVE subcommand to store the data sets that you want to save. When you enter the LOGOFF command, the system frees all the data sets allocated to you; data remaining in main storage will be lost.

Note: If you intend to enter the LOGON command immediately and continue processing against a different account number you do not enter LOGOFF. Instead, you can just enter the LOGON command as you would enter any other command.

COMMAND	OPERAND
LOGOFF	

Example 1

Operation: Terminate your terminal session.

```
logoff
```

LOGON Command

Use the LOGON command to initiate a terminal session. Before you can use the LOGON command, your installation must provide you with certain basic information.

- Your user identification (1-7 characters) and, if required by your installation, a password (1-8 alphameric characters).
- An account number (may or may not be required for your installation).
- A procedure name (may or may not be required for your installation).

You must supply this information to the system by using the LOGON command and operands. The information that you enter is used by the system to start and control your time sharing terminal session.

You can also use the operands to specify whether or not you want to receive messages from the system or other users.

COMMAND	OPERANDS
LOGON	user-identity[/password]
	[ACCT(account)]
	[PROC(procedure)]
	[SIZE(integer)]
	[NOTICES / NONOTICES]
	[MAIL / NOMAIL]

user-identity and password
: specifies your user identification and, if required, a valid password. You user identification must be separated from the password by a slash (/) and, optionally, one or more standard delimiters (tab, blank, or comma). Your identification and password must match the identification contained in the system's User Attribute Data Set (UADS). If you omit any part of this operand, the system will prompt you to complete the operand. (Printing is suppressed for some types of terminals when you respond to a prompt for a password.)

ACCT(account)
: specifies the account number required by your installation. If the UADS contains only one account number for the password that you specify, this operand is not required. If the account number is required and you omit it, the system will prompt you for it.

  For TSO, an account number must not exceed 40 characters, and must not contain a blank, tab, quotation mark, apostrophe, semicolon, comma, or line control character. Right parentheses are permissible only when left parentheses balance them somewhere in the account number.

PROC(procedure-name)
specifies the name of a cataloged procedure containing the Job Control Language (JCL) needed to initiate your session.

SIZE(integer)
specifies the size of the main storage region, in units of 1024 bytes, that you want allocated to your job. The UADS contains a default value for your region size if you omit this operand. The UADS also contains a value for the maximum region size that you will be allowed. This operand will be rejected if you specify a region size exceeding the maximum region size allowed by the UADS (in this case, the UADS value MAXSIZE will be used).

NOTICES
specifies that messages intended for all terminal users are to be listed at your terminal during LOGON processing. This is the default value if both NOTICES and NONOTICES are omitted.

NONOTICES
specifies that you do not want to receive the messages intended for all users.

MAIL
specifies that you want messages intended specifically for you to be displayed at your terminal. This is the default value if both MAIL and NOMAIL are omitted.

NOMAIL
specifies that you do not want to receive messages intended specifically for you.

Example 1

Operation: Initiate a terminal session.

Known: Your user identification and password..... AJKD58/23XA$MBT
Your installation does not require an account number or procedure name for LOGON.

```
LOGON AJKD58/23XA$MBT
```

Example 2

Operation: Initiate a terminal session.

Known: Your user identification and password..... HEUS951/MOa
Your account number..... 288104
The name of a cataloged procedure..... TS951
You do not want to receive messages.
Your main storage space requirement..... 90,000 bytes

```
LOGON HEUS951/MOa ACCT(288104) PROC(TS951) SIZE(90)NONOTICES NOMAIL
```

MERGE Command

The MERGE command is provided as part of the optional TSO Data Utilities: COPY, FORMAT, LIST, MERGE program product which is available for a license fee.

Use the MERGE command to:

- MERGE a complete or part of a sequential or member of a partitioned data set into a sequential or member of a partitioned data set.
- Copy a complete or part of a sequential or member of a partitioned data set into a new or (pre-allocated) empty sequential data set.
- Copy a complete or part of a sequential or member of a partitioned data set into a new member of an existing partitioned data set.
- Copy a complete or part of a sequential or member of a partitioned data set into a new or (pre-allocated) empty partitioned data set.

OPERATOR Command

Use the OPERATOR command and its subcommands to regulate and maintain the system from a terminal.

This command may be used only by personnel who have been given the authority to do so by the installation management. The authority to use OPERATOR is normally given to personnel responsible for system operation, and is recorded in the User Attribute Data Set (see the ACCOUNT command).

The OPERATOR command has eight subcommands: CANCEL, DISPLAY, END, HELP, MODIFY, MONITOR, SEND and STOP. You may enter the subcommands after using the OPERATOR command.

COMMAND	OPERANDS
{OPERATOR / OPER}	

OPERATOR Command
CANCEL Subcommand

Use the CANCEL command to terminate the current activities of a terminal user or a job submitted for conventional batch processing. When you use the CANCEL command to terminate a terminal session, accounting information will be presented to the user. The syntax for this subcommand is the same as the syntax for the MVT operator commands.

SUBCOMMAND	OPERANDS
{CANCEL / C}	{jobname[,DUMP[,ALL] / ,IN[=class] / ,OUT[=class]] / unit-address / identifier / U=user-identification[,DUMP]}

jobname
is the name of the job that you want to cancel.

DUMP
specifies that an abnormal-end-of-job storage dump will be taken if a step of the job is being executed when you enter the command. The dump will be printed on the system output device.

ALL
specifies that all the input and output for the job is to be canceled.

IN=class
specifies that the system is to search for the job on the input queue indicated by "class". If you omit "class", all input queues will be searched.

OUT=class
specifies that the system is to search for the job on the output queue indicated by "class". If you omit "class", all output queues will be searched.

Note: If neither the IN or OUT parameter is used the system will search all the input queues and the hold queue for the job.

unit-address
specifies the address of an I/O device. The system will stop the output currently being written on the device.

identifier
specifies the identifier of a system task to be terminated during allocation. You cannot cancel a system task that is not associated with a unit (device).

This operand can be the identifier used in a START command issued by the system's console operator or it can be a unit type (such as 1403 or 2311) associated with a unit address or a procedure used in a START command.

U=user identification
specifies the user identification for a user whose terminal session is to be terminated by the CANCEL command.

Note: Use the 'CANCEL U=userid' format for canceling time sharing jobs only and the 'CANCEL jobname' format for canceling conventional batch jobs only.

Example 1

Operation: Terminate a user's terminal session.

Known: The user's identification..... RCHTD36

```
C U=RCHTD36
```

Example 2

Operation: Cancel a job that has been submitted from a terminal for conventional batch processing and have a dump printed.

Known: The name of the job..... PAYROLL

```
cancel payroll,dump
```

Example 3

Operation: Cancel the output from a job that has been submitted from a terminal for conventional batch processing.

Known: The name of the job..... SUEG
The output class..... J

```
CANCEL SUEG,OUT=J
```

OPERATOR Command
DISPLAY Subcommand

Use the DISPLAY subcommand to obtain a listing of:

- The number of terminal users for each time sharing region.
- The number of conventional batch jobs awaiting execution that were submitted from a terminal by the SUBMIT command.
- The messages from time sharing jobs that are awaiting replies from an operator.
- The number of active terminals, the identification of each user, and the time sharing region being used by each user. The operands 'jobname', 'A', 'N', 'Q', 'T' and 'R' are also operands of the DISPLAY command of the System/360 Operating System. They are described in detail in the publication IBM System/360 Operating System: Operator's Reference. The syntax for this subcommand is the same as the syntax for the MVT operator commands.

SUBCOMMAND	OPERANDS
{DISPLAY / D}	{jobname / A / T / N[=list] / Q[=list] / R / USER[=NMBR] / T}

jobname
specifies the name of the job for which the following status information is to be displayed: job name; class; job priority; type of queue the job is in (JOB Q, HOLD Q, SOUT Q (SYSOUT queue), or BRDR): and the job's position in the queue.

The maximum length of a job name is eight characters. If your jobname is JOBNAMES, STATUS, T, A, R, Q, N, SPACE, DSNAME, SESS, USER, U, M, or CONSOLES it must be enclosed in parentheses.

A
specifies that you want the system to display information about all jobs and jobsteps that are recognized by the system as tasks (that is, those jobs and job steps that have one or more task control block (TCB)).

The information displayed for jobs in background regions includes the names of the job and job step associated with each task, the number of subordinate tasks operating within the same region of main storage, the beginning and end addresses of the region, and the amount of supervisor queue space used for system control blocks related to the main task. If rollout is included in the system, the display will indicate whether the region is borrowed or rolled out.

The information displayed for time-sharing regions includes TIME SHARING as the job name, the number of users for each region, the region number, the beginning and end addresses of the region, and

the amount of local supervisor queue space used for system control blocks by the user's tasks.

N
specifies that you want a list of job names on the input, hold, output, BRDR, and ASB reader batching queues.

Q
specifies that you want a list of the number of entries on the input, hold, output, BRDR, and ASB reader batching queues.

list
specifies that you want information about specific queues. You can specify up to four of the following queues:

- Specific input work queue name (job class A through 0).
- SOUT (system output queues collectively).
- HOLD (system hold queue).
- BRDR (background reader queue).

R
specifies that you want a listing of messages that are awaiting a response from an operator.

T
specifies that you want the time of day and the date.

USER=NMBR
indicates you want specific information about time sharing users. If you do not specify =NMBR, the number of active terminals, the identification of each user and the corresponding region number of each user will be displayed at your terminal. If you do specify =NMBR, only the number of active terminals will be displayed.

Example 1

Operation: Have the number of time sharing regions and the number of users for each region displayed at your terminal.

```
DISPLAY A
```

Example 2

Operation: Have the status of a particular job displayed at your terminal.

Known: The name of the job is..... RBTATT

```
display  rbtatt
```

Example 3

Operation: Obtain the user identification for each active terminal user.

```
d user
```

OPERATOR Command
END Subcommand

Use the END subcommand to terminate operation of the OPERATOR command. After entering the END subcommand, you may enter new commands.

SUBCOMMAND	OPERANDS
END	

OPERATOR Command
HELP Subcommand

Use the HELP subcommand to find out how to use OPERATOR and the OPERATOR subcommands. When you enter the HELP subcommand, the system responds by printing out explanatory information at your terminal. You may request:

- A list of available subcommands.
- An explanation of the fucntion, syntax, and operands of a specific subcommand.

The HELP subcommand actually causes the system to execute a function of the HELP command; therefore, you may consult the discussion of the HELP command if you desire more detailed information.

SUBCOMMAND	OPERANDS
{HELP / H}	[subcommand-name] [FUNCTION] [SYNTAX] [OPERANDS[(list-of-operands)] [ALL]

subcommand-name
specifies the subcommand that you want to have clarified. If you omit this operand, the system will display a list of OPERATOR subcommands.

FUNCTION
specifies that you want a description of the referenced subcommand's function.

SYNTAX
specifies that you want a definition of the proper syntax for the referenced subcommand.

OPERANDS(list-of-operands)
specifies that you want an explanation of the operands applicable to the referenced subcommand.

The list of operands specifies the particular keywords that you want to have explained. If you do not specify any keywords, all of the applicable keywords will be included. You must use one or more blanks or a comma as a delimiter between the keywords in the list.

ALL
specifies that you want a description of the function, the syntax, and the operands of the subcommand that you specified. This is the default value if no operands are specified.

Example 1

Operation: Have a list of available subcommands displayed at your terminal.

```
HELP
```

Example 2

Operation: Obtain all available information about a particular subcommand.

Known: The subcommand name..... MODIFY

```
H MODIFY
```

Example 3

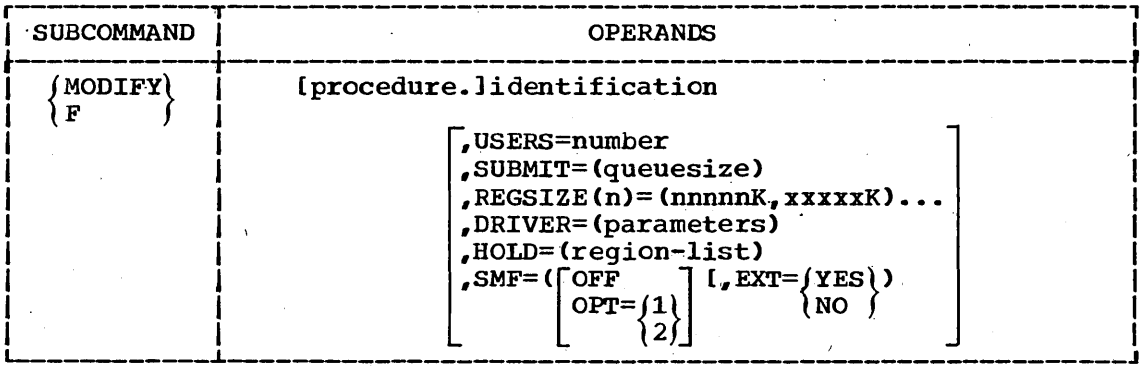
Operation: Have a list of the operands for a particular subcommand displayed at your terminal.

Known: The subcommand name..... DISPLAY

```
h DISPLAY operands
```

OPERATOR Command
MODIFY Subcommand

Use the MODIFY subcommand to modify the time sharing options that were specified when the system was generated or when time sharing was initiated. The syntax used for this subcommand is the same as the syntax used for MVT operator commands.



procedure
: specifies the name of the time sharing procedure that you want to modify. This name must be the same as the one that was used when the procedure was started with a START command issued by the console operator.

identification
: specifies the identification of the system task used when the task was defined by a START command issued by the console operator.

USERS=number
: indicates the number of users allowed for time sharing. The maximum number is determined at START time and cannot be exceeded by the MODIFY command.

SUBMIT=Queuesize
: indicates the maximum number of logical tracks to be used for the queue for conventional batch jobs submitted by the SUBMIT command.

REGSIZE(n)=(nnnnnK,xxxxxK)
: indicates the number and size of each time sharing region. 'n' is the region number (included on the informational messages from the DISPLAY command). You specify the size of the region in the form nnnnnK. You specify the local supervisor queue area (LSQA) to be added to the region in the form xxxxxK. "nnnnn" and "xxxxx" are the number of 1024 byte areas you want. These numbers may range from one to five digits, but cannot exceed 16384. The numbers should be specified as even numbers. (If you specify an odd number, the system treats it as the next higher even number). LSQA cannot be greater than the region size. If the size equals zero the region will be freed. Anytime you use the REGSIZE operand, any users of that region will be logged off.

DRIVER=(parameters)
: specifies a parameter list to be passed to the time sharing driver (a component of TSO). For instance, BACKGROUND=value is the only keyword that can be passed to the IBM supplied driver -- it

indicates the percentage of system resource time guaranteed for conventional batch processing; however, different parameters may be supplied for user-written drivers.

HOLD=(region-list)
specifies that the time-sharing regions specified in "region-list" are not to be allocated for any new users. If you specify more than one region, then you must separate the regions specified with commas.

SMF=(OFF or OPT=1 or OPT=2, EXT=YES or NO)
indicates which option of the System Management Function (SMF) is to be used for time sharing operations. OFF indicates that SMF is not to be used for time sharing operations. OPT=1 or 2 indicates an option of SMF that is to be used for time sharing operations. EXT indicates that exits to the installation routines are active.

Example 1

Operation: Change the number of terminals allowed for time sharing operations.

Known: The existing allowable number..... 32
The new number..... 26

```
MODIFY TSO,USERS=26
```

Example 2

Operation: Change the maximum size of time sharing region number 3 from 70K to 100K, with 10K reserved for local supervisor queue area (LSQA).

```
f tso,regsize(3)=(100K,10K)
```

Example 3

Operation: Change the guaranteed background percentage of time to 60%.

```
F TSO,DRIVER=(BACKGROUND=60)
```

OPERATOR Command
MONITOR Subcommand

Use the MONITOR subcommand to monitor terminal activities and job activities within the system. Informational messages will be displayed. The content of the messages will pertain to the type of information indicated by the operand included with the MONITOR subcommand. The system will continue to issue these informational messages until halted by a STOP subcommand or until you terminate the OPERATOR command.

SUBCOMMAND	OPERANDS
{MONITOR {MN	{SESS[,T] {STATUS {JOBNAMES[,T] {SPACE {DSNAME

SESS
: indicates that you are to be notified whenever any terminal session is initiated or terminated. The user's identification will be displayed at your terminal. If the session terminates abnormally, the user identification will appear in the diagnostic message; the message "user LOGGED OFF" will not appear if the session was canceled.

  If you specify the T operand, the system displays the time of day in addition to the users identification. The format of the time output is shown under the T operand description.

T
: specifies that you want the time of day to be displayed in the following format:

  hh.mm.ss

  The variables in this format are:

  hh - Hours (00-23)

  mm - Minutes (00-59)

  ss - Seconds (00-59)

  whenever one TSO user specifies this operand, all subsequent users of the MONITOR command will also receive the time at their terminals.

STATUS
: specifies that you want the data set names and volume serial numbers of data sets with dispositions of KEEP, CATLG, or UNCATLG to be displayed whenever the data sets are freed.

JOBNAMES
: specifies that you want the name of each job to be displayed both when the job starts and when it terminates, and that you want unit record allocation to be displayed when the job step starts. If a job terminates abnormally, the jobname will appear in the diagnostic message; the message 'jobname ENDED' will not appear.

If you specify the T operand with the JOBNAMES operand, the system displays the time of the day in addition to the jobnames. The format of the output is shown under the T operand description.

