



Systems Reference Library

Version 8.1

IBM System/360 Time Sharing System Manager's and Administrator's Guide

This manual describes the special commands that managers and administrators of the IBM System/360 Time Sharing System (TSS/360) use. There are four sections in the book:

- Section 1 introduces the command system as it relates to the job and responsibilities of a system manager or a system administrator.
- Section 2 explains the basics of using the command system and of the command descriptions.
- Section 3 contains the command descriptions, which are in alphabetical order.
- Section 4 is a sample terminal session.

There are two appendixes: one that summarizes the commands that can be used by each privilege class and authorization code, and one that lists format descriptions of commands.

Managers and administrators must be familiar with TSS/360. IBM System/360 Time Sharing System: Concepts and Facilities, GC28-2003, contains an introduction to the system. In addition, they need to know how to operate the terminals that are used with the system. Instructions on operating the IBM 2741 and IBM 1052 terminals are given in IBM System/360 Time Sharing System: Terminal User's Guide, GC28-2017, and IBM 1052 Printer-Keyboard Model 7 with IBM 2150 Console, GA22-6877.



PREFACE

This manual describes the commands that are used by managers and administrators of the IBM System/360 Time Sharing System (TSS/360). There are four sections and two appendixes in the book.

The first section describes the functions performed by the system manager and administrators. The second section explains the format and notation scheme used in the command descriptions and introduces the TSS/360 command system. The third section describes the commands. The fourth section is a sample terminal session.

Appendix A summarizes the facilities of TSS/360 that each privilege class can use. Appendix B contains a summary table of the format illustrations that are described in Section 3.

Effective use of this manual requires an understanding of the IBM System/360 Time Sharing System, as described in IBM System/360 Time Sharing System: Concepts and Facilities, GC28-2003.

Instructions on operating the IBM 2741 and the IBM 1052 terminals in the system are given in IBM System/360 Time Sharing System: Terminal User's Guide, GC28-2017, and IBM 1052 Printer-Keyboard Model 7 with IBM 2150 Console, GA22-6877.

PUBLICATIONS CHECKLIST

In addition to the publications listed above, the following ones are recommended for reference:

IBM System/360 Time Sharing System: Command System User's Guide, GC28-2001

IBM System/360 Time Sharing System: Operator's Guide, GC28-2033

IBM System/360 Time Sharing System: System Programmer's Guide, GC28-2008

IBM System/360 Time Sharing System: System Generation and Maintenance, GC28-2010

Fifth Edition (September 1971)

This is a major revision of, and makes obsolete, GC28-2024-3. This revision incorporates the technical newsletters GN28-3071, GN28-3135, and GN28-3174. This edition describes technical changes in the command system and the new FLOW command.

This edition is current with Version 8, Modification 1, and remains in effect for all subsequent versions or modifications of IBM System/360 Time Sharing System (TSS/360) unless otherwise indicated. Significant changes or additions to this publication will be provided in new editions or Technical Newsletters.

Before using this publication in connection with the operation of IBM systems, refer to the latest edition of IBM System/360 Time Sharing System: Addendum, GC28-2043, for the form numbers of current editions of TSS/360 publications.

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A form is provided at the back of this publication for reader's comments. If the form has been removed, comments may be addressed to IBM Corporation, Time Sharing System/360 Programming Publications, Department 643, Neighborhood Road, Kingston, New York 12401.

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SECTION 1: SYSTEM ADMINISTRATION

A typical IBM System/360 Time Sharing System (TSS/360) installation is composed of a system manager, system administrators, a system operator, system monitors, and users (see Figure 1).

- The system manager has overall responsibility for his installation.
- Each system administrator has responsibility for a group of users, to whom he grants permission to employ the system, and from whom he may withdraw that permission.
- The system operator is responsible for the operation of the computers and their peripheral devices. Although identified as one person to the system, any number of individuals may serve as system operator.
- System monitors maintain the system and analyze its performance.
- Users employ the facilities of the system; normally, they are physically outside the computer installation.

Administration of the system is performed at two levels, that of the system manager and that of one or more system administrators. Basically, system administration involves granting and withdrawing permission to use TSS/360 and handling accounting functions.

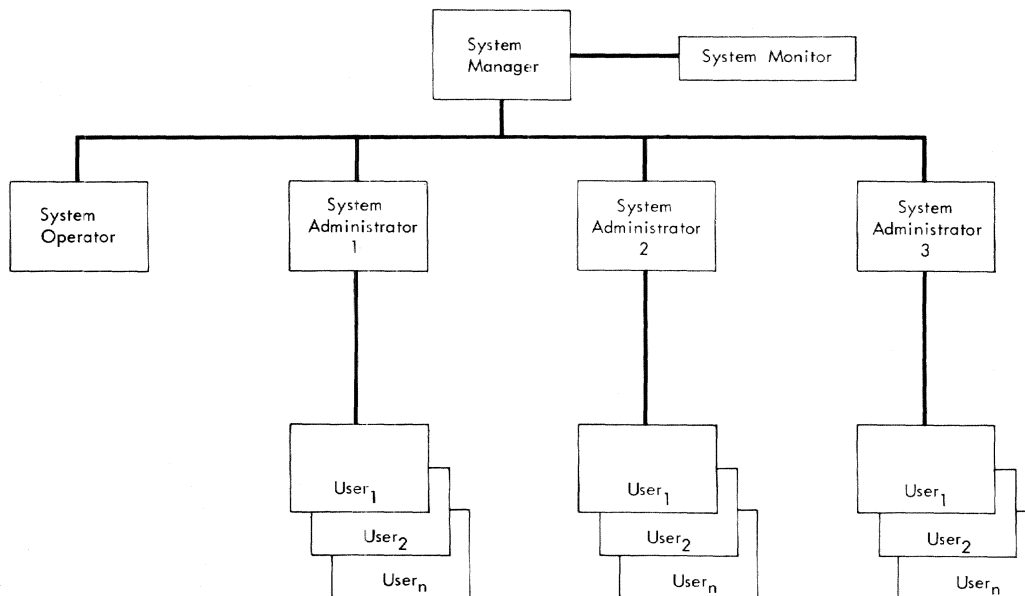


Figure 1. Organization of a typical TSS/360 installation

JOINING TO TSS/360

Before an individual can use TSS/360, he must be identified to the system and given permission to use it; this is called joining. The system manager, the system operator, and a "prejoined" system programmer are joined when the system is built; administrators and users are joined through JOIN commands issued by the system manager or the administrators (see JOIN command description in Section 3). Joining gives an individual permission to use the system and defines his status to the system: his privilege class, priority, authorization, and access to system resources.

Privilege Class

The system facilities available to an individual are determined primarily by his privilege class, which is specified when he is joined to the system. There are five privilege classes in TSS/360, each designating a specified set of command system facilities.