SPACE
specifies that you want the system to display, in demount messages, the available space on a direct access device.

DSNAME
specifies that you want the system to display, within the mount and K (keep) type demount messages, the name of the first non-temporary data set allocated to the volume to which the messages refer.

Example 1

Operation: Have the system notify you whenever a terminal session begins or ends.

```
MONITOR SESS
```

Example 2

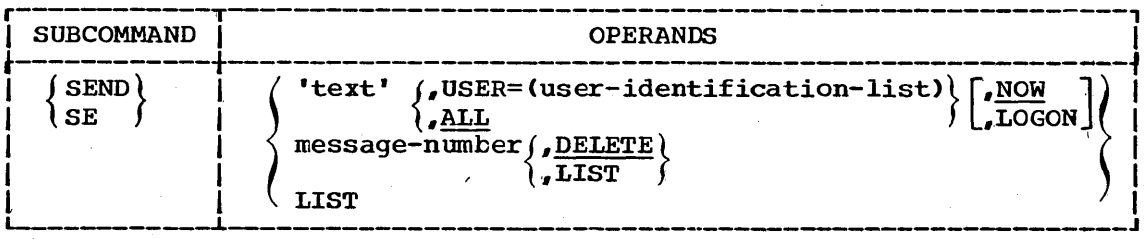
Operation: Have displayed at your terminal the name of each job when the job starts and when it terminates. Also have the time displayed with the jobname.

```
MN JOBNAMES,T
```

OPERATOR Command
SEND Subcommand

Use the SEND subcommand to send a message to any or all terminal users. A message may be sent to one or more terminal users by indicating the user identification of each recipient or to all terminal users by not indicating and specific user identifications. If the intended recipient is not logged on, the message can be retained within the system and presented automatically when the recipient logs on. You will be notified when the recipient of an immediate message is not logged on: the message will be deleted by the system.

The syntax for this subcommand is the same as the syntax for MVT operator commands.



'text'
specifies the message that you want to send. You must enclose the text of the message within apostrophes (single quotes). The maximum length of a message is 115 characters including blanks. The message must be contained on one line (you cannot continue a message on a second line). If you want a quotation mark printed in the message, you must enter two quotation marks.

USER=(user-identification-list)
specifies the user indentification of one or more terminal users who are to receive the message.

ALL
specifies that all terminal users are to receive the message. Terminal users who are currently using the system will receive the message immediately. This is the default value if both USER=(user identification list) and ALL are omitted.

NOW
specifies that the message is to be sent immediately. If the recipient is not logged on, you will be notified and the message will be deleted. This is the default value if NOW and LOGON are omitted.

LOGON
specifies that the message is to be retained in the SYS1.BRODCAST data set if:

a. You specify a user identification the message is retained in the "mail" section of the SYS1.BROADCAST data set and deleted by the system after it is sent to the intended user.

b. You specify "ALL", the message will be stored in the "notices" section of the SYS1.BROADCAST data set and retained there until the operator deletes it.

message-number,DELETE
specifies the number of a notice in the SYS1.BRODCAST data set that you want to delete.

message-number,LIST
specifies the number of a notice in the SYS1.BRODCAST data set that you want to have displayed at your terminal. Anytime you specify a message number without either the LIST or DELETE operand, the system assumes the default value and deletes the message.

LIST
specifies that you want to receive a listing of all the SEND notices retained in the system. The listing will be produced at your terminal.

Example 1

Operation: Send a message to all terminal users currently logged on.

Known: The message:
TSO TO SHUT DOWN AT 9:55 P.M. EST 9/14/70

```
SEND 'TSO TO SHUT DOWN AT 9:55 P.M.  EST 9/14/70',ALL
```

Example 2

Operation: Send a message to two particular terminal users currently logged on.

Known: The user identifications..... T24
OTO

The message:
YOUR ACCT NO. INVALID AFTER THIS SESSION

```
SEND 'YOUR ACCT NO. INVALID AFTER THIS SESSION',USER=(T24,OTO)
```

Example 3

Operation: Delete a message.

Known: The message number..... 8

```
SEND 8
```

Example 4

Operation: Have all messages displayed at your terminal.

```
SEND LIST
```

OPERATOR Command
STOP Subcommand

Use the STOP subcommand to terminate the monitoring operations of the MONITOR subcommand. This subcommand will halt the display of status information at your terminal.

SUBCOMMAND	OPERANDS
{STOP / P}	{JOBNAMES / SPACE / DSNAME / SESS / STATUS}

JOBNAMES
specifies that the operations provided by the JOBNAMES operand of the MONITOR subcommand are to be stopped. (The system will stop displaying the names of jobs as they start and end.)

SPACE
specifies that the operations provided by the SPACE operand of the MONITOR subcommand are to be stopped. (The system will stop displaying the available space on direct access devices.)

DSNAME
specifies that the operations provided by the DSNAME operand of the MONITOR subcommand are to be stopped. (The system will stop displaying the name of the first non-temporary data set allocated to the volume to which the mount and K type demount messages refer.)

SESS
specifies that the operations provided by the SESS operand of the MONITOR subcommand are to be stopped. (The system will stop notifying the operator whenever a terminal session is initiated or terminated.)

STATUS
specifies that the operations provided by the STATUS operand of the MONITOR subcommand are to be stopped. (The system will stop displaying the names and volume serial numbers of data sets with dispositions of KEEP, CATLG, or UNCATLG at job step end and job end.)

Example 1

Operation: Stop the display of the names of jobs as they begin execution and terminate.

```
STOP JOBNAMES
```

Example 2

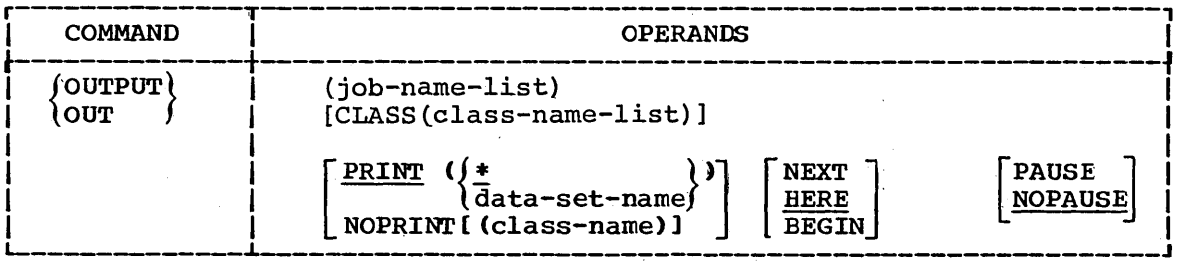
Operation: Stop the display of available space on direct access devices.

```
stop space
```

OUTPUT Command

Use the OUTPUT command to:

- Direct the output from a conventional batch job to your terminal. The output includes the job's Job Control Language statements (JCL), system messages, and system output (SYSOUT) data sets.
- Direct the output from a conventional batch job to a specific data set.
- Change the output class for a conventional batch job.
- Delete the output (SYSOUT) data sets or the system messages for conventional batch jobs.



(job-name-list)
specifies one or more names of jobs that have been submitted for conventional batch processing. Each jobname must begin with your user identification (see data set naming conventions) unless the routine that scans and checks the user identification is replaced by a user-written routine. The system will process the output from the jobs identified by the job name list.

CLASS(class-name-list)
specifies the names of the output classes to be searched for output from the jobs identified in the jobname list. If you do not specify the name of an output class, the system's default class will be searched for the jobs output. A class name is a single character or digit (A-Z or 0-9). See the publication IBM System/360 Operating System: Supervisor and Data Management Services, GC28-6646, for additional information.

PRINT(data-set-name or *)
is the name of the data set to which the output is to be directed. You may substitute an asterisk for the data set name to indicate that the output is to be directed to your terminal. If you omit both the data set name and the asterisk, the default value is the asterisk. Print is the default value if you omit both PRINT and NOPRINT.

NOPRINT(class-name)
indicates that the output is to be removed from the class specified in the CLASS operand, and placed in the class specified in NOPRINT. If you specify NOPRINT without including a class name, the output is deleted from the system.

Note: Do not specify the following characters as the first character in the class-name; the system will try to interpret them as a class-name and thus cause you to lose your data.

comma
tab
blank space
asterisk
semicolon
slash
right parenthesis

NEXT
indicates that output operations of a job that has been interrupted are to be resumed with the next SYSOUT data set or group of system messages.

HERE
indicates that output operations of a job that has been interrupted are to be resumed at a point approximately ten lines before the point of interruption (that is, approximately ten lines will be repeated). This is the default value if you omit HERE, BEGIN, and NEXT.

BEGIN
indicates that output operations of a job that has been interrupted are to be resumed from the beginning of the data set being processed, or from the first message if a block of system messages is being processed.

PAUSE
indicates that output operations are to pause after each SYSOUT data set is listed to allow you to enter a SAVE or CONTINUE subcommand. (A carrier return entered after the pause will cause normal processing to continue.) This operand can be overridden by the NOPAUSE operand of the CONTINUE subcommand.

NOPAUSE
indicates that output operations are not to be interrupted. This operand can be overridden by the PAUSE operand of the CONTINUE subcommand.

Considerations: The OUTPUT command applies to all conventional batch jobs whose job names begin with your user identification. Access to jobs whose job names do not begin with a valid user identification must be provided by a user-written routine. The SUBMIT, STATUS, and CANCEL commands also apply to conventional batch jobs. You must have special permission to use these commands.

Note: You can simplify the use of the OUTPUT command by including the NOTIFY keyword for the SUBMIT command when you submit a job for conventional batch processing. The system will notify you when the job terminates, giving you an opportunity to use the OUTPUT command, SYSOUT data sets should be assigned to SYSOUT classes that do not have conventional output writers operating.

Output Sequence: Output will be produced according to the sequence of the classes that you specify for the CLASS operand. For example, assume that you want to retrieve the output of the following jobs:

```
//JWSD581   JOB   91435,MSGCLASS=X
//           EXEC  PGM=IEBPTPCH
//SYSPRINT  DD    SYSOUT=Y
//SYSUT1    DD    DSNAME=PDS,UNIT=2311,VOL=SER=111112,LABEL=(,SUL),
                  DISP=(OLD,KEEP),DCB=(RECFM=U,BLKSIZE=3625)
//SYSUT2    DD    SYSOUT=Z
//SYSIN     DD    *
          PRINT TYPORG=PS,TOTCONV=XE
          LABELS DATA=NO
/*
//JWSD582   JOB   91435,MSGCLASS=X
//           EXEC  PGM=IEHPROG
//SYSPRINT  DD    SYSOUT=Y
//DD2       DD    UNIT=2311,VOL=SER=231100,DISP=OLD
//SYSIN     DD    *
//         SCRATCH VTOC,VOL=2311=231100
/*
```

To retrieve the output, you enter:

```
OUTPUT  (JWSD581  JWSD582)   CLASS (X Y Z)
```

Your output will be listed in the following order:

1. Output of class X (JCL and messages for both jobs).
2. Output of class Y (SYSPRINT data for job JWSD581 followed by SYSPRINT data for job JWSD582).
3. Output of class Z (SYSUT2 data for job JWSD582).

Because of this, you should avoid unnecessary division of data sets among classes. If a job uses several classes, you should retrieve the output for that job alone rather than specifying a list of jobnames. By retrieving the job alone, all its output will be together physically.

Subcommands: Subcommands for the OUTPUT command are: CONTINUE, END, and SAVE. When output has been interrupted, you can use the CONTINUE subcommand to resume output operations.

Interruptions occur when:

- Processing of a sysout data set completes and the PAUSE operand was specified with the OUTPUT command.
- Processing of a sysout data set terminates because of an error condition.
- You press the attention key.
- The END subcommand is entered before completion of the job that is being processed.

You can use the SAVE subcommand to rename and catalog a SYSOUT data set for retrieval by a different method. Use the END subcommand to terminate OUTPUT. The remaining portion of a job that has been interrupted will be returned to the output queue.

OUTPUT Command

Example 1

Operation: Direct the output from a conventional batch job to your terminal.

Known: The name of the job..... SMITH2
The job is in the system output class.... SYSOUT=X
Output operations are to be resumed with the next SYSOUT data set or group of system messages.
You want the system to pause after processing each block of output data.

```
OUTPUT SMITH2 CLASS(X) PRINT(*) NEXT PAUSE
```

Example 2

Operation: Direct the output from two conventional batch jobs to a data set so that it can be saved and processed at a later date.

Known: The names of the jobs..... JANA
JANB
The name for the output data set..... JAN.AUGPP.OUTLIST

```
OUTPUT (JANA,JANB) CLASS(R,S,T) PRINT(AUGPP.OUTLIST)
```

Example 3

Operation: Change the output class.

Known: The name of the job..... KEAN1
The existing output class..... SYSOUT=S
The new output class..... T

```
OUTPUT KEAN1 CLASS(S) NOPRINT(T)
```

Example 4

Operation: Delete the output instead of changing the class (see Example 3).

```
OUT KEAN1 CLASS(S) NOPRINT
```

OUTPUT Command
CONTINUE Subcommand

Use the CONTINUE subcommand to resume output operations that have been interrupted.

Interruptions occur when:

- An output operation completes and the PAUSE operand was specified with the OUTPUT command.
- An output operation terminates because of an error condition.
- You press the attention key.

If other TSO commands have been entered during the interruption, the OUTPUT command must be reentered.

SUBCOMMAND	OPERANDS
CONTINUE	[NEXT / HERE / BEGIN] [PAUSE / NOPAUSE]

NEXT
specifies that output operations are to be resumed with the next data set being processed or with the next message if a block of system messages is being processed. This is the default value if NEXT, HERE, and BEGIN are omitted.

HERE
indicates that output operations are to be resumed at a point approximately ten lines before the point of interruption (that is, approximately ten lines will be repeated).

BEGIN
indicates that output operations are to be resumed from the beginning of the data set being processed or from the first message if a block of system messages is being processed.

PAUSE
indicates that output operations are to pause after each data set is processed to allow you to enter a SAVE subcommand. (A carrier return entered after the pause will cause normal processing to continue.) You can use this operand to override a previous NOPAUSE condition for output.

NOPAUSE
indicates that output operations are not to be interrupted. You can use this operand to override a previous PAUSE condition for output.

Example 1

Operation: Continue output operations with the next SYSOUT data set or group of messages.

```
CONTINUE
```

OUTPUT Command
CONTINUE Subcommand

Example 2

Operation: Start output operations over again.

```
CONTINUE BEGIN
```

OUTPUT Command
END Subcommand

Use the END subcommand to terminate the operations of the OUTPUT command.

SUBCOMMAND	OPERANDS
END	

OUTPUT Command
HELP Subcommand

Use the HELP subcommand to find out how to use OUTPUT and the OUTPUT subcommands. When you enter the HELP subcommand, the system responds by printing out explanatory information at your terminal. You may request:

- A list of available subcommands.
- An explanation of the function, syntax, and operands of a specific subcommand.

The HELP subcommand actually causes the system to execute a function of the HELP command; therefore, you may consult the discussion of the HELP command if you desire more detailed information.

SUBCOMMAND	OPERANDS
HELP H	[subcommand-name] [FUNCTION] [SYNTAX] [OPERANDS[(list-of-operand)] [ALL]

subcommand-name
specifies the subcommand that you want to have clarified. If you omit this operand, the system will display a list of OUTPUT subcommands.

FUNCTION
specifies that you want a description of the referenced subcommand's function.

SYNTAX
specifies that you want a definition of the proper syntax for the referenced subcommand.

OPERANDS (list-of-operands)
specifies that you want an explanation of the operands applicable to the referenced subcommand.

The list of operands specifies the particular keywords that you want to have explained. If you do not specify any keywords, all of the applicable keywords will be included. You must use one or more blanks or a comma as a delimiter between the keywords in the list.

ALL
specifies that you want a description of the function, the syntax, and the operands of the subcommand that you specified. This is the default value if no operands are specified.

Example 1

Operation: Have a list of available subcommands displayed at your terminal.

```
HELP
```

Example 2

Operation: Obtain all available information about a particular subcommand.

Known: The subcommand name..... SAVE

```
H SAVE
```

Example 3

Operation: Have a list of the operands for a particular subcommand displayed at your terminal.

Known: The subcommand name..... CONTINUE

```
h continue operands
```

OUTPUT Command
SAVE Subcommand

Use the SAVE subcommand to rename and catalog a SYSOUT data set for retrieval by some method other than the OUTPUT command.

SUBCOMMAND	OPERANDS
SAVE	data-set-name

data-set-name
specifies the new data set name to be given to the SYSOUT data set (see the data set naming conventions). The renamed data set will be cataloged by the new name.

Example 1

Operation: Save an output data set.