<u>Privilege Class</u>	<u>Individual</u>
F	system manager
B	system administrator
E	system monitor
A	system operator
D	user
T	MTT administrator

Each individual, except the system manager and the system operator, may have additional privilege classes assigned to him to facilitate his use of the system. For example, a system monitor would normally be assigned privilege class D as well as E to provide the full range of facilities he would need to function effectively. (The system facilities available to each privilege class are described in Appendix A.)

Installations may define additional privilege classes to suit their needs; however, such additional classes will not be discussed here. (The methods of defining additional privilege classes to the system is discussed in System Programmer's Guide.)

Priority

When an individual is joined, he is assigned a priority code. This code -- a decimal digit from 0 to 9 -- is applied to his tasks and determines their priority in competing for system resources. The higher the priority (0 is the highest), the less the response time for a conversational task, and the faster the turnaround for a nonconversational task. Individuals can only be issued priority codes 1 through 9; priority code 0 is reserved for the system operator task and bulk I/O. The internal priorities are:

1. Highest -- bulk I/O and operator task
2. Next-highest -- conversational tasks
3. Lowest -- nonconversational tasks

Each installation can assign its own values to the priority codes.

Authorization

Authorization codes apply only to the privilege class D user and are assigned when he is joined. (The facilities available to each authorization code are described in Appendix A.)

<u>Authority</u>	<u>Individual</u>
U	normal user: has no direct access to system programs.
P	system programmer: has access to certain system programs, privileged SVCs, and macro instructions.
O	privileged system programmer: has access to all system programs, privileged SVCs, and macro instructions.

Resource Control

TSS/360 provides for allocation of system resources to those who use the system. When an individual is joined, he is assigned a user limits table that specifies the ration of system resources available to him. These resources are permanent and temporary storage, direct access devices, magnetic-tape devices, printers, card readers and punches, tasks, bulk I/O, connect time, and CPU time. If he exceeds his ration, his task is abnormally terminated.

There are two sets of limits provided by the system: one is intended for the normal user and the other for system personnel. The installation can create other sets of limits (see "Resource Control Facilities" in System Programmer's Guide).

COMMAND SYSTEM FACILITIES

Section 3 describes only the commands that are often used by managers and administrators (see Table 1). In addition, managers and administrators have access to all of the facilities of the command system that are available to all TSS/360 users. These facilities, described in Command System User's Guide, can be used to simplify many of the operations that managers and administrators have to perform. For example, these personnel can (1) create a data set that contains information about all of the people joined to the system, then access, update, and display its contents; or they can (2) build command procedures, composed of system commands, to perform repetitive operations. There are, of course, facilities to write, debug, and execute programs for normal programming needs.

NOTE TO THE SYSTEM MANAGER

Generally, you are responsible for the overall operation of your installation. Your primary functions are to:

- Oversee system generation. The user identification, priority, privilege class, and authority are predefined for the manager, prejoined system programmer, and the operator. However, you must designate the passwords to be used for all three and the charge number for the first two (the charge number for the system operator is predefined). The values set during system build are:

<u>Type</u>	<u>System Manager</u>	<u>System Operator</u>	<u>Prejoined System Programmer</u>
user identification	SYSMANGR	SYSOPER0	TSS
password	[variable]	[variable]	[variable]
charge number	[variable]	SYSOPER0	[variable]
priority	9	0	9
privilege class	F	A	D
authority	P	P	O

Table 1. Basic commands for managers and administrators

Command	Function
CANCEL	Terminate execution of a nonconversational task before its normal end.
DSS?	Obtain status information about cataloged data sets.
EVV	Catalog a private VAM volume.
EXHIBIT	Display batch work queue and active user status.
FLOW	Regulate task processing.
JOIN	Grant system access to a person under one or more privilege classes, with specified user identification, password, charge number, priority, and authorization.
JOINRJE	Add a unique RJE station ID to the acknowledgment data set.
LINE?	Display lines of a line data set.
LOGOFF	Terminate a current conversational task.
LOGON	Identify yourself as a system manager or system administrator, thereby initiating a conversational task.
PC?	Obtain the name and access of cataloged data sets.
QUIT	Deny subsequent access to the system to a person previously joined.
QUITRJE	Remove an RJE station ID from the acknowledgment data set.
REJOIN	Change any characteristics (except user identification) with which a user was joined to the system.
SARD	Display system activity and resources.
USAGE	Obtain accounting data for a user.

- Join system administrators, system monitors, and privileged system programmers after system operation begins. You can also join users and system programmers, although this is usually done by the administrators. The JOIN logic is summarized in Table 2. When joining an administrator, you should make certain that you assign him a user ID that has two unique first characters. When the administrator joins users, the system prefixes the first two characters of the administrator's user ID to every user ID and charge number that he assigns. Thus, all persons in the same administrative group have the same first two characters in their user IDs and charge numbers. This mechanism insures that no administrator can join a user with exactly the same user ID as does another administrator. Figure 2 shows how a group of users is associated with its administrator.
- Alter the characteristics (for example, authority, privilege class, priority) with which any individual (except yourself or the system operator) was joined to the system with the REJOIN command.
- Withdraw permission to use the system by issuing QUIT commands. You can deny permission to use TSS/360 to anyone except yourself and the system operator.

Table 2. Summary of JOIN logic

Privilege Class	Joined at System Generation	Joined by Manager	Joined by Administrator
F (system manager)	X		
A (system operator)	X		
B (system administrator)		X	
E (system monitor)		X	
D (user)		X	X
D (system programmer)		X	X
D (privileged system programmer)	X ¹	X	
T (MTT administrator)		X	X

¹USERID TSS is a privileged system programmer.

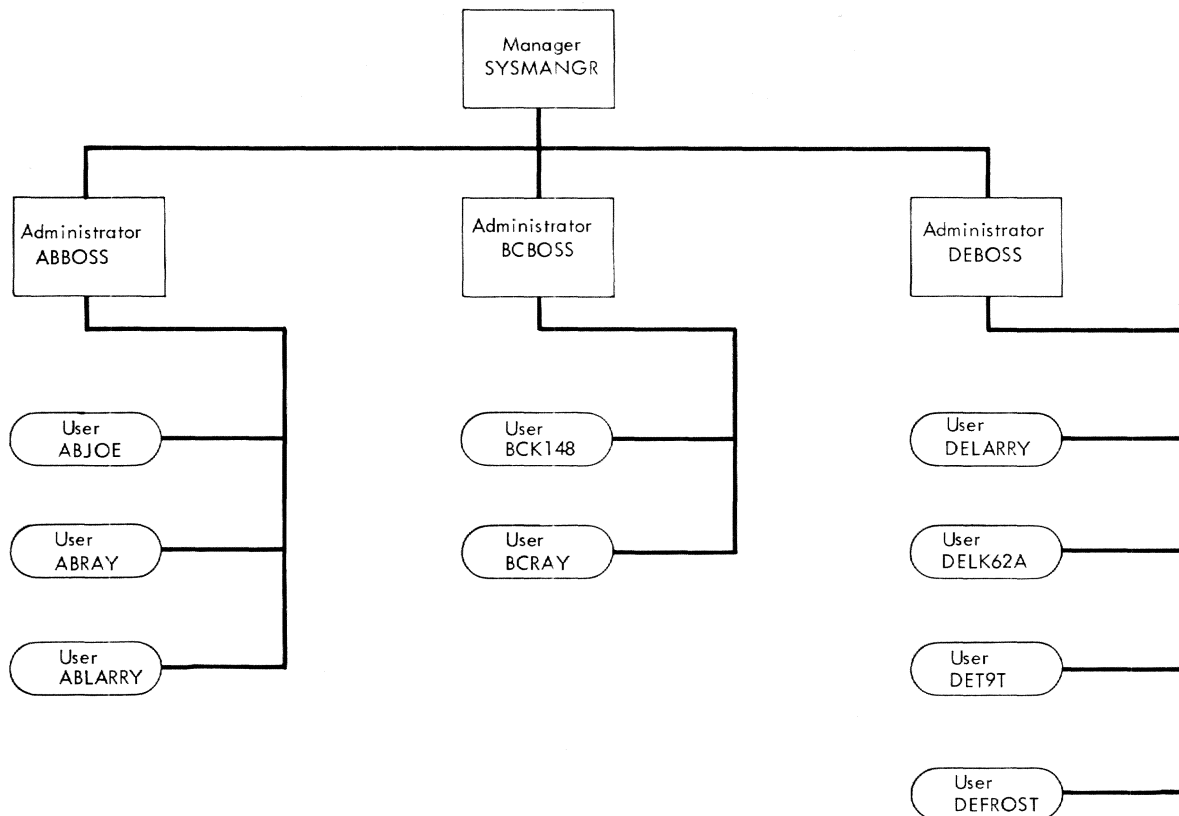


Figure 2. Identification of administrative groups

In addition, you can:

- Regulate the number of active tasks with the FLOW command.
- Terminate any nonconversational task with the CANCEL command.
- Examine accounting information with the USAGE command (see Section 3) or an installation-supplied accounting procedure. The system keeps an accumulated total of accounting information for each combination of user ID and charge number. These accumulated totals can be reset to zero with the USAGE command.
- Gather information about the status of all cataloged data sets in the system with the PC?, DSS?, and LINE? commands.
- Observe system activity with the EXHIBIT command.

NOTE TO THE SYSTEM ADMINISTRATOR

Having been joined to TSS/360 by the system manager, you exercise the authority delegated by him, which includes three primary responsibilities. You can:

- Join persons under your administration to TSS/360 by issuing JOIN commands (see JOIN command description in Section 3). When joining a person, assign him a user ID, charge number, privilege class, priority, authority code, and a ration of system resources. You can assign only privilege class D and either U or P authority (see Table 2).
- Alter the characteristics (for example, authority, privilege class, priority) of any individual you have joined to the system with the REJOIN command.
- Deny access to TSS/360 to any user whom you have joined, by issuing the QUIT command.

In addition, you can:

- Regulate the number of active tasks with the FLOW command.
- Obtain information about the status of cataloged data sets belonging to any user you have joined with the PC?, DSS?, and LINE? commands.
- Terminate any nonconversational task initiated by a user under your administration with the CANCEL command.
- Obtain accounting information for a user under your administration with the USAGE command.
- Observe system activity with the EXHIBIT command.

SECTION 2: USING THE COMMAND SYSTEM

The command system is the principal medium of communication between TSS/360 and its users. Commands that are reserved for your use are described in Section 3. The facilities of the command system that are available to all users (and therefore available to you) are described in Command System User's Guide.

COMMAND FORMAT AND NOTATION

The basic format of a command is:

Operation	Operand
command name	one or more operands, delimited by commas or tabs; field may be blank

The operation field contains a command name, such as JOIN or CANCEL, that identifies the command and its requested action. The command name may not exceed eight characters or contain embedded blanks. The operand field, which is separated from the operation field by one or more blanks or a tab character, contains any information required by the command.

While the operation field specifies the action to be performed, the operand field indicates the elements upon which the command is to act. The operand field may be blank or may contain several operands, depending on the requirements of the operation. When you specify more than one operand in the operand field, the operands must be separated by commas or tab characters. Blanks between operands will be ignored by the system.

Note: Commas are used as operand separators in the examples throughout this publication.

Command Statement

A command comprises an operation and operands (although there may not be an operand). A command statement is one command, or a series of commands, that the system recognizes as one SYSIN record. At the terminal keyboard, you will normally write one command statement on a line. If a command statement is longer than one line, use a hyphen as the last character on the line and continue the command statement on the next line. When a command statement contains more than one command, you must separate the commands with semicolons. You may add a comment clause, in the form of a quoted string, which must be separated from each command with a semicolon. A comment has no effect on execution.

Following are examples of command statements. (The system ignores the spaces that follow the semicolon.)

1. cancel 109; 'eliminate user task'
2. pc? userresu; 'examine his data sets'; logoff
3. usage

Specifying Operands

You can specify command operands in two ways: by position and by keyword. The system can determine the value of an operand from the position of the operand in a series of operands or from the descriptive keyword preceding the operand value.

Positional Notation: When using positional notation, you must supply the operands in the order shown in the format illustrations. If a positional operand is omitted, and another positional operand follows the omission, you must specify the separator that would have followed the omitted operand. This indicates the relative position of the included operand. If you omit an operand, and no operands follow the omission, the separators indicating the omission are not required.

For example, positional operands a, b, and c could be written in any of these ways:

a,b,c a,,c a,b a ,b,c ,b ,,c (blank)

Keyword Notation: Keyword operands have the general form KEYWORD=value and may be specified in any order. KEYWORD is the name of the operand and is shown in uppercase letters in the format illustration; value is the value of the operand. Value is what you specify for the operand in positional notation. Separators are not required to indicate omitted keyword operands.

Keyword and positional notation may be used in the same operand field, but you must specify positional operands in the correct position; keyword operands can appear in any order. You could, for example, specify operands X=a, Y=b and Z=c as:

X=a,b,c X=a,,c a,Z=c Y=b Y=b,X=a

There are more ways of entering these operands than are shown in these examples. If one operand is expressed both positionally and by keyword, the system assumes the last specification as the value. For example, using the operands X=a, Y=b, Z=c:

X=a,b,c,Y=d

the value for the second positional operand is assumed to be "d".

Note: All keyword operands may be specified positionally -- according to the position in which they are shown in the command format illustrations. The opposite is not true, however; operands shown without keywords can only be specified positionally.

Format Illustrations

The notational conventions below are used in the command format illustrations to indicate how the command's operands are to be written.