Known: The name of the data set..... ADT023.NEWOUT.OUTLIST

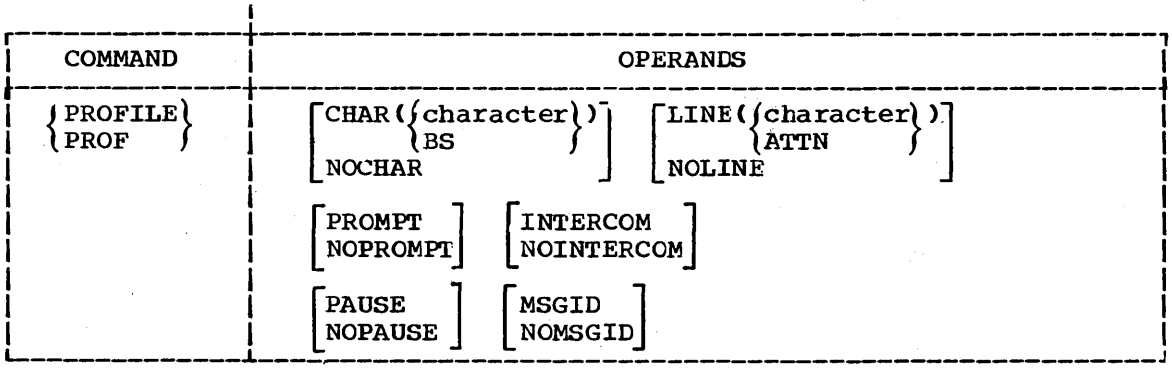
```
SAVE NEWOUT
```

PROFILE Command

Use the PROFILE command to establish your user profile; that is, to tell the system how you want to use your terminal. You can:

- Define a character-deletion or line-deletion control character.
- Specify whether or not prompting is to occur.
- Specify whether or not you will accept messages from other terminals.
- Specify whether or not you want the opportunity to obtain additional information about messages from a command procedure.
- Specify whether or not you want message numbers for diagnostic messages that may be displayed at your terminal.

Initially, a user profile is prepared for you when arrangements are made for you to use the system. You change the characteristics of your user profile by using the PROFILE command with the appropriate operands. Only the characteristics that you specify explicitly by operands will change; other characteristics remain unchanged. The new characteristics will remain valid from session to session. You must specify at least one operand or the system will ignore the command.



CHAR(character)
: specifies the character that you want to use to tell the system to delete the previous character entered. You should not specify a blank, tab, comma, asterisk, or parenthesis because these characters are used to enter commands.

CHAR(BS)
: specifies that a backspace signals that the previous character entered should be deleted. The backspace is the value that is in effect until you change it.

NOCHAR
: specifies that no control character is to be used for character deletion.

LINE(character)
: specifies a control character that you want to use to tell the system to delete the current line.

LINE(ATTN)
specifies that an attention interruption is to be interpreted as a line-deletion control character. The attention interruption is the value that is in effect until you change it.

NOLINE
specifies that no line-deletion control character is needed.

PROMPT
specifies that you want the system to prompt you for missing information.

NOPROMPT
specifies that no prompting is to occur.

INTERCOM
specifies that you are willing to receive messages from other terminal users.

NOINTERCOM
specifies that you do not want to receive messages from other terminals.

PAUSE
specifies that you want the opportunity to obtain additional information when a message is issued at your terminal while a command procedure (see the EXEC command) is executing. After a message that has additional levels of information is issued, the system will display the word PAUSE and wait for you to enter a question mark (?) or a carrier return.

NOPAUSE
specifies that you do not want prompting for a question mark or carrier return.

MSGID
specifies that diagnostic messages are to include message identifiers.

NOMSGID
specifies that diagnostic messages are not to include message identifiers.

Example 1

Operation: Establish a complete user profile

Known: The character that you want to use to tell the system to delete the previous character..... #.
The indicator that you want to use to tell the system to delete the current line..... ATTN.
You want to be prompted.
You do not want to receive messages from other terminals.
You want to be able to get second level messages while a command procedure is executing.
You do not want diagnostic message identifiers.

```
PROFILE CHAR(#) LINE(ATTN) PROMPT NOINTERCOM PAUSE NOMSGID
```

Example 2

Operation: Suppose that you have established the user profile in Example 1. The terminal that you are using now does not have a key to cause an attention interrupt. You want to change the line delete control character from ATTN to @ without changing any other characteristics.

```
PROF LINE(@)
```

Example 3

Operation: Establish and use a line-deletion character and a character-deletion character.

Known: The line-deletion character..... &
The character-deletion character..... !

```
PROFILE LINE(&) CHAR(!)
```

Now, if you type:

NOW IS THE TI&AC!BCG!.

and press the carrier return key, you will actually enter:

ABC.

PROTECT Command

Use the PROTECT command to prevent unauthorized access to your data set. This command establishes or changes:

- The passwords that must be specified to gain access to your data set.
- The type of access allowed.

Passwords

You may assign one or more passwords to a data set. The password for a data set must be specified before access to the data set is allowed. A password consists of one through eight alphameric characters. You are allowed two attempts to supply the correct password.

Types of Access

Four operands determine the type of access allowed for your data set. They are, PWREAD, PWWRITE, NOPWREAD, NOWRITE.

Each operand, when used alone, defaults to one of the preceding types of access. The default values for each operand used alone are:

OPERAND	DEFAULT VALUE
PWREAD	PWREAD PWWRITE
NOPWREAD	NOPWREAD PWWRITE
PWWRITE	NOPWREAD PWWRITE
NOWRITE	PWREAD NOWRITE

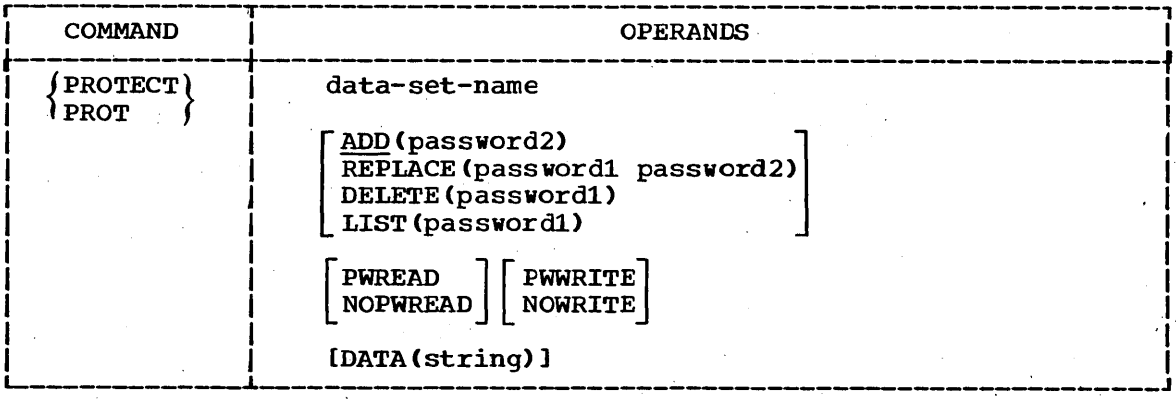
A combination of NOPWREAD and NOWRITE is not supported and will default to NOPWREAD and PWWRITE.

If you specify a password but do not specify a type of access, the default is:

- NOPWREAD PWWRITE if the data set does not have any existing access restrictions.
- The existing type of access if a type of access has already been established.

When you specify the REPLACE function of the PROTECT command the default type of access is that of the entry being replaced.

PROTECT Command



data-set-name
: specifies the name of the data set that will be subject to the functions of this command (see the data set naming conventions).

ADD(password2)
: specifies that a new password is to be required for access to the named data set. This is the default value if ADD, REPLACE, DELETE, and LIST are omitted.

  If the data set exists and is not already protected by a password, its security counter will be set and the password being assigned will be flagged as the control password for the data set. The security counter is not affected when additional passwords are entered.

REPLACE(password1, password2)
: specifies that you want to replace an existing password, access type, or optional security information. The first value (password 1) is the existing password; the second value (password2) is the new password.

DELETE(password1)
: specifies that you want to delete an existing password, access type, or optional security information.

  If the entry being removed is the control entry (see the discussion following these operand descriptions), all other entries for the data set will also be removed.

LIST(password1)
: specifies that you want the security counter, the access type, and any optional security information in the Password Data Set entry to be displayed at your terminal.

password1
: specifies the existing password that you want to replace, delete, or have its security information listed.

password2
: specifies the new password that you want to add or to replace an existing password.

PWREAD
specifies that the password must be given before the data set can be read.

NOPWREAD
specifies that the data set can be read without using a password.

PWWRITE
specifies that the password must be given before the data set can be written upon.

NOWRITE
specifies that the data set cannot be written upon.

DATA(string)
specifies optional security information to be retained in the system. The value that you supply for 'string' specifies the optional security information that is to be included in the Password Data Set entry (up to 77 bytes).

Password Data Set

Before you can use the PROTECT command, a Password Data Set must reside on the system residence volume. The Password Data Set contains passwords and security information for protected data sets. You can use the PROTECT command to display this information about your data sets at your terminal.

The Password Data Set contains a security counter for each protected data set. This counter keeps a record of the number of times an entry has been referred to. The counter is set to 'zero' at the time an entry is placed into the data set, and is incremented each time the entry is accessed.

Each password is stored as part of an entry in the Password Data Set. The first entry in the Password Data Set for each protected data set is the control entry. The password from the control entry must be specified for each access of the data set via the PROTECT command, with one exception: the LIST operand of the PROTECT command does not require the password from the control entry.

If you omit a required password when using the PROTECT command, the system will prompt you for it; and if your terminal is equipped with the 'print-inhibit' feature, the system will disengage the printing mechanism at your terminal while you enter the password in response. However, the 'print-inhibit' feature is not used if the prompting is for a new password.

Example 1

Operation: Establish a password for a new data set.

Known: The name of the data set..... LEOBTG.SALES.DATA
The password..... L82GRIFN
The type of access allowed..... PWREAD PWWRITE

```
PROTECT SALES.DATA PWREAD ADD(L82GRIFN)
```

Example 2

Operation: Replace an existing password without changing the existing access type.

Known: The name of the data set..... TCOSALES.NETSALES.DATA
The existing password..... MTG@AOP
The new password..... PAO$TMG
The control password..... ELHAVJ

```
PROT NETSALES.DATA/ELHAVJ REPLACE(MTG@AOP,PAO$TMG)
```

Example 3

Operation: Delete one of several passwords.

Known: The name of the data set..... MTGGO.NETGROSS.ASM
The password..... LETGO
The control passord..... APPLE

```
PROT NETGROSS.ASM/APPLE DELETE(LETGO)
```

Example 4

Operation: Obtain a listing of the security information for a protected data set.

Known: The name of the data set..... LTG24.BILLS.CNTRLA
The password required..... D#JPJAM

```
protect 'ltg24.bills.cntrla' list(d#jpjam)
```

Example 5

Operation: Change the type of access allowed for a data set.

Known: The name of the data set..... GJPD23A.PROJCTN.LOAD
The new type of access..... NOPWREAD PWWRITE
The existing password..... DDAY6/6
The control password..... EEYORE

```
PROTECT PROJCTN.LOAD/EEYORE REPLACE (DDAY6/6,DDAY6/6)
NOPWREAD PWWRITE
```

RENAME Command

Use the RENAME command to:

- Change the name of a data set.
- Change the name of a member of a partitioned data set.
- Create an alias for a member of a partitioned data set.

COMMAND	OPERANDS
{RENAME {REN	old-name new-name [ALIAS]

old-name
: specifies the name that you want to change. The name that you specify may be the name of an existing data set or the name of an existing member of a partitioned data set. (See the data set naming conventions.)

new-name
: specifies the new name to be assigned to the existing data set or member. If you are renaming or assigning an alias to a member, you may supply only the member name and omit all other levels of qualification. (See data set naming conventions).

ALIAS
: specifies that the member name supplied for new name operand is to become an alias for the member identified by the old name operand.

You can rename several data sets by substituting an asterisk for a qualifier in the old name and new name operands. The system will change all data set names that match the old name except for the qualifier corresponding to the asterisk's position.

RENAME Command

Example 1

Operation: you have several data sets named:

USERID.MYDATA.DATA

USERID.YOURDATA.DATA

USERID.WORKDATA.DATA

that you want to rename:

USERID.MYDATA.TEXT

USERID.YOURDATA.TEXT

USERID.WORKDATA.TEXT

you must specify either:

```
RENAME 'USERID.*.DATA','USERID.*.TEXT'
```

or

```
RENAME *.DATA,*.TEXT
```

Example 2

Operation: Assign an alias "SUZIE" to the partitioned data set member named "ELIZBETH(LIZ)".

```
REN  'ELIZBETH(LIZ)' (SUZIE) ALIAS
```

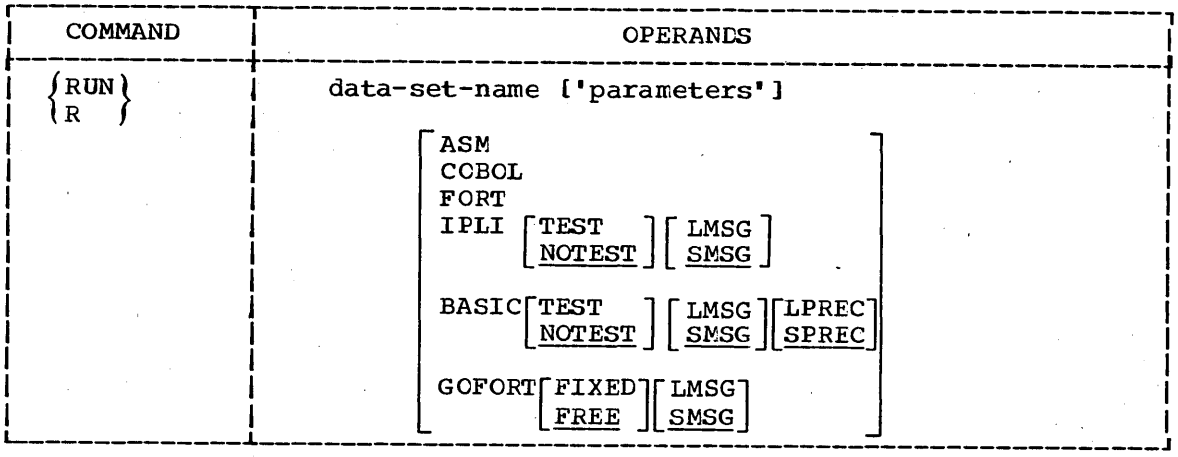
RUN Command

Use the RUN command to compile, load, and execute the source statements in a data set. The RUN command is designed specifically for use with certain program products; it selects and invokes the particular program product needed to process the source statements in the data set that you specify. The following table shows which program product is selected to process each type of source statement. (Appendix A contains references to additional information about the program products.)

If your program or data set contains statements of this type (see EDIT):	Then the following Program Product is needed:
IPLI	ITF:PL/I (Shared Language Component and PL/I Processor)
BASIC	ITF:BASIC (Shared Language Component and BASIC Processor)
GOFORT	Code and Go FORTRAN
FORT	TSO FORTRAN Prompter and FORTRAN IV (GI) Compiler
COBOL	TSO COBOL Prompter and American National Standard COBOL Version 3 Compiler
ASM	TSO ASM Prompter
Programs containing statements suitable for the following IBM-supplied language processors can be compiled and executed by using the CALL command. ASM (F),PL/1 (F),COBOL (E) or (F),FORTRAN (E),(G) or (H) You can use the CONVERT command to convert ITF:PL/I and Code and Go FORTRAN statements to a form suitable for the PL/1 and FORTRAN compilers, respectively.	

The RUN command and the RUN subcommand for the EDIT command perform the same basic function.

RUN Command



data-set-name 'parameters'
specifies the name of the data set containing the source program. (See the data set naming conventions.) A string of up to 100 characters can be passed to the program via the "parameters" operand (valid only for ASM, FORT, and COBOL).

ASM
specifies that the TSO Assembler Prompter Program Product and the Assembler (F) compiler are to be invoked to process the source program. If the rightmost qualifier of the data set name is ASM, this operand is not required.

COBOL
specifies that the TSO COBOL Prompter and the American National Standard COBOL Program Products are to be invoked to process the source program. If the rightmost qualifier of the data set name is COBOL, this operand is not required.

FORT
specifies that the TSO FORTRAN Prompter and the FORTRAN IV (GI) Program Products are to be invoked to process the source program. If the rightmost qualifier of the data set name is FORT, the Code and Go Fortran compiler will be invoked unless you specify this operand.

IPLI
specifies that the ITF:PL/I Program Product is to be invoked to process the source program. If the rightmost qualifier of the data set name is IPLI, this operand is not required.

BASIC
specifies that the ITF:BASIC Program Product is to be invoked to process the source program. If the rightmost qualifier of the data set name is BASIC, this operand is not required.

GOFORT
specifies that the Code and Go Fortran Program Product is to be invoked for interactive processing of the source program.

TEST
specifies that testing of the program is to be performed. This operand is valid only for the ITF:PL/I and BASIC Program Product.

NOTEST
specifies that the TEST function is not desired. This is the default value if both TEST and NOTEST are omitted.

LMSG
specifies that the long form of the diagnostic messages are to be provided. This operand is applicable to the ITF:PL/I, ITF:BASIC, and Code and Go FORTRAN Program Products only.

SMSG
specifies that the short form of the diagnostic messages is to be provided. This operand is applicable to the ITF:PL/I, ITF:BASIC, and Code and Go FORTRAN Program Products only. This is the default value if both LMSG and SMSG are omitted.

LPREC
specifies that long precision arithmetic calculations are required by the program. This operand is valid only for the ITF:BASIC Program Product.

SPREC
specifies that short precision arithmetic calculations are adequate for the program. This operand is valid only for the ITF:BASIC Program Product. This is the default value if both LPREC and SPREC are omitted.

FIXED
specifies the format of the source statements to be processed by the Code and Go FORTRAN Program Product. The statements must be in standard format when this operand is specified. If you omit this operand, the FREE operand is the default value.

FREE
specifies that the source program consists of free form statements applicable only to the Code and Go FORTRAN Program Product.