Metasymbols: To make the operands in the format illustrations clear, four metasymbols will be used:

<u>Name</u>	<u>Symbol</u>	<u>Use</u>
braces	{ }	delimit syntactical units (one or more operands) that may be repeated; delimit alternatives.
brackets	[]	delimit optional names and/or operands in the appropriate fields.
vertical stroke		represents "exclusive or" and separates alternative representations of operands; for example, {A B}

denotes that, for the syntactical unit enclosed by the braces, either A or B may be chosen, but not both. {A|B|C} denotes that a choice may be made between A, B, or C. Alternatives may also be indicated by aligning the choices vertically within the braces:

$$\left. \begin{array}{l} \{A\} \\ \{B\} \end{array} \right\}$$

ellipsis ... indicates that the preceding syntactical unit may be repeated one or more times. If there is a system limit to the number of repetitions permitted, this will be given in the operand list that follows the format illustration.

Operation Format: To distinguish command names in the format illustrations, uppercase letters are used. You may enter command names in uppercase or lowercase letters, depending on the mode of input. In folded mode (that is, uppercase letters and lowercase letters are equivalent) both can be used. Unless otherwise specified, this is the normal mode of input. In full EBCDIC mode (that is, uppercase and lowercase letters are differentiated by the system), command names must be entered in uppercase letters. Changing the input mode is described in Command System User's Guide.

Operand Format: In the operand field of the format illustration, the word or phrase that will be used to identify each operand is written entirely in lowercase letters. For positional operands, the keyword (to the left of the equal sign) is in uppercase letters, and the keyword descriptor (to the right of the equal sign) is in lowercase letters.

Coded Value: This character or string of characters must be written as shown in the format illustration. Coded values always appear as numbers or uppercase letters, either to the right of the equal sign or alone.

The comma, period, and parentheses have special significance in format illustrations. You must write commas (or, optionally, tab characters) to separate operands, or to show the omission of positional operands, unless no other operand follows the omission. Parentheses and periods must be written as shown in the illustrations.

Operand Descriptions: Information about writing each operand is given in a list following every format illustration. Operand descriptions contain information under the headings "Specified as," which describes the valid specifications for the operand, and "System Default," where applicable, which describes the system action if the operand is omitted. System default is not shown if the system's default value is null.

Function and Use: Following the operand description, the command is discussed under the headings "Functional Description," "Programming Notes," and "Cautions."

"Functional Description" explains the action taken by the system when the command is received. "Programming Notes" contains information on how to use the command; if none of this information is pertinent to the command, the heading is omitted. "Cautions" are statements of warning about difficulties you may have in using the command. Cautions will appear only where applicable. Examples of command usage follow the command descriptions.

Terms

These special terms are used in the command descriptions.

batch sequence number (BSN)

the identifying number assigned by the system to each nonconversa-

tional task. It consists of four decimal digits, including leading zeros if necessary. (For example, 0123.)

charge number

the account number assigned to an individual. It consists of three to eight alphameric characters, the first of which must be alphabetic.

data set name

the name used to identify a data set. It consists of one or more simple names, each simple name having one to eight alphameric characters, the first of which must be alphabetic (unless it is a System/360 Operating System data set name, that is, *A.B.C). A period is used as the separator between simple names. Examples of valid data set names are:

GOAT
GOAT.WINNER9
GOAT.RALPHR.S66.P1.A

The maximum number of characters, including periods, is 35. Thus, the maximum number of simple names is 18.

Fully qualified data set name identifies one specific data set. It includes all simple names (that is, qualifiers) of that data set name.

Partially qualified data set name identifies two or more data sets by omitting the rightmost simple names of their fully qualified data set names. For example, the partially qualified data set name G0.AB14 identifies data sets G0.AB14.P1 and G0.AB.14.P2.

password

a special identifier, assigned when an individual is joined to the system, that authenticates an individual to the system.

system default

the value that the system or user assigns to an optional operand that has been omitted.

user identification (USERID)

an identifier, assigned when an individual is joined, that identifies him to the system when he logs on.

volume identification (volume ID)

the identification assigned to a specific volume. The identification consists of from one to six alphameric characters.

COMMUNICATING WITH THE SYSTEM

There are two ways to communicate with TSS/360. By entering command statements at the terminal keyboard or the terminal card reader, you remain online to the system and engage in a dialog with it. Your part of the dialog is the command statements that you enter and your replies to the system's messages. The system's part is its messages to you, its responses to your commands, and its requests for more commands. This type of communication is called conversational.

When there is no need for this dialog with the system, command statements can be submitted on cards at the installation for execution without your monitoring. This type of communication is called nonconversational.

Before you can communicate with the system, it must be started by the operator, and you must be joined; then, your task can be initiated.

Conversational Mode

To begin a conversational task, turn on the terminal and dial the system (see Terminal User's Guide). Enter the LOGON command. After the system validates your LOGON command, it prompts you for a command.

Request for Command Statement: The system prompts you for a command by printing an underscore in the first character position of a new line and then backspacing, so that the first character you enter is over the underscore. The system prompts for a command at the keyboard even when you are using the 1056 Card Reader.

Entering Command Statements: Command statements may be entered from the terminal keyboard or the card reader. Command statements may be entered at the keyboard in either uppercase or lowercase letters (see "Command Format and Notation," above). To end a command statement entered at the keyboard, press the RETURN key.

If a statement requires more than one line, type a hyphen at the end of the line and press the RETURN key. The hyphen signals that the statement is not complete and will be continued on the next line.

If you want to cancel a line and the RETURN key has not been pressed, type the line-kill character (#) at the end of the line, and press the RETURN key. To cancel a character or series of characters before the RETURN key has been pressed, backspace over the characters (thereby erasing them from the transmission line, although they still appear at the terminal), type in replacement characters, if any, and press the RETURN key. (You can manually turn the typewriter roller to better see your corrections; turning the roller has no effect on the transmission.)

Once the RETURN key has been pressed, a command statement can be canceled only by pressing the ATTENTION key. In general (exceptions are noted in the individual command descriptions), a command that is being executed can be canceled. The system will respond with an exclamation point (!), an asterisk (*), or an underscore(_). If you respond with the ABEND command, the interrupted command is canceled. A GO command or RETURN key response causes execution of the interrupted command to be resumed.

Command statements entered from the terminal card reader are not restricted to particular card fields. The 11-5-9 punch following the operands denotes end of block (EOB) for command statements. For statements longer than 80 characters, with the terminal EOB switch on, the continuation character can appear in any available column. If the EOB switch is off, the continuation character is not needed unless the statement exceeds 260 characters.

Task Execution: During execution of your task, the system will issue two types of messages:

- Information messages ask for information if a mandatory operand has been omitted or provide information about the actions of the system in executing a command statement.
- Diagnostic messages warn you of errors in entering a command name or operands; some messages request you to correct the error.

Each command statement is analyzed to determine if it is valid. If it is, the system performs the actions requested by the statement before prompting you to enter the next command. If a command is not valid, the system issues a diagnostic message.

For more information about conversational tasks, see Command System User's Guide.

Task Termination: To end your task, enter the LOGOFF command. The system will issue a message that you have successfully logged off.

Nonconversational Mode

This mode of operation is most useful for tasks that do not require your presence at the terminal to resolve problems that may arise during task execution. Your command statements to direct the system must be furnished in a complete sequence, called a nonconversational SYSIN data set, and must be submitted at the computer installation. For information about nonconversational SYSIN data sets, see Section 1 of Part II in Command System User's Guide.

All of the commands described in Command System User's Guide are available to all TSS users. The commands described in this section are more often used by the manager and administrators.

The commands are presented in alphabetical order, using the format and notation described in Section 2. The symbol ► in the left-hand margin beside the command name will help you locate a command on a page. Appendix B presents the formats of the commands.

The system manager uses the same commands as do the system administrators, but he is allowed to join and quit system administrators and may assign class B and class E privileges. He is also allowed to monitor any user in TSS/360, not just those he has joined.

► CANCEL Command

This command eliminates a nonconversational task that is either awaiting execution or being executed. The system administrator can cancel only his own nonconversational tasks and those of a user he has joined. The system manager can cancel any nonconversational task.

Operation	Operand
CANCEL	BSN=batch sequence number

BSN

identifies the nonconversational task to be canceled.

Specified as: the one-digit to four-digit batch sequence number assigned by the system when the task was established.

Functional Description: When a task is canceled during execution, the devices reserved for its use are released and the pages of storage it was using are freed. The SYSOUT, although probably incomplete, will be printed and will include a message giving the reason for task termination.

If the task was completed before the CANCEL command was issued, a message to that effect will be issued. A task that is canceled before execution starts has no SYSOUT and receives no explicit sign of cancelation.

The manager or administrator will be informed if the task designated by the BSN cannot be found.

Programming Notes: The manager or administrator can cancel nonconversational tasks that are waiting for task space or being executed. He can obtain the batch sequence number from the system operator or the person who initiated the task.

Example: The system administrator wants to cancel a task with batch sequence number 3946.

Administrator: cancel 3946

System: (cancels task)

► DSS? Command

This command presents the status of one or more cataloged data sets. The system administrator can present the status of his own data sets and those belonging to any user he has joined. The system manager can present the status of any cataloged data set.

Operation	Operand
DSS?	[NAMES = { data set name (data set name[,...]) }] [, USERID = user identification]

NAMES

identifies one or more cataloged data sets for which status information is to be presented.

Specified as: one or more fully or partially qualified data set names. When two or more names are specified, they must be enclosed in parentheses.

System Default: the status of every data set in the specified user's catalog will be presented.

USERID

identifies the user whose data sets are to be presented.

Specified as: the user's three- to eight-character user identification.

System Default: the manager's or administrator's own user identification is assumed.

Functional Description: The system provides this information about each data set requested:

1. Sharing status -- indicates the user identification of each sharer and shows his access to the data set as read-only, read/write, or unlimited. If a partially qualified data set name was specified, the sharing information for that index level of the catalog will be given.
2. Ownership -- if the data set is owned by someone else, the user identification of that owner will be given, together with this user's access to the data set.
3. Volume and device -- indicates the number of each volume on which the data set resides and the type of device. For a direct access device, the types are 2311, 2314, and 2301. For a tape device, the types are nine-track and seven-track with data conversion, and seven-track without data conversion.
4. Organization -- indicates the type of data set organization, such as physical sequential (BSAM), virtual sequential (VSAM), virtual index sequential (VISAM), or virtual partitioned (VPAM).
5. Last usage -- indicates for a VISAM, VSAM, or VPAM data set the day (1-366) and year last used.
6. Length -- indicates for a VISAM, VSAM, or VPAM data set the length in pages.

7. Record format and length -- indicates (except for VPAM data sets) whether record format is fixed length, variable length, or undefined, and gives record length.
8. Key length and relative position -- indicates for a VISAM data set the length of the key and its relative position within a record.

If a partially qualified data set name is specified, the status of each data set, with the specified qualifiers, is presented.

In conversational tasks, the information is presented at the manager's or administrator's terminal; he can terminate the presentation at any time by pressing the ATTENTION key. In nonconversational tasks, the information is recorded on SYSOUT.

Programming Notes: The PC? command can be used for a briefer description of cataloged data sets.

Examples:

1. The administrator wants to present the status of data set JADA5 of user JOEY.

Administrator: dss? userid=joey,names=jada5

System: (presents status information)

2. The administrator wants to present the status of data sets RE.TYPE, RE.LIF, and RE.KNB, which belong to user RALPH.

Administrator: dss? re,ralph

System: (presents status information for RE.TYPE, RE.LIF, and RE.KNB)

3. The manager wants to present the status of all his data sets.

Manager: dss?

System: (presents status information)

▶ EVV Command

This command catalogs private VAM volumes, by volume.

Operation	Operand
EVV	DEVICE=device type,VOLUME=(volume serial number[,...]) ,USERID=user identification

DEVICE

specifies the type of direct access device on which the VAM volume is mounted.

Specified as: 2311 or 2314

VOLUME

identifies the volume or volumes to be processed.

Specified as: a one-digit to six-digit volume serial number for each volume. The volume serial numbers are all enclosed in one pair of parentheses.

USERID

specifies an eight-character user identification that indicates in which catalog to make the volume entry.

Specified as: eight characters, the first of which is alphabetic. When the USERID is not a full eight characters, it must be padded on the right with asterisks (*).

Functional Description: EVV catalogs all data sets on the specified volumes in the catalog specified by the USERID option. If the USERID option is not specified, all data sets on the volume will be cataloged according to the owner's USERID. EVV does not open the data sets for processing.

Programming Notes: EVV allows the system manager or administrator to enter VAM data sets created under TSS/360 installations into a user's catalog at the current installation.

Example: You want to enter data sets from three private volumes into the catalog of user AMYB1:

```
evv 2311,(111500,111501,111502),amyb1***
```

EXHIBIT Command

This command tabulates and displays the status of the batch work queue (BWQ) or the status of each active user task (UID).

Operation	Operand
EXHIBIT	OPTION= { UID [,TYPE= { ALL CONV BACK UID.userid }] [,FORM= { LONG SHORT }] BWQ [,TYPE= { ALL UID.userid BSN.number PRINT PUNCH TAPE EXEC RJE }] }

OPTION

specifies whether to display batch work queue (BWQ) activity or active user task (UID) status.

Specified as:

BWQ -- batch work queue activity.

UID -- active user status.

TYPE

specifies the data to be displayed.

Specified for UID as:

ALL -- All active user tasks are displayed.
CONV -- All conversational tasks are displayed.
BACK -- All nonconversational tasks are displayed.
UID.userid -- Tasks for the specified userid are displayed.

System Default: ALL.

Specified for BWQ as:

ALL -- BWQ entries are shown.
UID.userid -- All BWQ entries for the specified user identification are shown. Specified as a one-character to six-character user identification.
BSN.number -- The specified BWQ entry is shown. Specified as a decimal number from 257 to 9999.
PRINT -- BWQ entries for print jobs are shown.
PUNCH -- BWQ entries for punch jobs are shown.
TAPE -- BWQ entries for tape jobs are shown.
EXEC -- BWQ entries for execute jobs are shown.
RJE -- BWQ entries for remote jobs are shown.