Determining Compiler Type: The system uses two sources of information to determine which compiler will be used. The first source of information is the optional operand (ASM, COBOL, FORT, IPLI, BASIC, or GOFORT) that you may specify for the RUN command. If you omit this operand, the system checks the descriptive qualifier of the data set name that is to be executed (see the data set naming conventions for a list of descriptive qualifiers). If the system cannot determine the compiler type from the descriptive qualifier, you will be prompted.

Example 1

Operation: Compile, load, and execute a source program composed of BASIC statements.

Known: The name of the data set containing the source program..... DDG39T.MANHRS.BASIC

```
RUN MANHRS.BASIC
```

Example 2

Operation: Compile, load and execute a Code and Go FORTRAN source program contained in a data set that does not conform to the data set naming conventions.

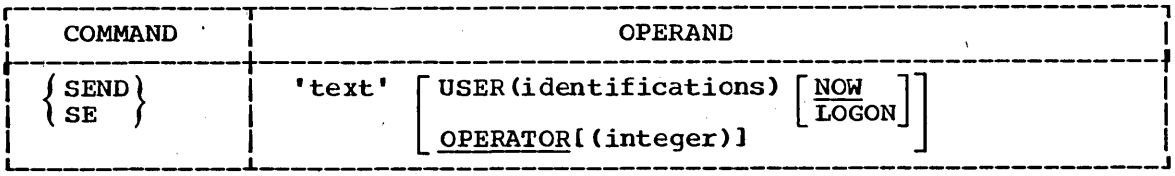
Known: The data set name..... TRAJECT.MISSILE
For FORTRAN statements that conform to the standard format.
Complete diagnostic messages are needed.
Parameters to be passed to the program are... 50 144 5000

```
RUN 'TRAJECT.MISSILE' '50 144 5000' GOFORT FIXED LMSG
```

SEND Command

Use the SEND command to send a message to another terminal user or to the system operator. A message may be sent to more than one terminal user. If the intended recipient of a message is not logged on, the message can be retained within the system and presented automatically when he logs on. You will be notified when the recipient is not logged on and the message is deferred.

This command should be used by terminal users; system operators should use the SEND subcommand of the OPERATOR command.



'text'
specifies the message to be sent. You must enclose the text of the message within apostrophes (single quotes). The message must not exceed 115 characters including blanks. If no other operands are used, the message goes to the console operator. If you want apostrophes to be printed you must enter two in order to get one.

USER(identifications)
specifies the user identification of one or more terminal users who are to receive the message. A maximum of 20 identifications can be used.

NOW
specifies that you want the message to be sent immediately. If the recipient is not logged on, you will be notified and the message will be deleted. This is the default value if both NOW and LOGON are omitted.

LOGON
specifies that you want the message retained in the SYS1.BRODCAST data set if the recipient is not logged on. When the recipient logs on, the message will be removed from the data set and directed to his terminal. If the recipient is currently using the system, the message will be sent immediately.

OPERATOR(integer)
specifies that you want the message sent to the operator indicated by the integer. If you omit the integer, the default is two (2); that is, the message goes to the master console operator. This is the default value if both USER (identifications) and OPERATOR are omitted.

Example 1

Operation: Send a message to two other terminal users.

Known: The message:
ACCOUNT NUMBER 401288 MUST NOT BE USED ANY MORE.
CHANGE TO ACCOUNT NUMBER 530266.
The user identification for the terminal users..... AMCORP6
AMCORP7

```
SEND 'ACCOUNT NUMBER 401288 MUST NOT BE USED ANY
MORE. CHANGE TO ACCOUNT NUMBER 530266.'
USER(AMCORP6,AMCORP7) NOW
```

Example 2

Operation: Send a message that is to be delivered to "JONES" when he begins his terminal session or now if he is currently logged on.

Known: The recipient's user-identification..... JONES
The message:
"IS YOUR VERSION OF THE SIMULATOR READY?"

```
SEND 'IS YOUR VERSION OF THE SIMULATOR READY?' USER(JONES) LOGON
```

STATUS Command

Use the STATUS command to have the status of conventional batch jobs displayed at your terminal. You can obtain the status of all batch jobs, of several specific batch jobs, or of a single batch job. The information that you receive for each job will tell you whether it is awaiting execution, is currently executing, or has completed execution.

This command may be used only by personnel who have been given the authority to do so by the installation management.

COMMAND	OPERANDS
{STATUS / ST}	[(jobname-list)]

(jobname-list)
specifies the names of the conventional batch jobs that you want to know the status of. If two or more jobs have the same jobname, the system will only display the status of the first one encountered. When more than one jobname is included in the list, the list must be enclosed within parentheses. If you do not specify any jobnames, you will receive the status of all your conventional batch jobs that you submitted with the SUBMIT command.

Example 1

Operation: Have the status of two batch jobs displayed at your terminal.

Known: The jobnames..... ABJ325A2
ABJ325A3

```
STATUS (ABJ325A2,ABJ325A3)
```

SUBMIT Command

Use the SUBMIT command to submit one or more batch jobs for conventional processing. Each job submitted must be contained in a sequential direct access data set or member of a partitioned data set.

This command may be used only by personnel who have been given the authority to do so by the installation management.

COMMAND	OPERANDS
{SUBMIT / S}	(data-set-list) [NOTIFY / NONOTIFY]

(data-set-list)
specifies one or more data set names or names of members of partitioned data sets (see the data set naming conventions). If you specify more than one data set name, enclose them in parentheses.

NOTIFY
specifies that you are to be notified when your job terminates. This operand is only recognized when no job card has been provided with the job that you are processing. This is the default value if both NOTIFY and NONOTIFY are omitted.

NONOTIFY
specifies that you do not want to be notified when your job terminates. This operand is only recognized when no job card has been provided with the job that you are processing.

Example 1

Operation: Submit two jobs for conventional batch processing.

Known: The names of the data sets that contain the jobs:

ABTJQ.STRESS.CNTL
ABTJQ.STRAIN.CNTL

You want to be notified as each job terminates.

```
SUBMIT (STRESS STRAIN)
```

TERMINAL Command

Use the TERMINAL command to define the operating characteristics that depend primarily upon the type of terminal that you are using. You can specify the ways that you want to request an attention interruption and you can identify hardware features and capabilities. The TERMINAL command allows you to request an attention interruption whether or not your terminal has a key for the purpose.

Refer to IBM System/360 Operating System: Time Sharing Option, Terminals, GC28-6762 for a description of the TERMINAL command's characteristics as they apply to the various terminals available with TSO.

COMMAND	OPERANDS
{TERMINAL / TERM}	[LINES(integer) / NOLINES] [SECONDS(integer) / NOSECONDS] [INPUT(string) / NOINPUT] [BREAK / NOBREAK] [TIMEOUT / NOTIMEOUT] [LINESIZE(integer)]

LINES(integer)
specifies an integer from 1 to 255 that indicates you want the opportunity to request an attention interruption after that number of lines of continuous output has been directed to your terminal.

NOLINES
specifies that output line count is not to be used for controlling an attention interruption.

SECONDS(integer)
specifies an integer from 10 to 2550 (in multiples of 10) to indicate that you want the opportunity to request an attention interruption after that number of seconds has elapsed during which the terminal has been locked and inactive.

NOSECONDS
specifies that elapsed time is not to be used for controlling an attention interruption.

INPUT(string)
specifies the character string that, if entered between lines of input, will cause an attention interruption. The 'string' cannot exceed four characters in length.

NOINPUT
specifies that no character string will cause an attention interruption.

BREAK
specifies that your terminal can be interrupted by the system during input operation.

NOBREAK
specifies that your terminal does not have the capability for interruptions by the system during input operations.

TIMEOUT
specifies that your terminal's keyboard will lock up automatically after approximately nine to 18 seconds of inactivity (applicable to the IBM 1052 Printer-Keyboard without the timeout suppression feature).

NOTIMEOUT
specifies that your terminal's keyboard does not lockup automatically after a period of inactivity.

LINESIZE(integer)
specifies the length of the line (the number of characters) that can be printed or displayed at your terminal.

Example 1

Operation: Define the characteristics for an IBM 2741 communications terminal. You can use the attention key for attention interrupts only during input.

Known: Output line count for attention interruptions..... 56
Elapsed time for attention interruptions..... 120 seconds
The character string for attention interruptions.... XYZ
The line size..... 80

```
TERMINAL LINES(56) SECONDS(120) INPUT (XYZ) NOBREAK
NOTIMEOUT LINESIZE(80)
```

Example 2

Operation: Define the characteristics for an IBM 2741 Communications Terminal. You can use the attention key for attention interrupts during input and during output.

Known: The length of line that you want to have printed..... 80

```
TERMINAL NOLINES NOSECONDS NOINPUT BREAK NOTIMEOUT
LINESIZE(80)
```

Example 3

Operation: Define the characteristics for an IBM 1052 Printer-Keyboard on which you can use the attention key to request attention interrupts only during input.

Known: Output line count for attention interruptions..... 63
Elapsed time for attention interruptions..... 90 seconds
The character string for attention interruptions..... KKKK
The line size..... 130

```
TERM LINES(63) SECONDS(90) INPUT(KKKK) NOBREAK
TIMEOUT LINESIZE(130)
```

Example 4

Operation: After establishing characteristics as in Example 3, change only the SECONDS operand.

Known: The new value for SECONDS..... 30

```
TERM SECONDS(30)
```

TEST Command

Use the TEST command to "debug" a program, that is to test a program for proper execution and to locate any programming errors. To use the TEST command and subcommands, you should be familiar with the basic assembler language and the addressing conventions described in Appendix B. For best results, the program to be tested should be written in basic assembler language.

COMMAND	OPERANDS
TEST	program-name ['parameters'] [LOAD / OBJECT] [CP / NOCP]

program-name
: specifies the name of the data set containing the program to be tested. (See the data set naming conventions.) The program must be in object module form or load module form.

parameters
: specifies a list of parameters to be passed to the named program. The list must not exceed 100 characters including delimiters.

LOAD
: specifies that the named program is a load module that has been processed by the linkage editor and is a member of a partitioned data set. This is the default value if both LOAD and OBJECT are omitted.

OBJECT
: specifies that the named program is an object module that has not been processed by the linkage editor. The program can be contained in a sequential data set or a member of a partitioned data set.

CP
: specifies that the named program is a command processor.

NOCP
: specifies that the named program is not a command processor. This is the default value if both CP and NOCP are omitted.

Uses of the TEST Command: Before execution begins you can:

- Supply initial values (test data) that you want to pass to the program.
- Establish breakpoints after instructions where execution will be interrupted so that you can examine interim results.

You can then execute the program. When you use the TEST command to load and execute a program, the program must be an object module or a load module suitable for processing. If the program that you want to test is already executing, you can begin testing by interrupting the program with an attention interruption followed by the TEST command with no operands. You can also begin testing after an abnormal ending (ABEND) if the program is still in main storage.

TEST Command

Prior to and during execution you can:

- Display the contents of registers and main storage (as when execution is interrupted at a breakpoint).
- Modify the contents of your registers and main storage.
- Display the Program Status Word (PSW).
- List the contents of control blocks.
- "Step through" sections of the program, checking each instruction for proper execution.

Refer to Appendix B for the TEST command addressing conventions.

Subcommands: The subcommands of the TEST command are:

AT
establishes breakpoints at specified locations.

CALL
initializes registers and initiates processing of the program at a specified address.

DELETE
deletes a load module.

DROP
removes symbols established by the EQUATE command from the symbol table of the module being tested.

END
terminates all operations of the TEST command and the program being tested.

EQUATE
adds a symbol to the symbol table and assigns attributes and a location to that symbol.

FREEMAIN
frees a specified number of bytes of main storage.

GETMAIN
acquires a specified number of bytes of main storage for use by the program being processed.

GO
restarts the program at the point of interruption or at a specified address.

LIST
displays the contents of main storage area or registers.

LISTDEB
lists the contents of a Data Extent Block (DEB) (you must specify the address of the DEB).

LISTDCB
lists the contents of a Data Control Block (DCB) (you must specify the address of the DCB).

LISTMAP
displays a storage map.

LISTPSW
displays the Program Status Word (PSW).

LISTTCB
lists the contents of the Task Control Block (TCB) (you may specify the address of another TCB).

LOAD
loads a program into main storage for execution.

OFF
removes breakpoints.

QUALIFY
establishes the starting or base location for relative addresses; resolves identical external symbols within a load module.

RUN
terminates TEST and completes execution of the program.

WHERE
displays the absolute address of a symbol or entrypoint or the address of the next executable instruction.

Example 1

Operation: Invoke a program for testing.

Known: The name of the data set that
contains the program..... ABSELF.LOAD(THRUST)
The program is a load module and is not a command processor.
The parameters to be passed..... 2048,80

```
TEST (THRUST) '2048,80'
```

Example 2

Operation: Invoke a program for testing.

Known: The name of the data set that
contains the program..... DECKCO.PAYLOAD.OBJ
The program is an object module and is not a command processor.

```
TEST PAYLOAD OBJECT
```

Example 3

Operation: Test a command processor.

Known: The name of the data set containing
the command processor..... DCOOIL.LOAD(OUTPUT)

```
TEST (OUTPUT) CP
```

TEST Command
Assignment of Values

When processing is halted at a breakpoint, you can modify values in main storage and in registers. This function is implicit; that is, you do not enter a subcommand name. The system performs the function in response to operands that you enter.

SUBCOMMAND	OPERANDS
	address=data-type'value'

address
specifies the location that you want to contain a new value. The address may be a symbolic address, a relative address, an absolute address, or a register. (See Appendix B for more information about addresses.)

data-type 'value'
specifies the type of data and the value that you want to place in the specified location. You indicate the type of data by one of the following codes:

Code	Type of Data	Maximum Length (Bytes)
C	Character	one line of input[1]
X	Hexadecimal	64
B	Binary	64
H	Fixed point binary (halfword)	6
F	Fixed point binary (fullword)	11
E	Floating point (single precision)	9
D	Floating point (double precision)	18
P	Packed decimal	32
Z	Zoned decimal	17
A	Address constant	10
S	Address (base + displacement)	8
Y	Address constant (halfword)	5

[1]Continued lines are permitted.

You include your data following the code. Your data must be enclosed within apostrophes.

Example 1

Operation: Insert a character string at a particular location in main storage.

Known: The address is a symbol..... INPOINT
The data..... JANUARY 1, 1970

```
INPOINT=C'JANUARY 1, 1970'
```

Example 2

Operation: Insert a binary number into a register.

Known: The number of the register..... Register 6
The data..... 0000 0001 0110 0011

```
6R=B'0000000101100011'
```

TEST Command
AT Subcommand

Use the AT subcommand to establish breakpoints before the command where processing is to be temporarily halted so that you can examine the results of execution up to the point of interruption.

SUBCOMMAND	OPERANDS
AT	{address[:address] / (address-list)} [(list-of-subcommands)] [COUNT(integer)] [NODEFER / DEFER] [NOTIFY / NONOTIFY]

address
: specifies a location that is to contain a breakpoint. The address may be a symbolic address, a relative address, an absolute address, or a general register containing an address. The address must be on a halfword boundary. (See Appendix B for more information about addresses.)

address:address
: specifies a range of addresses that are to contain breakpoints. Each address may be a symbolic address, a relative address, an absolute address, or a general register containing an address. Each address must be on a halfword boundary. A breakpoint will be established at each instruction between the two addresses. (See Appendix B for more information about addresses.)

address-list
: specifies several addresses that are to contain breakpoints. Each address may be a symbolic address, a relative address, an absolute address, or a general register containing an address. The first address must be on a halfword boundary. The list must be enclosed within parentheses, and the addresses in the list must be separated by standard delimiters (one or more blanks or a comma). A breakpoint will be established at each address. (See Appendix B for more information about addresses.)

list-of-subcommands
: specifies one or more subcommands to be executed when the program is interrupted at the indicated location. If you specify more than one subcommand, the subcommands must be separated by semicolons (for instance, LISTTCB PRINT(TCBS);LISTPSW;GO CALCULAT). The list cannot be longer than 255 characters.

COUNT(integer)
: specifies that processing will not be halted at the breakpoint until it has been encountered a number of times. This operand is directly applicable to program loop situations, where an instruction is executed several times. The breakpoint will be observed each time it has been encountered the number of times specified for the 'integer' operand. The integer specified cannot exceed 32,767.

DEFER
specifies that the breakpoint is to be established in a program that is not yet in storage. The program to contain the breakpoint will be brought in as a result of a LINK, LOAD, ATTACH, or XCTL macro instruction by the program being tested. You must qualify the address of the breakpoint explicitly (loadname and CSECT name) when you specify this operand.

NODEFER
specifies that the breakpoint is to be inserted into the program now in main storage. This is the default value if both DEFER and NODEFER are omitted.

NOTIFY
specifies that when it is encountered the breakpoint will be identified at the terminal. This is the default value if both NOTIFY and NONOTIFY are omitted.

NONOTIFY
specifies that when it is encountered the breakpoint will not be identified at the terminal.

Example 1

Operation: Establish breakpoints at each instruction in a section of the program that is being tested.

Known: The addresses of the first and last instructions of that section that is to be tested..... LOOPA
EXITA
The subcommands to be executed are..... LISTPSW,GO

```
AT LOOPA:EXITA (LISTPSW;GO)
```

Example 2

Operation: Establish breakpoints at several locations in a program.