System Default: ALL.

FORM

specifies the fields to be displayed for OPTION=UID:

Specified as:

LONG -- All fields of the UID exhibit are displayed.
SHORT -- Only the first four fields of the UID exhibit are displayed.

System Default: LONG.

CAUTION: This operand does not have the same meaning as the FORM operand on the PRINT and PUNCH commands. Therefore, be careful when you enter a specific value for FORM in your user profile.

Functional Description: EXHIBIT displays BWQ or active user status information. For OPTION=UID, the following information is displayed.

USERID
TASKID (TID) -- The task number assigned to the task.
CONV or BACK -- Mode of operation: CONV=conversational; BACK=background.
SDA or BSN -- For CONV, the symbolic device address of SYSIN/SYSOUT.
For BACK, the batch sequence number.
TIMEON -- Time of task logon.
TSTOR -- The number of temporary public pages assigned to the task.
DSK -- Number of direct access devices for the task.
PRT -- Number of printers for the task.
RDR/PUN -- Number of reader/punches for the task.
TAPE -- Number of tapes for the task.

For OPTION=BWQ, the following information is displayed:

BSN -- batch sequence number.
USERID
TASKID
TYPE -- PRINT, EXECUTE, PUNCH, RTAPE or WTAPE.
STAT -- Specifies if the job is the following: A, active; P, awaiting execution; C, canceled; S, shutdown. If the ERASE option was specified for the job, the symbol E is appended to the START symbol. P/E indicates a pending job with erase specified.
DEV -- Device type required.
STAID -- Station identification for an RJE device.
DSNAME -- The data set involved in batch processing.

Examples:

1. Display the status of all active users in the long form. (Note defaults.)

exhibit option=uid

```
USERID    TID  CONV/  SDA/  TIMEON  TSTOR  DSK  PRT  RDR/  TAPE
          BACK  BSN
USERID01  56  BACK   259   10:15  00598   1   1    1    1
```

2. Display the status of all active users in the short form.

exhibit option=uid,form=short

```
USERID    TID  TYPE  SYSI  .....(maximum of five entries per line)
USERID01  56  CONV  98
```

3. Display batch work queue status.

exhibit option=bwq

```
BSN  USERID    TID  TYPE  STAT  DEV  STAID    DSNAME
262  USERID03  57   LIST  A/E   U/R  RJESTA01  DSNAME1
```

► FLOW Command

This command allows the system manager and administrator to regulate and display the number of tasks that the system will process at one time.

Operation	Operand
FLOW	[BATCH=batch task limit][,CONV=conversational task limit][,BACK=background task limit][,BULKIO=Y N][,MTT=mtt administrator limit][,APP=(mtt application name, relative application number,application user limit),...]

BATCH

specifies the maximum number of batch jobs that the system will process at one time.

Specified as: a decimal number from 0 to 255. If 0 is specified, the system will not allow initiation of further batch tasks. Batch tasks currently processing will run to completion; new requests will be placed on the batch work queue, but will not be dispatched until FLOW is reentered with the BATCH operand set greater than 0.

System Default: Batch activity is not affected.

CONV

specifies the number of conversational jobs that the system will process at one time.

Specified as: a decimal number from 0 to 255. If the value is 0, the system will not allow new tasks to log on; tasks currently in progress are not affected. To resume conversational task initiation, the FLOW command is entered with CONV set greater than 0.

System Default: Conversational activity is not affected.

Note: If a conversational task is abnormally terminated, a new task is created regardless of the conversational limit.

MTT administrators are included in the count of conversational tasks.

BACK

specifies the number of background tasks, initiated by the BACK command, that may process at one time.

Specified as: a decimal number from 0 to 255. If 0 is specified, the system will not initiate further BACK tasks. Those in execution will run to completion; new BACK jobs will continue to be placed on the batch work queue, but will not be dispatched. To resume processing of BACK tasks, enter the FLOW command with BACK set greater than 0.

System Default: BACK task initiation is not affected.

BULKIO

specifies whether new BULKIO jobs will be initiated.

Specified as:

Y - initiate BULKIO jobs.

N - stop initiation of BULKIO jobs.

System Default: BULKIO activity is not affected.

MTT

specifies the number of MTT administrators (or tasks) that the system will process at one time.

Specified as: a decimal number from 0 to 255. If 0 is specified, the system will not allow further MTT administrator tasks to be initiated.

System Default: The MTT administrator limit is not affected.

APP

specifies the number of terminals that can use the specified application program.

Specified as: an MTT application name followed by a comma, the relative application number, a comma and the number of terminals that can process that application program. The application name is a one-character to eight-character alphanumeric name of an MTT application program. The number of terminals is specified as a decimal number from 0 to 255. The relative application number is a decimal number from 1 to 255. It is assigned by the system when the application program is created.

System Default: The state of application program execution is not affected.

Note: Parentheses must enclose each "name-number" pair used in the operand field.

Functional Description: The FLOW command regulates task processing according to the parameters specified. Each specified value becomes the limit of the associated task-type until a further FLOW command is entered to change the values.

When the FLOW command is entered with no operands, the system displays the status of job initiation. The following data is displayed for each task type:

- The current number of tasks in execution.
- The current limit.
- The maximum number of tasks allowed, which is specified at SYSGEN (via the TSKLMT macro instruction).

Caution: Each limit specified in the FLOW command is compared against the maximum limit specified at SYSGEN. If the value specified in the FLOW command is higher, the existing limit remains unchanged and an error message is displayed.

Examples:

1. The manager or administrator wants to see the current status of system tasks:

Manager/Administrator: FLOW

System: BATCH=aaa,bbb,ccc;CONV=aaa,bbb,ccc;
 BULKIO=YES;MTT=aaa,bbb,ccc;
 mttapp1,001=ddd,eee,fff;mttapp2,002=ddd,eee,fff;...
 mttappn,nnn=ddd,eee,fff

where:

aaa=the number of tasks currently executing.

bbb=the current task limit.

ccc=maximum number of tasks specified at SYSGEN.

ddd=the current number of users connected to this application program.

eee=the current user limit for this application.

fff=the maximum number of tasks, specified by the MTT administrator, for this application.

mttappn=the application name.

002 = the relative application number.

2. The manager or administrator wants to allow only 5 background (see the BACK command) jobs and 15 conversational tasks:

Manager/Administrator: FLOW CONV=15,BACK=5

System: (sets limits for CONV and BACK)

► JOIN Command

The system manager or administrator uses this command to grant a person under his administration access to TSS/360.

Operation	Operand
JOIN	USERID=user identification[,PASSWORD=identifier], CHARGE=charge number[,PRIORITY=priority] [,PRIV=(privilege[,...])][,AUTH=authority] [,RATION=key][,BATCH={Y N}][,RJE={Y N}]

USERID

specifies the user identification to be assigned to the person being joined.