Known: The addresses for the breakpoints..... +8A
LOOPB
EXITB

```
AT (+8A LOOPB EXITB)
```

Example 3

Operation: Establish a breakpoint at a location in a loop. The address of the location is contained in register 15. You only want to have an interruption every tenth cycle through the loop.

Known: The address for the breakpoint..... 15R%

```
AT 15R% COUNT(10)
```

Example 4

Operation: Establish a breakpoint for a program other than the one presently in main storage.

Known: The csect name..... YLREVEB
The name of the load module..... KCIW
The symbolic address for the breakpoint..... PROG

```
AT KCIW.YLREVEB.PROG DEFER
```

TEST Command
CALL Subcommand

Use the CALL subcommand to initialize registers and initiate processing at a specified address. You can pass parameters to the program that is being tested.

SUBCOMMAND	OPERANDS
CALL	address [PARM(address-list)] [VL] [RETURN(address)]

address
specifies the address where processing is to begin. The address may be a symbolic address, a relative address, an absolute address, or a general register containing an address. (See Appendix B for more information about addresses.)

PARM(address-list)
specifies one or more addresses that point to data to be used by the program being tested. The list of addresses will be expanded to fullwords and placed into contiguous storage. Register one will contain the address of the start of the list.

VL
specifies that the high order bit of the last fullword of the list of addresses pointed to by general register one is to be set to one.

RETURN(address)
specifies that general register 14 is to contain the address that you supply as the value for this keyword. After the program executes, the system will return control to the point indicated by register 14.

Example 1

Operation: Initiate execution of the program being tested at a particular location.

Known: The starting address..... +0A
The addresses of data to be passed..... CTCOUNTR
LOOPCNT
TAX

```
CALL +0A PARM(CTCOUNTR LOOPCNT TAX)
```

Example 2

Operation: Initiate execution at a particular location.

Known: The starting address..... STARTBD
The addresses of data to be passed..... BDFLAGS
PRFTTBL
COSTTBL
ERREXIT
Set the high order bit of the last address parameter to one so that the program can tell the end of the list.
After execution, control is to be returned to..... +24A

```
CALL STARTBD PARM(BDFLAGS PRFTTBL COSTTBL ERREXIT)
VL RETURN(+24A)
```

TEST Command
DELETE Subcommand

Use the DELETE subcommand to delete a load module awaiting execution.

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SUBCOMMAND	OPERAND
{DELETE / D}	load-name

load name
specifies the name of the load module to be deleted. The load name is the name by which the program is known to the system when it is in main storage. The name must not exceed eight characters.

Example 1

Operation: The program being tested has called a subroutine that is in load module form. Before executing the subroutine, a breakpoint is encountered. You do not want to execute the subroutine because you intend to pass test data to the program instead. You now want to delete the subroutine since it will not be used.

Known: The name of the subroutine (load module)..... TOTAL

```
DELETE TOTAL
```

or

```
D TOTAL
```

TEST Command
DROP Subcommand

Use the DROP subcommand to remove symbols from the symbol table of the module being tested. You can only remove symbols that you established with the EQUATE subcommand; you cannot remove symbols that were established by the linkage editor.

SUBCOMMAND	OPERAND
DROP	(symbol-list)

(symbol-list)
specifies one or more symbols that you want to remove from the symbol table created by the EQUATE subccmmand. When you specify only one symbol, you do not have to enclose that symbol within parentheses; however, if you specify more than one symbol you must enclose them within parentheses. If you do not specify any symbols, the entire table of symbols will be removed.

Example 1

Operation: Remove all symbols that you have established with the EQUATE command.

```
DROP
```

Example 2

Operation: Remove several symbols from the symbol table.

Known: The names of the symbols..... STARTADD
TOTAL
WRITESUM

```
DROP (STARTADD TOTAL WRITESUM)
```

TEST Command
END Subcommand

Use the END subcommand to terminate all functions of the TEST command and the program being tested.

SUBCOMMAND	OPERANDS
END	

TEST Command
EQUATE Subcommand

Use the EQUATE subcommand to add a symbol to the symbol table of the module being tested. This subcommand allows you to establish a new symbol that you can use to refer to an address or to override an existing symbol to reflect a new address or new attributes. If no symbol table exists, one is created and the specified name is added to it. You can also modify the data attributes (type, length, and multiplicity). The DROP subcommand removes symbols added by the EQUATE subcommand.

SUBCOMMAND	OPERANDS
{EQUATE / EQ}	symbol address data-type [LENGTH(integer)] [MULTIPLE(integer)]

symbol
specifies the symbol (name) that you want to have added to the symbol table so that you can refer to an address symbolically. The symbol must consist of one through eight alphameric characters, the first of which is an alphabetic character.

address
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. The address that you specify will be equated to the symbol that you specify. (See Appendix B for more information about addresses.)

data-type
specifies the type of data that you want to place in the specified location. You indicate the type of data by one of the following codes:

Code	Type of Data	Maximum Length (Bytes)
C	Character	256
X	Hexadecimal	256
B	Binary	256
H	Fixed point binary (halfword)	8
F	Fixed point binary (fullword)	8
E	Floating point (single precision)	8
D	Floating point (double precision)	8
P	Packed decimal	16
Z	Zoned decimal	16
A	Address constant	4
S	Address (base + displacement)	2
Y	Address constant (halfword)	2

LENGTH(integer)
specifies the length of the data. The maximum value of the integer is 256. If you do not specify the length, the following default values will apply:

Type of Data	Default Length (Bytes)
C,B,P,Z	1
H,S,Y	2
F,E,A,X	4
D	8
I	variable

MULTIPLE(integer)
specifies a multiplicity factor. The multiplicity factor means that one element of the data appears several times in succession; the number of repetitions is indicated by the number specified for "integer". The maximum value of the integer is 256.

Note: If you do not specify any keywords, the defaults are:

type - X
multiplicity - 1
length - 4

Example 1

Operation: Add a symbolic address to the symbol table of the module that you are testing.

Known: The symbol..... EXITRTN
The address..... TOTAL+4

```
EQUATE EXITRTN TOTAL+4
```

Example 2

Operation: Change the address and attributes for an existing symbol.

Known: The symbol..... CONSTANT
The new address..... 1FAA0.
The new attributes: type..... C
length..... L(8)
multiplicity..... M(2)

```
EQ CONSTANT 1FAA0. C M(2) L(8)
```

TEST Command
FREEMAIN Subcommand

Use the FREEMAIN subcommand to free a specified number of bytes of main storage.

SUBCOMMAND	OPERANDS
{FREEMAIN / FREE}	integer address [SP(integer)]

integer
specifies the number of bytes of main storage to be released.

address
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. This address is the location of the space to be freed. (See Appendix B for more information about address.)

The LISTMAP subcommand may be used to help locate previously acquired main storage.

SP(integer)
specifies the number of the subpool that contains the space to be freed. If you omit this operand, the default value is subpool zero. The integer must be in the range zero through 127.

Example 1

Operation: Free space in main storage that was acquired previously by a GETMAIN subcommand or by a GETMAIN macro instruction in the module being tested.

Known: The size of the space, in bytes..... 500
The absolute address of the space..... 054A20
The number of the subpool that the space was acquired from..... 3

```
FREE  500  054A20.  SP(3)
```

TEST Command
GETMAIN Subcommand

Use the GETMAIN subcommand to obtain a specified number of bytes of main storage.

SUBCOMMAND	OPERANDS
{GETMAIN / GET}	integer [SP(integer)]

integer
specifies the number of bytes of main storage to be obtained.

SP(integer)
specifies the number of a subpool that contains the bytes of main storage that you want to obtain. If you omit this operand, the default value is subpool zero. The integer must be in the range zero through 127.

Example 1

Operation: Get 500 bytes of main storage from subpool 3.

```
GET  500  SP(3)
```

TEST Command
GO Subcommand

Use the GO subcommand to start or restart program execution from a particular address. If the program was interrupted for a breakpoint and you want to continue from the breakpoint, there is no need to specify the address. However, you may start execution at any point by specifying the address.

SUBCOMMAND	OPERANDS
GO	[address]

address
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. Execution will begin at the address that you specify. (See Appendix B for more information about addresses.)

Example 1

Operation: Begin execution of a program at the point where the last interruption occurred.

```
GO
```

Example 2

Operation: Begin execution at a particular address.

Known: The address..... CALCULAT

```
GO CALCULAT
```

TEST Command
HELP Subcommand

Use the HELP subcommand to find out how to use TEST and the TEST subcommands. When you enter the HELP subcommand, the system responds by printing out explanatory information at your terminal. You may request:

- A list of available subcommands.
- An explanation of the function, syntax, and operands of a specific subcommand.

The HELP subcommand actually causes the system to execute a function of the HELP command; therefore, you may consult the discussion of the HELP command if you desire more detailed information.

SUBCOMMAND	OPERANDS
{HELP / H}	[subcommand-name] [FUNCTION] [SYNTAX] [OPERANDS[(list-of-operands)] [ALL]

subcommand-name
specifies the subcommand that you want to have clarified. If you omit this operand, the system will display a list of TEST subcommands.

FUNCTION
specifies that you want a description of the referenced subcommand's function.

SYNTAX
specifies that you want a definition of the proper syntax for the referenced subcommand.

OPERANDS(list-of-operands)
specifies that you want an explanation of the operands applicable to the referenced subcommand.

The list of operands specifies the particular keywords that you want to have explained. If you do not specify any keywords, all of the applicable keywords will be included. You must use one or more blanks or a comma as a delimiter between the keywords in the list.

ALL
specifies that you want a description of the function, the syntax, and the operands of the subcommand that you specified. This is the default value if no operands are specified.

Example 1

Operation: Have a list of available subcommands displayed at your terminal.

```
HELP
```

Example 2

Operation: Obtain all available information about a particular subcommand.

Known: The subcommand name..... QUALIFY

```
H QUALIFY
```

Example 3

Operation: Have a list of the operands for a particular subcommand displayed at your terminal.

Known: The subcommand name..... LIST

```
h list operands
```

TEST Command
LIST Subcommand

Use the LIST subcommand to have the contents of a specified area of main storage, or the contents of registers, displayed at your terminal or placed into a data set.

SUBCOMMAND	OPERANDS		
{LIST / L}	{address[:address] / (address-list)}	data-type	[LENGTH(integer)] [MULTIPLE(integer)] [PRINT(data-set-name)]

address
: specifies the location of data that you want displayed at your terminal or placed into a data set. The address may be a symbolic address, a relative address, an absolute address, or a general or floating-point register. (See Appendix B for more information about addresses.)

address:address
: specifies that you want the data located between the specified addresses displayed at your terminal or placed into a data set. Each address may be a symbolic address, a relative address, an absolute address, or a general or floating point register. (See Appendix B for more information about addresses.)

(address-list)
: specifies several addresses of data that you want displayed at your terminal or placed into a data set. The data at each location will be retrieved. Each address may be a symbolic address, a relative address, an absolute address, or a general or floating-point register. The list of addresses must be enclosed within parentheses, and the addresses must be separated by standard delimiters (one or more blanks or a comma). (See Appendix B for more information about addresses.)

data-type
: specifies the type of data that you want to place in the specified location. You indicate the type of data by one of the following codes:

Code	Type of Data	Maximum Length (Bytes)
C	Character	256
X	Hexadecimal	256
B	Binary	256
H	Fixed point binary (halfword)	8
F	Fixed point binary (fullword)	8
E	Floating point (single precision)	8
D	Floating point (double precision)	8
P	Packed decimal	16
Z	Zoned decimal	16
A	Address constant	4
S	Address (base + displacement)	2
Y	Address constant (halfword)	2

LENGTH(integer)
: indicates the length, in bytes of the data that is to be listed.

The maximum value for the integer is 256. If you do not specify the length, the following default values will apply:

Type of Data	Default Length (Bytes)
C,B,P,Z	1
H,S,Y	2
F,E,A,X	4
D	8
I	variable

MULTIPLE(integer)
specifies the multiplicity factor. The multiplicity factor means that one element of the data appears several times in succession; the number of repetitions is indicated by the number specified for "integer". The maximum value of the integer is 256.

PRINT(data-set-name)
specifies the name of a sequential data set to which the data is directed (see data set naming conventions). If you omit this operand, the data will go to your terminal.

The data format is blocked variable length records. Old data sets with the standard record format and block size are treated as NEW if being opened for the first time, otherwise, they are treated as MOD data sets.

The LIST subcommands of TEST perform the following functions on each data set they process.

If your record format was:	Fixed or Fixed Blocked		Variable or Variable Blocked	
Then it is changed to variable blocked with the following attributes	Recordsize	Blocksize	Recordsize	Blocksize
	125	1625	125	129

The specified data set is kept open until:

1. The TEST session is ended by a RUN or END subcommand or
2. A LIST subcommand is entered specifying a different PRINT data set. In this case, the previous data set is closed and the current one opened.

Example 1

Operation: List the contents of an area of main storage.

Known: The area to be displayed is between..... COUNTERA
DTABLE
The attributes are..... C
L(130)
M(1)
The name for a data set to contain
the listed data..... DCDUMP

```
LIST COUNTERA:DTABLE C L(130) M(1) PRINT(DCDUMP)
```

Example 2

Operation: List the contents of main storage at several addresses

Known: The addresses..... TOTAL1
TOTAL2
TOTAL3
ALLTOTAL

The attributes..... F
L(3)
M(3)

```
L (TOTAL1 TOTAL2 TOTAL3 ALLTOTAL) F L(3) M(3)
```

TEST Command
LISTDCB Subcommand

Use the LISTDCB subcommand to list the contents of a data control block (DCB). You must provide the address of the beginning of the DCB. The forty-nine or fifty-two bytes of data following the address will be formatted according to the names of the fields as presented in the publication System/360 Operating System: System Control Blocks, GC28-6628.

If you wish, you can have only selected fields displayed. The field identification is based on the sequential access method DCB for direct access. Fifty-two bytes of data are displayed if the data set is closed; forty-nine bytes of data are displayed if the data set is opened.

SUBCOMMAND	OPERANDS
LISTDCB	address [FIELD(names)] [PRINT(data-set-name)]

address
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. The specified address is the address of the DCB that you want displayed. The address must be on a fullword boundary. (See Appendix B for more information about addresses.)

FIELD(names)
specifies one or more names of the particular fields in the DCB that you want to have displayed at your terminal. The segment name will not be printed when you use this operand. If you omit this operand, the entire DCB will be displayed.

PRINT(data-set-name)
specifies the name of the sequential data set to which data is to be directed (see data set naming conventions). If you omit this operand, the data will be displayed at your terminal.

The data format is blocked variable length records. Old data sets with the standard record format and blocksize are treated as NEW if they are being opened for the first time; otherwise they are treated as MOD data sets.

The specified data set is kept open until:

1. The TEST session is ended by a RUN or END subcommand, or
2. A LIST subcommand is entered that specifies a different PRINT data set. In this case, the former data set is closed and the current one opened.

TEST Command
LISTDCB Subcommand

Example 1

Operation: List the RECFM field of a DCB for the program that is being tested.

Known: The DCB begins at location..... DCBIN

```
LISTDCB DCBIN FIELD(DCBRECFM)
```

Example 2

Operation: List on entire DCB.

Known: The absolute address of the DCB..... 33B4

```
LISTDCB 33B4.
```

TEST Command
LISTDEB Subcommand

Use the LISTDEB subcommand to list the contents of a data extent block (DEB). You must provide the address of the beginning of the DEB. The 32 bytes of data following the address will be formatted according to the names of the fields as presented in the publication System/360 Operating System: System Control Blocks, GC28-6628.

In addition to the 32 byte basic section, you may receive up to 16 direct access device dependent sections of 16 bytes each until the full length has been displayed. If you wish, you can have only selected fields displayed.

SUBCOMMAND	OPERANDS
LISTDEB	address [FIELD(names)] [PRINT(data-set-name)]

address
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. The address is the beginning of the DEB, and must be on a fullword boundary. (See Appendix B for more information about addresses.)

FIELD(names)
specifies one or more names of the particular fields in the DEB that you want to have displayed at your terminal. If you omit this operand, the entire DEB will be listed.

PRINT(data-set-name)
specifies the name of the sequential data set to which data is to be directed (see data set naming conventions). If you omit this operand, the data will be displayed at your terminal.

The data format is blocked variable length records. Old data sets with the standard record format and blocksize are treated as NEW if they are being opened for the first time; otherwise they are treated as MOD data sets.

The specified data set is kept open until:

1. The TEST session is ended by a RUN or END subcommand, or
2. A LIST subcommand is entered that specifies a different PRINT data set. In this case, the former data set is closed and the current one opened.

Example 1

Operation: List the entire DEB for the DCB that is named DCBIN.

Known: The address of the DEB..... DCBIN+2C%

```
LISTDEB DCBIN+2C%
```

TEST Command
LISTMAP Subcommand

Use the LISTMAP subcommand to display a storage map at your terminal. The map identifies the location and assignment of any storage assigned to the program.

All storage assigned to the problem program and its subtasks as a result of GETMAIN requests is located and identified by subpool (0-127). All programs assigned to the problem program and its subtasks are identified by name, size, location, and attribute. Storage assignment and program assignment are displayed by task. When the assignments for the problem program and all its subtasks tasks have been displayed, a map of all unassigned storage within the region is displayed.

SUBCOMMAND	OPERANDS
LISTMAP	[PRINT(data-set-name)]

PRINT(data-set-name)
specifies the name of the sequential data set to which data is to be directed (see data set naming conventions). If you omit this operand, the data will be displayed at your terminal.

The data format is blocked variable length records. Old data sets with the standard record format and blocksize are treated as NEW if they are being opened for the first item; otherwise, they are treated as MOD data sets.

The specified data set is kept open until:

1. The TEST session is ended by a RUN or END subcommand, or
2. A LIST subcommand is entered that specifies a different PRINT data set. In this case, the former data set is closed and the current one opened.

Example 1

Operation: Display a map of main storage at your terminal.

```
LISTMAP
```

Example 2

Operation: Direct a map of main storage to a data set.

Known: The name for the data set..... ACDQP.MAP.TESTLIST

```
LISTMAP PRINT(MAP)
```

TEST Command
LISTPSW Subcommand

Use the LISTPSW subcommand to display a Program Status Word (PSW) at your terminal.

SUBCOMMAND	OPERANDS
LISTPSW	[ADDR(address)] [PRINT(data-set-name)]

ADDR(address)
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. The address identifies a particular PSW. If you do not specify an address, you will receive the current PSW for the program that is executing. (See Appendix B for more information about addresses.)

PRINT(data-set-name)
specifies the name of the sequential data set to which data is to be directed (see data set naming conventions). If you omit this operand, the data will be displayed at your terminal.

The data format is blocked variable length records. Old data sets with the standard record format and blocksize are treated as NEW if they are being opened for the first time; otherwise, they are treated as MOD data sets.

The specified data set is kept open until:

1. The TEST session is ended by a RUN or END subcommand, or
2. A LIST subcommand is entered that specifies a different PRINT data set. In this case, the former data set is closed and the current one opened.

Example 1

Operation: Display the current PSW at your terminal.

```
LISTPSW
```

Example 2

Operation: Copy the Input/Output old PSW onto a data set.

Known: The address of the PSW (in hexadecimal)..... 38
The name for the data set..... SKJ23.PSWS.TESTLIST

```
LISTPSW ADDR(38.) PRINT(PSWS)
```

TEST Command
LISTTCB Subcommand

Use the LISTTCB subcommand to display the contents of a task control block (TCB). You may provide the address of the beginning of the TCB. The data following the address will be formatted according to the names of the fields as presented in the publication: System/360 Operating System: System Control Blocks, GC28-6628.

If you wish, you can have only selected fields displayed.

SUBCOMMAND	OPERANDS
LISTTCB	[ADDR(address)] [FIEID(names)] [PRINT(data-set-name)]

ADDR(address)
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. The address must be on a fullword boundary. The address identifies the particular TCB that you want to display. If you omit an address, the TCB for the current task is displayed. (See Appendix B for more information about addresses.)

FIELD(names)
specifies one or more names of the particular fields in the TCB that you want to have displayed. If you omit this operand, the entire TCB will be displayed.

PRINT(data-set-name)
specifies the name of the sequential data set to which data is to be directed. If you omit this operand, the data will be displayed at your terminal.

The data format is blocked variable length records. Old data sets with the standard record format and blocksize are treated as NEW if they are being opened for the first time; otherwise, they are treated as MOD data sets.

The specified data set is kept open until:

1. The TEST session is ended by a RUN or END subcommand, or
2. A LIST subcommand is entered that specifies a different PRINT data set. In this case, the former data set is closed and the current one opened.

Example 1

Operation: Save a copy of the TCB for the cureent task on a data set.

Known: The name for the data set..... GCAMP.TCBS.TESTLIST

```
LISTTCB PRINT(TCBS)
```

TEST Command
LISTTCB Subcommand

Example 2

Operation: Save a copy of some fields of a task that is not active in a data set for future information.

Known: The symbolic address of the TCB..... MYTCB2
The fields that are being requested..... TCBTIO
TCBCMP
TCBGRS
The name for the data set..... SCOTT.TESTLIST

```
LISTTCB ADDR(MYTCB2)MYTCB2 FIELD(TCBTIO,TCBCMP,TCBGRS)
PRINT('SCOTT.TESTLIST')
```

TEST Command
LOAD Subcommand

Use the LOAD subcommand to load a program into main storage for execution.

SUBCOMMAND	OPERANDS
LOAD	program-name

program name
specifies the name of a member of a partitioned data set that contains the load module to be tested. (See the data set naming conventions.)

Example 1

Operation: Load a program named ATX03.LOAD(GSCORES)

```
LOAD  (GSCORES)
```

TEST Command
OFF Subcommand

Use the OFF subcommand to remove breakpoints from a program.

SUBCOMMAND	OPERAND
OFF	{address[:address]} {(address-list)}

address
specifies the location of a breakpoint that you want to remove. The address may be a symbolic address, a relative address, an absolute address, or a general register containing an address. The address must be on a halfword boundary. (See Appendix B for more information about addresses.)

address:address
specifies a range of addresses. Each address may be a symbolic address, a relative address, an absolute address, or a general register containing an address. Each address must be on a halfword boundary. All breakpoints in the range of addresses will be removed. (See Appendix B for more information about addresses.)

(address-list)
specifies the location of several breakpoints that you want to remove. Each address may be a symbolic address, a relative address, an absolute address, or a general register containing an address. Each address must be on a halfword boundary. (See Appendix B for more information about addresses.)

Example 1

Operation: Remove all breakpoints in a section of the program.

Known: The beginning and ending addresses of the section..... LOOPC
EXITC

```
OFF  LOOPC:EXITC
```

Example 2

Operation: Remove several breakpoints located at different positions.

Known: The addresses of the breakpoints..... COUNTRA
COUNTRB
EXITA

```
OFF  (COUNTRA  COUNTRB EXITA)
```

Example 3

Operation: Remove all breakpoints in a program.

```
OFF
```

TEST Command
QUALIFY Subcommand

Use the QUALIFY subcommand to qualify symbolic and relative addresses; that is, to establish the starting or base location to which displacements are added so that an absolute address is obtained. The QUALIFY subcommand allows you to specify uniquely which program and which CSECT within that program you intend to test using symbolic and relative addresses.

You can specify an address to be used as the base location for subsequent relative addresses. Each time you use the QUALIFY subcommand, previous qualifications are voided.

Symbols that were established by the EQUATE subcommand before you enter QUALIFY are not affected by the QUALIFY subcommand.

SUBCOMMAND	OPERANDS
{QUALIFY / Q}	{address / load-module-name[.entryname][TCB(address)]}

address
specifies an absolute, relative or symbolic address.

load
specifies the name by which a load module is known. The load name may be a member name of a partitioned data set or an alias.

load.entry
specifies the name by which a load module is known, and an external name within the load module. This operand changes the base for both symbolic and relative addresses. The two names are separated by a period. The load module name may be a member name of a partitioned data set or an alias. The entry name is the name that is duplicated in another module of the load module.

.entry
specifies an external name within a previously specified load module that you are now testing.

TCB(address)
specifies the address of a task control block (TCB). This operand is necessary when programs of the same name are assigned to two or more subtasks and you must establish uniquely which one is to be qualified, or when the load module request block is not in the TCB chain.

Example 1

Operation: Establish a base location for relative addresses to a symbol within the currently qualified program.

Known: The base address..... QSTART

```
QUALIFY QSTART
```

Example 2

Operation: Change the base location for symbolic and relative addresses to a different CSECT in the program.

Known: The module name..... PROFITS
The entry name (CSECT)..... SALES
The TCB address..... +124%

```
QUALIFY PROFITS.SALES TCB(+124%)
```

Example 3

Operation: Change the base location for relative addresses to an absolute address.

Known: The absolute address of the new base..... 5F820

```
QUALIFY 5F820.
```

TEST Command
RUN Subcommand

Use the RUN subcommand to cause the program that is being tested to execute to termination without recognizing any breakpoints. When you specify this subcommand, TEST is terminated. When the program completes, you can enter another command. Overlay programs are not supported by the RUN subcommand. Use the GO subcommand to execute overlay programs.

SUBCOMMAND	OPERANDS
{RUN} {R }	[address]

address
: specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. Execution will begin at the specified address. If you do not specify an address, execution begins at the last point of interruption or from the entry point if the RUN subcommand was not previously specified. (See Appendix B for more information about addresses.)

Example 1

Operation: Execute the program to termination from the last point of interruption.

```
RUN
```

Example 2

Operation: Execute a program to termination from a specific address.

Known: The address..... +A8

```
RUN  +A8
```

TEST Command
WHERE Subcommand

Use the WHERE subcommand to obtain the absolute address serving as the starting or base location for the symbolic and relative addresses in the program. Alternately, you can obtain the absolute address of an entrypoint in a particular module or control section (CSECT). If you do not specify any operands for the WHERE subcommand, you will receive the address of the next executable instruction.

SUBCOMMAND	OPERANDS
{WHERE / W}	{address / load-module-name[.entryname]}

address
specifies a symbolic address, a relative address, an absolute address, or a general register containing an address. When you specify an address as the operand for the WHERE subcommand, you will receive the name of the load module containing the address. (See Appendix B for more information about addresses.)

load-module-name.entry-name
specifies the name by which a load module is known, and an externally referable name within the load module. The two names are separated by a period. The load module name may be the name or an alias of a member of a partitioned data set. The entry name is the symbolic address of an entry point into the specified module. The entry name may be omitted, in which case the first entry point into the specified module will be supplied. When you specify this operand for WHERE, you will receive the main storage address of the load module.

Example 1

Operation: Obtain the absolute address of the module named CSTART.

```
WHERE CSTART
```

Example 2

Operation: Obtain the absolute address of the CSECT named JULY in the module named NETSALES.

```
WHERE NETSALES.JULY
```

Example 3

Operation: Determine in which program an absolute address is located.

Known: The absolute address..... 3E2B8

```
WHERE 3E2B8.
```

Note: You will also get the TCB address and the relative address that are relative to the absolute address you specify.

Example 4

Operation: Determine the absolute address of the next executable instruction.

```
WHERE
```

TIME Command

Use the TIME command to find out how much execution time or how much session time you have used during the current session.

Program execution time is displayed when you enter the TIME command. (To enter the command while a program is executing, you must first cause an attention interruption.) Program execution time is measured from the time that the program last received input from your terminal. The TIME command has no effect upon the executing program.

Your current session time is displayed in all other instances.

COMMAND	OPERANDS
TIME	

Command Procedure Statements

A command procedure is a prearranged sequence of TSO commands and, optionally, subcommands and data. A command procedure is a convenient method for executing a repeatedly-used sequence of commands. The procedure is stored in either a data set that has CLIST as the descriptive qualifier (see the EDIT command) or in a member of a command procedure library (partitioned data set).

The statements contained in this section are designed especially for use in command procedures. They are:

The END statement.

The PROC statement.

The WHEN command.

Command Procedure Statements the END Statement

Use the END statement to end a command procedure. When the system encounters an END statement in a command procedure, execution of the command procedure is halted and the system becomes ready to accept another command from the terminal.

STATEMENT	OPERANDS
END	

Command Procedure Statements the PROC Statement

Use the PROC statement to define the symbolic values used in a command procedure.

STATEMENT	OPERANDS
PROC	number [positional-operands] [keywords]

number
specifies the number of positional operands that follow. The number must be a decimal digit. If none of the operands are positional, you must specify a zero.

positional operands
specifies one or more positional operands.

keywords
specifies one or more keyword operands.

Example 1

Operation: Use a PROC statement to identify five symbolic operands.

Known: Three positional operands to define..... &NAME
&NUMBER
&TIME

Two keywcrd operands to define..... &XREF
&MAP

```
PROC 3 NAME NUMBER TIME XREF MAP
```

Example 2

Operation: Use all three types of operands for a PROC statement.

Known: You are creating a command procedure that will use two existing programs named USERJWS.LOAD(SALESRPT) and INVENTRY.A to produce a sales report and to update the inventory. The name of the command procedure is REPORTS. You want to use different data sets as input to the procedure. The output of the first program SALESRPT will be the input for INVENTRY. You want tc be able to have the output displayed at your terminal or directed to a data set so that it can be retrieved at some later date. The commands in the procedure are:

```
ALLOCATE DATASET(&LASTOUT.)  NEW BLOCK(80) SPACE(500 10)
ALLOCATE DATASET(&INPUT.)  OLD
ALLOCATE DATASET(&OUTIN.)  &NEW BLOCK(80) SPACE(500 10)
CALL (SALESRPT) '&INPUT &OUTIN.'
WHEN SYSRC(GT 4) END
CALL 'INVENTRY.A' '&OUTIN &LASTOUT.'
END
```

Command Procedure Statements the PROC Statement

The PROC statement that will precede the first ALLOCATE command is:

```
PROC 2 INPUT OUTIN LASTOUT(*) NEW
```

The EXEC command to execute this procedure and have the output displayed at your terminal will be:

```
EXEC REPORTS 'FEBSALES FEBRUARY NEW'
```

when the input data set is named FEBSALES and you want to name the output from the SALESRPT program FEBRUARY. If you want to direct the output from the procedure to a data set named FEBRPT instead of to your terminal, you would enter:

```
EXEC REPORTS 'FEBSALES FEBRUARY NEW LASTOUT(FEBRPT)'
```

In this case, the symbolic values in the command procedure will be changed to:

```
ALLOCATE DATASET(FEBRPT) NEW BLOCK(80) SPACE(500 10)
ALLOCATE DATASET(FEBSALES) OLD
ALLOCATE DATASET(FEBRUARY) NEW BLOCK(80) SPACE(500 10)
CALL(SALESRPT) 'FEBSALES FEBRUARY'
WHEN SYSRC(GT 4) END
CALL 'INVENTRY.A' 'FEBRUARY FEBRPT'
END
```

Command Procedure WHEN Command

Use the WHEN command to initiate or terminate a command procedure when any preceding command returns a specified return code. This command is designed to be used within a command procedure.

COMMAND	OPERAND
WHEN	[SYSRC(operator integer)] [END command-name]

SYSRC
specifies that the return code from the previous function (the previous command in the command procedure) is to be tested according to the values specified for operator and integer.

operator
specifies one of the following operators:

EQ or = means equal to
NE or ¬= means not equal to
GT or > means greater than
LT or < means less than
GE or >= means greater than or equal to
NG or ¬> means not greater than
LE or <= means less than or equal to
NL or ¬< means not less than

integer
specifies the four digit constant that the return code is to be compared to.

END
specifies that processing is to be terminated if the comparison is true. This is the default if you do not specify a command.

command
specifies any command name and appropriate operands. The command will be processed if the comparison is true.

Appendix A: Program Product Information

Certain functions referred to in this publication are provided through IBM Program Products, which are available from IBM for a license fee. Program Products referred to in this manual are:

- Interactive Terminal Facility (ITF): PL/I and BASIC. A problem solving language processor. See the following publications: IBM System/360 Operating System Time Sharing Option: Interactive Terminal Facility: PL/I and BASIC Design Objectives, GC28-6822. ITF:PL/I General Information, GC28-6827. ITF: BASIC General Information, GC28-6828.

- Code and Go FORTRAN. A FORTRAN compiler designed for a very fast compile-execute sequence. See the publications: Code and Go FORTRAN Design Objectives, GC28-6823. FORTRAN Program Products for OS and OS with TSO, General Information, GC28-6824.

- FORTRAN IV (G1) A version of the FORTRAN (G) compiler modified for the terminal environment. See the publications: FORTRAN IV (G1)Processor Design Objectives, GC28-6845. FORTRAN Program Products for OS and OS with TSO, General Information, GC28-6824.

- TSO FORTRAN Prompter. An initialization routine to prompt the user for options, and invoke the FORTRAN IV (G1) Processor. See the publications: TSO FORTRAN Prompter Design Objectives, GC28-6843. FORTRAN Program Products for OS and OS with TSO, General Information, GC28-6824.

- FORTRAN IV Library (Mod I). Execution-time routines for List directed I/O, and PAUSE and STOP capability, available for either Code ang Go FORTRAN IV (G1). See the publications: FORTRAN IV Library (Mod I) Design Objectives, GC28-6844. FORTRAN Program Products for OS and OS with TSO, General Information, GC28-6824.

- Full American National Standard COBOL Version 3. A version of the American National Standard (formerly USAS) COBOL compiler modified for the terminal environment. See the publication: Full American National Standard COBOL Version 3 Design Objectives, GC28-6406.

- TSO COBOL Prompter. An initialization routine to prompt the user for options, and invoke the Full ANS COBOL Version 3 Processor. See the publication: TSO COBOL Prompter Design Objectives, GC28-6404.

- TSO Assembler Prompter. An initialization routine to prompt the user for options and invoke the Assembler (F). See the publication: TSO Assembler Prompter Design Objectives, GC26-3734.

- TSO Data Utilities: COPY, FORMAT, LIST, MERGE. A set of commands and EDIT subcommands to manipulate user data sets and format text. See the publication: TSO Data Utilities: COPY, FORMAT, LIST MERGE Design Objectives, GC28-6750.

Appendix B: Addresses for Subcommands of Test

An address used as an operand for a subcommand of TEST may be a symbolic address, a relative address, an absolute address, or a register which may contain an address.

A symbolic address consists of one through eight alphameric characters, the first of which is an alphabetic character. The symbolic address must correspond to a symbol in the program that is being tested. Symbols cannot be used if the program being tested is a member of a partitioned data set that is part of a LINK library list unless the partitioned data set is named SYS1.LINKLIB or is the first one in the list, or unless the program is brought into main storage by TEST as an operand of the TEST command or a subsequent load command. A relative address is a hexadecimal number preceded by a plus sign (+). An absolute address is a hexadecimal number followed by a period. An expression consisting of one of these types of addresses followed by a plus or minus displacement value is also valid.