Specified as:

by system administrator -- from one to six alphameric characters (to which the system prefixes the first two characters of the administrator's user identification);

by system manager -- from three to eight alphameric characters, the first of which is alphabetic.

PASSWORD

specifies the password to be used by the person being joined.

Specified as: from one to eight alphameric or special characters available at the terminal (except tab, comma, backspace, percent sign, equal sign, and right and left parentheses). A quoted string of from one to eight blanks results in a password of all blanks, in which case the user has no password. Therefore, no password verification is performed.

System Default: no password verification will be performed by the LOGON command.

CHARGE

specifies the billing account number that is to be used by the person being joined.

Specified as: from one to six alphameric characters (to which the system prefixes the first two characters of the person's user identification).

PRIORITY

specifies the priority to be assigned to the task of the person being joined.

Specified as: a one-digit numeric code from 0 to 9; 9 is the lowest priority and 0 is the highest.

System Default: the person is assigned the priority value established during system generation.

PRIV

identifies the privilege classes assigned to the person being joined.

Specified as: one or more alphabetic characters. The system administrator may assign any privilege classes except A, B, E, and F. The system manager may assign any privilege classes except A and F.

System Default: the person is assigned the privilege class established during system generation.

AUTH

identifies the authorization assigned to the person being joined.

Specified as:

U -- normal authorization.

- P -- system programmer authorization (has access to certain parts of the system and to certain privileged SVCs and macro instructions).
- O -- privileged system programmer authorization (has access to all parts of system and to all SVCs and macro instructions). This authority code can be specified only by the system manager.

System Default: the person is assigned the default authorization established during system generation.

Note: The AUTH operand has meaning only if PRIV=D.

RATION

determines the resource limits imposed on the user.

Specified as: a one-digit numeric code from 1 to 9. Ration values are defined in System Programmer's Guide under "Installation Accounting Routines."

System default: 2.

Note: Other RATION values are possible; see the System Programmer's Guide for information on the "User Limits Table."

BATCH

specifies whether the user wants to be able to enter nonconversational SYSIN data sets via the BULKIO input facility.

Specified as:

Y -- yes.

N -- no.

System Default: N.

RJE

specifies whether the user is allowed to enter PRINT commands to any RJE station.

Specified as:

Y -- yes.

N -- no.

System Default: N.

Functional Description: JOIN grants access to TSS/360 and establishes the values (user identification, password, and charge number) required to log on and execute tasks. Restrictions (privilege classes, authorization, and resource ration) on the user are also assigned at this time and are used by system programs to retain the system's integrity.

The user identification entered by the system administrator is automatically prefixed with the first two characters of the administrator's user ID to form the full user ID. The user ID entered by the system manager is a full user ID and is not prefixed.

Programming Notes: The manager must be sure, when joining system administrators, that the first two characters of each administrator's user ID are unique. Similarly, when joining users, the manager must be sure that their user IDs are unique within the system, and that the first two characters of their user IDs are not the same as those

assigned to an administrator. Should the manager unintentionally assign two or more administrators user IDs that have the same first two characters or the same first two characters as does his own user ID, these administrators could use such commands as DSS?, LINE?, and PC? to obtain data for users joined by one another (or by the system manager). This is possible because, for security purposes, some command routines check the first two characters of the specified user's ID to see that they match those of the administrator issuing the command; this precaution provides adequate security only if each administrator's user ID is unique with regard to the first two characters.

Examples:

1. A system administrator wants to join user FRANK with password YOURS, priority 5, and charge number CHARG. He wants default values assigned for the other operands -- assume the installation-assigned defaults for privilege and authority are D and U. The administrator's user ID is AXSYS1.

Administrator: join userid=frank,password=yours,charge=charg,priority=5

System: (joins the user, with user identification AXFRANK, password YOURS, charge number AXCHARG, priority 5, authority U, privilege D, ration 2, and batch N)

2. The system manager wants to join system administrator ADSYS5 with password PASSW, charge number ADSS, priority 8, authority P, privilege B, ration 1, and batch N.

Manager: join adsys5,passw,adss,8,b,p,1

System: (joins administrator with user identification ADSYS5, password PASSW, charge number ADADSS, priority 8, authority P, privilege B, ration 1, and batch N)

► JOINRJE Command

The system manager or administrator uses this command to grant a new RJE station access to the system. JOINRJE adds a unique RJE station ID to the validation data set that is a member of the acknowledgment data set (ACK).

Operation	Operand
JOINRJE	STATION=station name[,TYPE=station type] [,MRF={Y N}][,TAB={Y N}][,BRK={Y N}] [,REC={Y N}]

STATION

specifies the unique RJE name of the station to be added to the system.

Specified as: a unique name of from three to eight alphameric characters. The first character must be alphabetic.

TYPE

specifies the type of RJE station.

Specified as: The model number of the station (for example, 2780).

System Default: 2780.

MRF

specifies whether the station has the Multiple Record Transmission Feature (on a 2780 station).

Specified as:

Y -- feature is present.

N -- feature is not present.

System Default: N.

TAB

specifies whether the station (2780 only) has the Printer Horizontal Format Control Feature.

Specified as:

Y -- feature is present.

N -- feature is not present.

System Default: N.

BRK

specifies whether the station is to receive the print output separation characters.

Specified as:

Y -- station wants print output separation characters.

N -- station does not want print output separation characters.

System Default: N.

REC

specifies whether PRINT output can be directed to this station.

Specified as:

Y -- PRINT output can be directed to this station.

N -- only print output from this station, the system manager, the system administrator, or the system operator will be received at this station.

System Default: Y.

Functional Description: JOINRJE provides a basis for validating station IDs submitted on RJSTART cards; it establishes a logical link to the current location of the station ID.

JOINRJE adds the station name to the validation data set, a member of the Acknowledgement Data Set (TSS****.RJEACK). Also, JOINRJE can be used as a "rejoin" function: It can be issued, without a prior QUITRJE command, to change the characteristics of the RJE station ID. If the command is used to change the characteristics of an existing station, the system will prompt the manager or administrator to see if he really wants to change this station ID (just in case the manager or administrator inadvertently entered the wrong ID with the JOINRJE command). These changes will not be effective, if the station is currently active, until it issues an RJEND and an RJSTART.

Note: The Multiple Record Transmission Feature, Printer Horizontal Format Control Feature, and print output separation characters are described in Remote Job Entry, GC28-2057.

After the JOINRJE command is entered, the system will display the characteristics of the station. If they are not as intended, the manager or administrator will have to reenter the command.

Examples:

1. The manager or administrator wants to join RJE station ABC123 to the time-sharing system; this station is a 2780 having both the Multiple Record Transmission Feature and the Printer Horizontal Format Control Feature. The station does not want the print output separation characters, nor does it want print output directed to it from less discriminating stations. (Note defaults.)