Qualified Addresses: You can qualify symbolic and relative addresses to indicate that they apply to a particular control section (CSECT). To do this, you precede the address by either the name of the load module and the name of csect or just the name of csect. The qualified address must be in the form:

```
.csectname.address

or

loadname.csectname.address
```

For instance, if the user supplied name of the load module is OUTPUT, the name of the csect is CTSTART, and the symbolic address is TAXRTN you would specify:

```
.CTSTART.TAXRTN

or

OUTPUT.CTSTART.TAXRTN
```

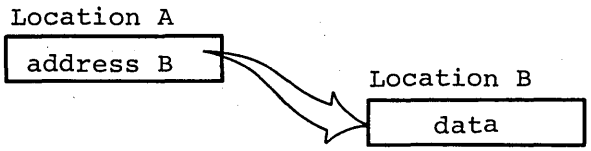
If you do not include qualifiers, the system assumes that the address applies to the current control section.

General Registers: You can refer to a general register using the LIST or Assignment of Values subcommands by specifying a decimal integer followed by an R. The decimal integer indicates the number of the register and must be in the range zero through 15. The contents of the registers are hexadecimal characters. Other references to the general registers imply indirect addressing. The term indirect general register is used to refer to the general registers when they are used for indirect addressing.

Floating-Point Registers: You can refer to a floating-point register using the LIST or Assignment of Values subcommand by specifying a decimal integer followed by an E or a D. An E indicates a floating-point register with single precision. A D indicates a floating-point register with double precision. The decimal integer indicates the number of the register and must be a zero, two, four, or six. You must not use floating-point registers for indirect addressing; expressions composed of references to floating-point registers followed by a plus or minus displacement value or a percent sign are invalid.

Appendix B: Addresses For Subcommands of Test

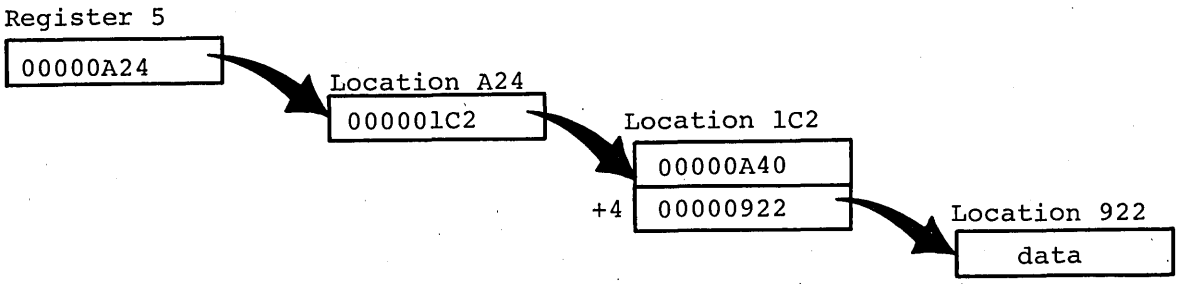
Indirect Addresses: An indirect address is an address of a location or general register that contains another address. An indirect address must be followed by a percent sign (the percent sign indicates that the address is indirect). For instance, if you want to refer to some data and the address of the data is located at address A you can specify A%.



You can indicate several levels of indirect addresses by following the initial indirect address with a corresponding number of percent signs. You can also include plus or minus displacement values. For instance, you may specify:

5R%%+4%

Graphically, this expression indicates:



Restriction on Symbol Use: You can refer to external symbols in a Load Module if:

- A composite external symbol dictionary (CESD), record exists.
- The TEST operand of the Link command was specified.
- The program was brought into main storage by the TEST command or one of its subtasks.

You can refer to external symbols in an Object Module if there is room in main storage for a CESD to be built.

You can refer to most internal symbols if you specify the TEST operand when you assemble and link edit your program. Exceptions are:

- Names on equate statements.
- Names on ORG, LTORG, and CNOP statements.
- Symbols more than eight bytes long.

Glossary

The following are definitions of words and phrases used in this publication.

abnormal end of task (ABEND): Termination of a task prior to normal completion because of an error condition.

address: The location of information in main storage.

address-constant: A number, or a symbol representing a number, used in calculating storage addresses.

alias: An alternate name for a particular member of a partitioned data set.

allocate: To assign a resource for use in performing a specific task.

alphameric letters : The letters A through Z, digits 0 through 9, and #, $, and @.

application program: A program, written by the user, that applies to his own work.

assemble: To prepare a machine language program from a symbolic language program by substituting absolute operation codes for symbolic operations codes and absolute or relocatable addresses for symbolic addresses.

assembler: A program that assembles.

attention interruption: An interruption of instruction execution caused by a terminal user pressing the attention key. (See also "simulated attention.")

attention key: A function key that is used to cause an attention interruption.

attribute: A characteristic; for instance, attributes of data include record length, record format, data set name, associated device type and volume identification, use, creation date, etc. (See also "UADS.")

auxiliary storage: Data storage other than main storage (for example, tape, direct access, etc.).

BASIC: An algebra-like language used especially for problem solving by engineers, scientists, and others who may not be professional programmers.

batch processing: Describing the processing of one job step at a time in a region; so called because jobs are submitted in a group or "batch."

block data: One record or several records grouped together in an unbroken sequence for transfer in or out of main storage as a unit.

blocked (records): Grouped records for the purpose of conserving storage space or increasing the efficiency or access of processing.

break: See "receive interruption."

breakpoint: A point within an executing program where execution is to be interrupted for debugging activity.

broadcast data set: A system data set containing messages and notices from the system operator, administrators, and other terminal users.

byte: The representation of a character; eight binary digits (bits) operated upon as a unit.

catalog:

1. noun: In the System/360 Operating System, a collection of data set indexes that are used by the control program to locate a volume containing a specific data set.

2. verb: To include the volume identification of a data set in the catalog.

cataloged data set: The quality attributed to a data set whose name and location are stored in the system catalog. A data set that is represented in an index or hierarchy of indexes which provide the means for locating the data set.

cataloged procedure: A set of job control statements that has been placed in a data set named SYS1.PROCLIB and that can be retrieved by naming it in a job control language (JCL) execute (EXEC) statement.

central processing unit (CPU): A unit of a computing system that processes data by executing predefined sequences of instructions, such as add, subtract, multiply, and divide instructions.

channel: A device that connects the central processing unit and main storage with the control units for the input/output devices.

character: A letter, digit, or other symbol that is used as part of the organization, control, or representation of data. For example, A,B,C,0,1,2,#,+,*, etc.

character-deletion character: A character within a line of terminal input specifying that the immediately preceding character is to be deleted from the line.

character string: Any sequence of characters.

COBOL: Common business oriented language. A business data processing language.

Code and go FORTRAN: A conversational version of FORTRAN used for rapid compilation and execution of programs.

command: Under TSO, a request from a terminal for the execution of a particular program called a command processor. The command processor is in a command library under the command name. Any subsequent commands processed directly by that command processor are called subcommands. The command processor performs the function that the user requested.

command language: The set of commands, subcommands and operands, recognized by TSO.

command library: A partitioned data set consisting of command processor programs. A user command library can be concatenated to the system command library.

command name: The first term in a command, usually followed by operands.

command procedure: A data set or member of a partitioned data set containing TSO commands to be performed sequentially by the EXEC command.

command processor (CP): A problem program executed as the result of entering a command at the terminal. Any problem program can be defined as a command processor by assigning a command name to the program and including the program in the command library.

communication line: Any medium such as a wire or a telephone circuit, that connects a terminal with a computer.

compile: To prepare a machine language program from a computer program written in a high-level source language.

computing system: A central processing unit with main storage, input/output channels, control units, storage devices, and input/output devices connected to it.

console: The computer hardware that is used by the system operator to operate the system.

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

control block: A storage area that contains a particular type of information used by the operating system to control the use of system resources.

control dictionary: The external symbol dictionary and relocation dictionary, collectively, of an object or load module.

control program: A collective or general term for all routines in the operating system that contribute to the management of resources, programs, and data and implement the data organization or communications conventions of the operations.

control section (CSECT): The smallest separately relocatable unit of a program; that group of coding specified by the programmer to be an entity, all elements of which are to be loaded into contiguous main storage addresses for execution.

control terminal: Any terminal at which a TSO user authorized to enter commands affecting system execution is logged on.

control unit: A unit that acts as an interface between a terminal and the rest of the system.

control volume: A volume that contains one or more indexes of the catalog.

conversational: Describing a program or a system that carries on a dialog with a terminal user, alternately accepting input and then responding to the input quickly enough for the user to maintain his train of thought.

CPU: See "central processing unit."

CPU time: The time devoted by the central processing unit to the execution of instructions.

current line pointer: A pointer maintained by the Edit command processor that indicates the line of a line data set with which a user is currently working. A terminal user can refer to the value of the current line pointer by entering an asterisk (*) with EDIT subcommands.

data: Information used as a basis for calculation, measurement and decision.

data control block (DCB): A control block used by the operating system in storing and retrieving data.

data definition name (ddname): A name appearing in the data control block assigned to a program; the name is specified in the name field of a data definition statement.

data definition (DD) statement: A job control statement that describes a data set associated with a particular job step.

data management: A general term that collectively describes those functions of the control program that provide access to data sets, enforce data set conventions, and regulate the use of input/output devices.

data set:

1. A collection of data that is accessible by the system. The data set usually resides on an auxiliary storage device.

2. A telephone device used to transmit telecommunications data.

data set catalog: See "catalog."

data set organization: The arrangement by data management of information in a data set. For example, sequential organization, or partitioned organization.

data set name: The term or phrase used to identify a data set (see qualified name).

DCB: See "data control block."

ddname: See "data definition name."

DD statement: See "data definition (DD) statement."

debug: To detect, locate, and remove mistakes from a routine.

default option: A language statement option that is selected by the operating system control program or a processing program in the absence of a selection by a user.

delimiter: A character that groups or separates words or values in a line of input.

device type: Usually, the general name for a kind of device, specified at the time the system is generated. For example, 2311 or 2400.

direct access: Retrieval or storage of data directly from or to its location on a volume of a direct access device.

direct access device: An auxiliary storage device in which the data access time is effectively independent of the location of the data.

directory: An index that is used by the operating system control program to locate one or more sequential blocks of data (called members) that are stored in separate partitions of a partitioned data set in direct access storage.

disk pack: A direct access storage volume containing magnetic disks on which data is stored. When being used, a disk pack is mounted on a disk storage drive, such as the IBM 2311 Disk Storage Drive.

dispatching priority: A number assigned to tasks to determine the order in which they will use the central processing unit.

dump (main storage):

1. verb: To copy the contents of all or part of main storage onto an output device.

2. noun: The data resulting from (1).

3. noun: A routine that will accomplish (1).

edit mode: Under the EDIT command an entry mode that accepts successive subcommands suitable for modifying an existing line data set.

entry point: Any location in a program to which control can be passed by another program.

exclusive call: A reference between exclusive segments of an overlay program.

exclusive segments: Segments of an overlay program which are executed in the same location in main storage but never simultaneously.

execute (EXEC) statement: A Job Control Language (JCL) statement that designates a job step by identifying the load module or cataloged procedure to be fetched and executed.

extent: The physical locations of contiguous storage areas on input/output devices occupied by or reserved for a particular data set. A data set may have more than one extent.

external reference: The use of a name or symbol defined in another module or program.

external symbol: A control section name, entry point name, or external reference; a symbol in the external symbol dictionary.

external symbol dictionary (ESD): Control information which identifies the external symbols in a module stored as part of the object or as part of an object or load module.

field, data: One or more items of information that together make up a record such as an account number or the name of a person.

file name: A name of a collection of data (the file name corresponds to the data definition name).

foreground job: For TSO, a program executed in a region devoted to time sharing operations.

FORTRAN: (FORmula TRANslating system) A programming language primarily used to express computer programs by arithmetic formulas.

function key: A terminal key, such as the attention key, that causes the transmission of a signal not associated with a character. Detection of the signal usually causes the system to perform a predefined operation for the user.

group name: The name for a particular collection of devices, specified at the time the system is generated. For example, SYSDA or TAPE.

hardware: Physical equipment as opposed to the program or method of use, for example, mechanical, magnetic, electrical, or electronic devices. (Contrast with "software.")

IBM System/360: A collection of computing system devices that can be connected together in many combinations to produce a wide range of unique and unified computing systems. Although the systems vary in size and performance, they share many characteristics, including a common machine language.

IBM System/360 Operating System: An application of the System/360 computing system, in the form of program and data resources, that is specifically designed for use in creating and controlling the performance of other applications. TSO is an optional facility of the Operating System.

index (data management): A table in the catalog structure used to locate data sets.

initialize: To set counters, switches, addresses, etc., to zero or other starting values at the beginning of, or at prescribed points in, a computer routine.

input device: A machine used to enter data into the system.

input stream: The flow of data into the system.

input mode: Under the EDIT command an entry mode that accepts successive lines of input for a line data set. The lines are not checked for the presence of subcommands.

installation: A general term for a particular computing system, in the context of the overall function it serves and the individuals who manage it, operate it, apply it to problems, maintain it, and use the results it produces.

instruction: A statement that specifies an operation and includes the required values.

interruption: A transfer of CPU control to the control program of the Operating System. The transfer is initiated automatically by the computing system or by a problem state program through the execution of a supervisor call (SVC) instruction. The transfer of control occurs in such a way that control can later be restored to the interrupted program, or, in systems that perform more than one task at a time, to a different program.

ITF:BASIC: A conversational subset of BASIC designed for ease of use at a terminal.

ITF:PL/I: A conversational subset of PL/I designed for ease of use at a terminal.

job:

1. In the background environment, a collection of related problem programs, identified in the input stream by a JOB statement followed by one or more EXEC and DD statements.
2. In the foreground environment, the processing done on behalf of one user from LOGON to LOGOFF -- one terminal session.

Job Control Language: A high-level programming language used to code statements that control the initiation and execution of jobs.

job control statement: Any of the Job Control Language phrases that identify a job or define its requirements.

job definition: A series of job control statements that define a job. (See "job.")

job library: A set of user-identified partitioned data sets used as the main source of load modules for a given job.

job output device: A device assigned by the operator for common use in recording output data for a series of jobs.

job (JOB) statement: A job control statement that identifies the beginning of a job. It contains information such as the name of the job, an account number, and the class and priority assigned to the job.

job scheduler: The control program function that regulates and schedules the use of the system and its resources for the execution of jobs.

job step: A unit of work associated with one processing program or one cataloged procedure, and related data.

keyword: A command operand that consists of a specific character string (such as FORTLIB or PRINT) and optionally a parenthesized value.

language statement: A phrase that is coded by a programmer, operator, or user of a computing system. The phrase conveys information to a processor such as a language translator program, service program, or control program. A language statement may signify that an operation is to be performed or may simply contain data that is to be passed to the processing program.

language translator: Any assembler, compiler, or other routine that accepts statements in one language and produces equivalent statements in another language.

library:

1. A collection of data sets associated with a particular use and identified in a directory.
2. Any partitioned data set.

line:

1. A single line of one or more characters typed at a terminal and entered into the system.
2. A circuit, such as a telephone line, over which data is communicated.

line data set: A data set with logical records that are printable lines.

line-deletion character: A character that specifies that it and all preceding characters are to be deleted from a line of terminal input.

line number: A number associated with line in a line data set, which can be used to refer to the line.

line number editing: A mode of operation under the EDIT command in which lines to be modified are referred to by line number.

linkage editor: A program that produces a single load module from one or more object and/or load modules.

link library: A generally accessible partitioned data set which contains load modules such as those referred to by macro instructions or system facilities.

listing: A display or printout of data.

load: To place a program in main storage so that it can be executed.

loader: A program that combines the basic editing and loading functions of the linkage editor. It loads object and/or load modules into main storage for execution; however, it does not produce load modules.

load module: The output of the linkage editor; a program in a form suitable for loading into main storage for execution.

Local System Queue Area (LSQA): That a portion of a time sharing region used for control blocks.

logical record: A record that is defined in terms of the information it contains rather than by its physical qualities.

LOGOFF: The TSO command that terminates a user's terminal session.

LOGON: The TSO command that a user must enter to initiate a terminal session.

LOGON procedure: A cataloged procedure that is executed as a result of a user entering the LOGON command.

LSQA: See "Local System Queue Area."

macro instruction: An instruction in a source language that is equivalent to a specified sequence of machine instructions.

machine language: A language consisting of instructions written in binary digits that

do not have to be translated to be acceptable for use by the hardware.

main storage: The storage in a computing system from which instructions may be executed and from which data can be loaded into registers.

main storage region: "See region."

member: A partition of a partitioned data set.

merge: To combine records from two or more similarly ordered data sets into one data set.

message: In telecommunications, a combination of characters and symbols transmitted from one point to another on a network.

message text: A part of a teleprocessing message consisting of the information that is routed to a user at a terminal or to a program in a central system that is to process it (not including line control characters).

module: The input to, or output from, a single execution of an assembler, compiler, or linkage editor; a source, object, or load module; hence, a program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading.

multiprogramming: Executing more than one program concurrently by interleaving the execution of one with that of another. The term "multiprogramming" is also broadly used to refer to the performance of more than one data processing task concurrently whether a single reenterable program, or several programs, are executed to perform the tasks.

MVT: Multiprogramming with a variable number of tasks. The IBM System/360 Operating System control program that supervises the concurrent execution of a variable number of tasks in main storage and allocates system resources to them.

name: A one to eight character alphameric term that identifies a data set, a command or control statement, a program, or a cataloged procedure. The first character of the name must be alphabetic.

national characters: The characters #, $, and @.

node list: The first positional operand for the ADD, CHANGE, DELETE, and LIST subcommands of the ACCOUNT command. It is normally represented within those subcommands by its parts, i.e., userid, password, account, and procedure.

object module: The output of a single execution of an assembler or compiler; the output constitutes input to the linkage or loader. An object module consists of one or more control sections in relocatable, though not executable, form and an associated control dictionary.

object module library: A partitioned data set that is used to store object modules.

object program: A program that has been compiled or assembled by a language translator. (See "object module.")

operand: In the TSO command language, information entered with a command name to define the data on which a command processor operates and to control the execution of the command processor. Some operands are positional, identified by their sequence in the command input line; others are identified by keywords.

operating system: An application of a computing system, in the form of organized collections of programs and data, that is specifically designed for use in creating and controlling the performance of other applications. (See "IBM System/360 Operating System.")

operator: A member of a data processing installation who is responsible for directing the overall operation of a computing system.

output class: Any one of up to 36 different output data classes, defined at an installation, to which output data can be assigned.

output device: A machine (such as a printer, terminal, or tape drive) that will accept the output from the system.

output writer: The part of the job scheduler that controls the writing of job output data.

overlay program: A program consisting of several segments that has been provided by the linkage editor with information that allows segments to be retained on auxiliary storage and, when needed, loaded into the same area occupied by a segment that has just executed.

partitioned data set: A data set that is stored in direct access storage and can be cataloged like any other data set. A partitioned data set is often called a program library. It is divided into independent partitions called members, each of which normally contains a program or

part of a program, in the form of one or more sequential blocks. Each program library contains a built-in directory (or index) that the control program can use to locate a program in the library. Each member has a unique name listed in a directory at the beginning of the data set. Members can be added or deleted as needed. Records within members are organized sequentially.

password: A one-to-eight character symbol assigned to a user that he can be required to supply at LOGON. The password is confidential, as opposed to the user identification. Users can also assign passwords to data sets.

physical record: A record that is defined in terms of physical qualities rather than by the information it contains. (See "record.")

PL/I: A high-level programming language that has features of both COBOL and FORTRAN, plus additional features.

priority: A rank assigned to a task that determines its precedence in receiving system resources.

private library: A partitioned data set other than the link library or the job library.

privileged instructions: Instructions that affect overall system operation and which may be used only when special conditions are met.

procedure: See "cataloged procedure."

procedure library: A program library in direct access storage containing job definitions. The reader/interpreter can be directed to read and interpret a particular job defintion by an execute (EXEC) statement in a job stream.

processor: A program performing some fixed function on input, such as a compiler or the linkage editor.

profile (user): The set of characteristics that describe the user to the system.

program: A logically self-contained sequence of instructions that can be executed by a computing system to attain a specific result.

program library: A partitioned data set containing programs in load module form for general or assorted applications.

protection key: An indicator associated with a task which appears in the program status word whenever the task is in control, and which must match the storage keys of all storage blocks the task is to use.

programmer: A person mainly involved in designing, writing, and testing computer programs.

prompting: A system function that helps a terminal user by requesting him to supply operands necessary to continue processing.

PSW (program status word): A doubleword in main storage used to control the order in which instructions are executed, and to hold and indicate the status of the system in relation to a particular program.

qualified name: A data set name that is composed of two or more names separated by periods. (For example, MOORE.SALES.JUNE.)

reader/interpreter: A job scheduler function that services an input job stream.

read-only: A type of access to data that allows the data to be read but not modified.

record: One or more data fields that represent an organized body of related data, such as all of the basic accounting information concerning a single sales transaction. (See also "logical record" and "physical record.")

receive interruption: The interruption of a transmission to a terminal by a higher priority transmission from the terminal. Also called a "break".

reenterable: The attribute or characteristic of a load module that allows the same copy of the module in main storage to be used by several tasks concurrently.

region: An area of main storage allocated to a job step and assigned a unique storage protection key. Time sharing jobs share regions. Each job occupies a region briefly, then is swapped out to auxiliary storage and another job is swapped into the vacated main storage area for execution. The jobs are swapped in and out until they are completed.

relocation: The changes of address constants required when a change of origin of a module or control section is made in main storage.

relocation dictionary: That part of an object or load module which identifies all relocatable address constants in the module.

Remote Job Entry: Submission of JCL statements and data from a terminal to cause the jobs described to be scheduled and executed as though encountered in the input job stream.

resource: Any facility of the system required by a job or task, including main storage input/output devices, the central processing unit, data sets, and control and processing programs.

return code: A number placed in a designated register (the "return code register") at the completion of a program. The number is established by user convention and may be used to influence the execution of succeeding programs or, in the case of an abnormal end of task (ABEND), it may simply be printed for programmer analysis.

reverse break: See "transmit interruption."

routine: A part of a program or subprogram that may have general or frequent use.

secondary storage: See "auxiliary storage."

separator: A delimiter used to separate or group fields in an input line to the system.

session time: The elapsed real time from LOGON to LOGOFF.

service program: A processing program, such as the linkage editor, sort/merge program, or a utility program that performs specific services for a user of the program.

simulated attention: A function that allows terminals without attention keys to interrupt processing. The terminal is queried (for a specified character string meaning "attention") after a specified number of seconds of uninterrupted execution or after a specified number of lines of consecutive output.

SMF: See "System Management Facilities."

software: A set of programs, procedures, rules, and possibly associated documentation concerned with the operation of a data processing system. For example, compilers, library routines, manuals, circuit diagrams. (Contrast with "hardware.")

source language: The input to a language translator; for example, FORTRAN, COBOL, PL/I.

source module: A series of language statements that represent the input to a language translator.

source module library: A partitioned data set that is used to store and retrieve a source module.

source program: A program written in a source language.

statement: A phrase consisting of words or terms of a programming language.

storage: See "main storage, auxiliary storage."

storage block: An area of main storage that consists of 2048 bytes to which a storage key can assigned.

storage dump: A recording of the contents of main or auxiliary storage so that it can be examined by a programmer or operator. (See also "dump.")

storage key: An indicator associated with storage blocks which requires that tasks have a matching indicator before they are allowed to use the blocks.

subroutine: A relatively short sequence of instructions that can be incorporated into a program to perform a specific function, such as finding the square root of a number.

subcommand: For TSO, a subcommand is a request for a particular operation to be performed, the particular operation falling within the scope of work requested by the command to which the subcommand applies.

symbol: A unique word, composed of as many as eight alphameric characters and beginning with an alphabetic character, which is used to identify an address, module, etc.

syntax checker: A program that tests source statements in a programming language for viclations of that language's syntax.

SYSIN: A system input stream. Also, a name used as the data definition name of a data set in the input stream.

SYSOUT: A system cutput stream. Also, an indicator used in data definition statements to signify that a data set is to be written on a system output unit.

system analyst: An expert on accounting, record keeping, and other business systems and practices, who formulates and plans data processing applications.

system catalog: See "catalog."

system console: See "console."

system generation: The process of using one operating system to assemble and link together into a coherent whole all the required, alternative, and optional parts that form a new operating system.

system input device: A device that is assigned to read a job input stream.

system library: A program library in auxiliary storage in which the various parts of an operating system are stored.

system library device: An auxiliary storage device on which the system library is stored.

System Management Facilities (SMF): A group of service routines to help an installation implement an accounting system for computer users.

system output device: An output device shared by all jobs.

system programmer:

1. A programmer who is assigned to plan, generate, maintain, extend, and control the use of an operating system with the aim of improving the overall productivity of an installation.

2. A programmer who designs programming systems and other applications.

system resource: Any facility of the computing system that may be allocated to a task.

system utility device: A device that is assigned for temporary storage of intermediate data for a series of job steps.

SYS1.PROCLIB: A system data set containing cataloged procedures.

task: A unit of work for the central processing unit defined by the control program.

task control block (TCB): The consolidation of control information related to a task.

telecommunications: The transmission of messages from one location to another over telephone and other communication lines.

teleprocessing: The processing of data that is received from or sent to remote locations by way of telecommunication lines.

terminal: A device resembling a typewriter that is used to communicate with the system.

terminal job: A foreground job; a session from LOGON to LOGOFF. Also used to refer to the time sharing region assigned to a user and associated system control blocks.

terminal user: See "user."

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

transmit interruption: The interruption of a transmission from a terminal by a higher priority transmission to the terminal. Also called "reverse break."

unit address: The symbolic location of an input/output device.

user: Under TSO, anyone with an entry in the User Attribute Data Set; anyone eligible to log on.

user attributes: A set of parameters in the User Attribute Data Set (UADS). The parameters describe the user to the system: whether he is authorized to use the ACCOUNT command, what size main storage region he is to be assigned, etc.

User Attribute Data Set (UADS): A partitioned data set with a member for each authorized system user. Each member contains the appropriate user identifications, passwords, account numbers, LOGON procedure names, and user characteristics defining the user's profile.

user identification: A one to eight character symbol identifying each system user.

User Profile Table: A table of user attributes kept for each active user, built from information in the LOGON command, the UADS, and the LOGON procedure.

utility programs: Service programs that assist the user in organizing and maintaining data.

verification: An operation under the EDIT command in which all subcommands are acknowledged and any text changes are displayed as they are made.

volume: A section or unit of auxiliary storage space that is serviced by a single read/write mechanism whose operation is entirely independent of any other read/write mechanism.

Index

Indexes to systems reference library manuals are consolidated in the publication IBM System/360 Operating System: Systems Reference Library Master Index, GC28-6644. For additional information about any subject listed below, refer to other publications listed for the same subject in the Master Index.

GC28-6732-1

System/360 OS TSO Command Language Printed in U.S.A.

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Command Language

Order No. GC28-6732-1

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Cut Along Line

System/360 OS TSO Command Language Printed in U.S.A. GC28-6732-1

IBM Technical Newsletter

File Number S360-36 (OS Rel 20.6)

Re: Order No. GC28-6732-1

This Newsletter No. GN28-2503

Date September 1, 1971

Previous Newsletter Nos. GN28-2480

IBM System/360 Operating System:
Time Sharing Option
Command Language Reference

This Technical Newsletter, a part of release 20.6 of IBM System/360 Operating System, provides replacement pages for the subject publication. These replacement pages remain in effect for subsequent releases unless specifically altered. Pages to be inserted and/or removed are:

Cover,2
Summary of Amendments
185-186

A change to the text or a change to an illustration is indicated by a vertical line to the left of the change.

Summary of Amendments

This Technical Newsletter includes changes to the MODIFY subcommand of the OPERATOR command.

Note: Please file this cover letter at the back of the manual to provide a record of changes.

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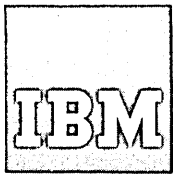
File No. S360-36
Order No. GC28-6732-1

OS



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IBM System/360 Operating System:

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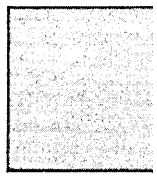

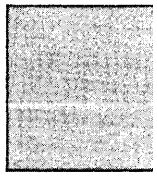
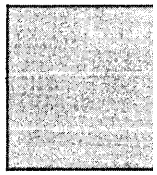


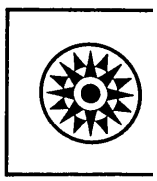
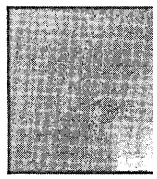

Preface

This publication describes how to use the commands and operands of the TSO Command Language. It is intended for use at a terminal. The level of knowledge required for this publication depends upon the command being used. Most commands require little knowledge of TSO and of the Operating System; however, some commands require a greater knowledge of the system. As a general rule, the description of each command requires an understanding of those elements being manipulated by the command.

The publication, IBM System/360 Operating System: Time Sharing Option, Terminal User's Guide, GC28-6763 describes the functions performed by the TSO Command Language.

The publication, IBM System/360 Operating System: Time Sharing Option, Terminals, GC28-6762 describes how to use the terminals supported by TSO.

The major divisions in this book are:

- Introduction
- What You Must Know to Use the Commands
- The Commands
- Command Procedure Statements
- Glossary
- Index

The Introduction describes what the command language is. The section entitled "What You Must Know to Use the Commands" contains general information necessary for the use of every command.

The section entitled "The Commands" contains a description of each command, its operands and its subcommands. Examples are included.

The commands are presented in alphabetical order. Subcommands are presented in alphabetical order following the command to which they apply. A boldface heading on each page identifies the information contained on the page. The boldface headings and alphabetical organization allow you to locate particular commands as you would locate a subject in a dictionary or encyclopedia. The larger boldface headings identify the first pages of the descriptions of commands.

"Command Procedure Statements" describes the statements designed for use in command procedures.

The Glossary contains definitions of terms that appear in the text of this publication.

The "Index" contains the location (page number) where terms and subjects are discussed in the text.

Second Edition (March, 1971)

This is a major revision of, and obsoletes, GC28-6732-0. This publication has been completely rewritten and should be reviewed in its entirety.

This edition, with Technical Newsletters GN28-2480 and GN28-2503, applies to release 20.6 of IBM System/360 Operating System, and to all subsequent releases until otherwise indicated in new editions or Technical Newsletters. Changes are continually made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/360 SRL Newsletter, Order No. GN20-0360, for the editions that are applicable and current.

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SUMMARY OF AMENDMENTS
FOR GC28-6732-1
OS RELEASE 20.6

MODIFY SUBCOMMAND OF OPERATOR

The keyword descriptions have been clarified.

OPERATOR Command
MODIFY Subcommand

Use the MODIFY subcommand to modify the time sharing options that were specified when the system was generated or when time sharing was initiated. The syntax used for this subcommand is the same as the syntax used for MVT operator commands.

SUBCOMMAND	OPERANDS
{MODIFY / F}	[procedure.]identification [,USERS=number ,SUBMIT=(queuesize) ,REGSIZE(n)=(nnnnnK,xxxxxK)... ,DRIVER=(parameters) ,HOLD=(region-list) ,SMF=([OFF / OPT={1 / 2}] [,EXT={YES / NO}])]

procedure
specifies the name of the time sharing procedure that you want to modify. This name must be the same as the one that was used when the procedure was started with a START command issued by the console operator.

identification
specifies the identification of the system task used when the task was defined by a START command issued by the console operator.

USERS=number
indicates the number of users allowed for time sharing. The maximum number is determined at START time and cannot be exceeded by the MODIFY command.

SUBMIT=Queuesize
indicates the maximum number of logical tracks to be used for the queue for conventional batch jobs submitted by the SUBMIT command.

REGSIZE(n)=(nnnnnK,xxxxxK)
indicates the number and size of each time sharing region. 'n' is the region number (included on the informational messages from the DISPLAY command). You specify the size of the region in the form nnnnnK. You specify the local supervisor queue area (LSQA) to be added to the region in the form xxxxxK. The LSQA size must be smaller than the region size, but greater than zero. "nnnnn" and "xxxxx" are the number of 1024 byte areas you want. These numbers may range from one to five digits, but the sum cannot exceed 16382. The numbers should be specified as even numbers. (If you specify an odd number, the system treats it as the next higher even number). LSQA size region must be smaller than the region size, but greater than zero. If the size equals zero the region will be freed. Anytime you use the REGSIZE operand, any users of that region will be logged off.

DRIVER=(parameters)
specifies a parameter list to be passed to the time sharing driver

OPERATOR Command
MODIFY Subcommand

(a component of TSO). For instance, BACKGROUND=value is the only keyword that can be passed to the IBM supplied driver -- it indicates the percentage of system resource time quaranteed for conventional batch processing; however, different parameters may be supplied for user-written drivers.

HOLD=(region-list)
specifies that the time-sharing regions specified in "region-list" are not to be allocated for any new users. If you specify more than one region, then you must separate the regions specified with commas. If you specify only one region, the parentheses are not needed.

SMF=(OFF or OPT=1 or OPT=2, EXT=YES or NO)
indicates which option of the System Management Function (SMF) is to be used for time sharing operations. OFF indicates that SMF is not to be used for time sharing operations. OPT=1 or 2 indicates an option of SMF that is to be used for time sharing operations. EXT indicates that exits to the installation routines are active.

Note: If duplicate keywords are entered in a MODIFY command, the right-most (last entered) keyword and parameters will determine system action. (n) is part of the REGSIZE(n) keyword; therefore, REGSIZE(1) and REGSIZE(2) are not considered duplicate keywords.

You may not specify HOLD and REGSIZE(n) for the same region in one MODIFY command. If you do, the system will request that you either specify the option you prefer, indicate that both keywords are to be ignored for this region, or cancel the MODIFY command.

Example 1

Operation: Change the number of terminals allowed for time sharing operations.

Known: The existing allowable number..... 32
The new number..... 26

```
MODIFY TSO,USERS=26
```

Example 2

Operation: Change the maximum size of time sharing region number 3 from 70K to 100K, with 10K reserved for local supervisor queue area (LSQA).

```
f tso,regsize(3)=(100K,10K)
```

Example 3

Operation: Change the guaranteed background percentage of time to 60%.

```
F TSO,DRIVER=(BACKGROUND=60)
```