Administrator: joinrje abc123,,y,y,,n

System: (joins station ABC123)

2. The manager or administrator now wants to change the characteristics of station ABC123 so that it can have the print output separation characters:

Administrator: joinrje abc123,brk=y

System: (tells the administrator that the station already exists; asks him if he wants to change its characteristics)

Administrator: Y

System: (changes the BRK characteristic for station abc123)

▶ LINE? Command

This command presents one or more lines from a line data set to SYS-OUT. The system administrator can display only his own line data sets and those belonging to a user he has joined. The system manager can display all line data sets.

Operation	Operand
LINE?	DSNAME=data set name
	[, { line number (first line number, last line number) } [, ...]]

Note: Only DSNAME may be specified in keyword notation.

DSNAME

identifies a cataloged line data set from which a line is to be displayed.

Specified as: the user identification of the data set owner, immediately followed by a period and a fully qualified data set name. The administrator can specify only a user ID with the same first two characters as his own; the manager or administrator must specify his own user ID when displaying his own data set.

line number

identifies a single line to be displayed.

Specified as: a one- to seven-digit decimal number.

System Default: if the "first line number,last line number" operand is specified, that range of lines is displayed; otherwise, the entire contents of the data set are displayed.

first line number,last line number
identifies a range of lines to be displayed.

Specified as: two one- to seven-digit decimal numbers, separated by a comma, and enclosed in parentheses.

System Default: if the "line number" operand is specified, that line is displayed; otherwise, the entire contents of the data set are displayed.

Functional Description: When a line number or a beginning-of-range line number is specified that does not exist, but is within the bounds of the data set, the next-higher line is presented.

If the line number is greater than the highest line number in the data set (or lower than the lowest), the manager or administrator is informed of the highest (lowest) line.

If a range of line numbers is specified that overlaps the boundaries of the data set, all lines in the data set within the specified range are presented. If the range overlaps the end of the data set, the manager or administrator is informed when the end of the data set is reached.

Format of output for line data set:

<u>Byte Position</u>	<u>Contents</u>
1-7	line number
8	blank if line was created from terminal keyboard; C if line was created from card reader
9	text

Format of output for language processor listing data set:

<u>Byte Position</u>	<u>Contents</u>
1-130	text (record positions 2 through 131)

Caution: In the specification of a range of line numbers, the beginning-of-range line number must be less than or equal to the end-of-range line number. A maximum of ten line-number ranges can be specified in a single execution.

Programming Notes: In conversational mode, presentation can be terminated at any point by pressing the ATTENTION key.

Examples:

1. Administrator AXSYS wants lines 800 through 1100 and line 1400 of his data set NAM3 to be presented.

User: line? axsys.nam3, (800,1100), 1400
System: (presents lines 800-1100 and 1400)

- Administrator AXSYS wants lines 900 through 2400 and lines 4400 through 16000 of member AB1 of VPAM data set REPLAY to be presented. REPLAY belongs to user AXJOE.

User: line? axjoe,replay (ab1), (900, 2400), (4400, 16000)
System: (presents lines 900-2400 and 4400-16000)

- The system manager wants his entire data set, LIST.PLAYER, to be presented.

User: line? sysmangr.list.player
System: (presents contents of entire data set)

► LOGOFF Command

This command notifies the system that the manager or administrator wants to end his task.

Operation	Operand
LOGOFF	

Note: There are no operands.

Functional Description: LOGOFF removes the manager's or administrator's task from the system and releases any I/O devices used by the task. He will be asked for the disposition of any uncataloged physical sequential data sets (see Command System User's Guide).

Programming Notes: LOGOFF must be the last command in every task. If no LOGOFF appears at the end of a nonconversational task, a diagnostic message is issued and the task is terminated. If no LOGOFF appears at the end of a conversational task, the task will not be terminated.

Example: The administrator wants to end his task.

Administrator: logoff
System: (terminates task)

► LOGON Command

This command validates the user to the system and creates the environment in which he may operate.

Operation	Operand
LOGON	user identification[,password][,addressing] [,charge number][,control section packing] [,maximum auxiliary storage][,pristine][,user IVM code]

Note: The LOGON command name must always be entered and the operands must be entered in positional notation.

user identification
identifies the user to the system.

Specified as: the user identification assigned to the user when he was joined to the system.

password
specifies the user's assigned password.

Specified as: the password assigned to the user at JOIN time.

System Default: in conversational mode, none, if the user has been assigned a password; in nonconversational mode, password is optional and will not be verified.

addressing

specifies the system addressing.

Specified as: 24- or 32-bit addressing.

System Default: present system addressing.

charge number

specifies the system user's assigned charge number.

Specified as: the charge number assigned to the user at JOIN time.

System Default: the first number found in the user table for the specified user identification.

control section packing

specifies the type of control section packing to be provided by the dynamic loader.

Specified as:

A - all control sections will be packed.

P - only prototype control sections will be packed.

O - only control sections having neither public nor prototype attributes will be packed.

X - all control sections except prototype control sections will be packed.

N - no control sections will be packed.

System Default: N.

maximum auxiliary storage

specifies the expected maximum number of auxiliary storage pages required in the session.

Specified as: from one to five decimal digits.

System Default: the lesser of either the system default established at system generation or the limit assigned to the user when he was joined.

pristine

indicates whether the user wants access to his previously defined defaults, synonyms, and PROCDEFs or all options or his USERLIB.

Specified as:

P -- the user will be able to use only system-specified defaults, synonyms, or PROCDEFs; he can create synonyms, defaults, and PROCDEFs during this task, but he cannot add them to his profile for use in a subsequent task.

X -- the user will be able to use only system-specified synonyms, defaults, and PROCDEFs and cannot access anything in his USERLIB; he cannot create synonyms, defaults, or PROCDEFs.

System Default: the user will have all of his previously specified defaults, synonyms, and PROCDEFs available to him, as well as all other members of his USERLIB.

user IVM code
indicates whether a user wishes to modify the contents of his user IVM.

Specified as:

Y -- the user can modify the contents of his user IVM with a new set of modules.

N -- the user cannot modify his user IVM.

System Default: N.

Functional Description: The credentials the user enters (user identification and any of the operands required by the installation) are compared with the authorization data that identify him to the system. When any are not valid, the conversational user is prompted to enter all operands again. If the system responds with a question mark (?), the LOGON command was not recognized; and the command must be reentered. When the credentials are valid, the task continues.

Programming Notes: LOGON must precede any other commands. When the user turns on his terminal and dials the system, the system waits for the user to log on. If the user has never been authorized to use the system or his permit to use the system has been withdrawn, he is advised of this by message and his LOGON is terminated.

Example: A conversational user, USER1, has dialed up the system at his terminal. The system unlocks the keyboard and the user enters:

```
logon user1,numbr235
```

The system acknowledges that he has logged on successfully and prompts for a command.

▶ PC? Command

This command is used to present the name, access, and, for shared data sets, the owner's identification of one or more cataloged data sets. The system administrator can present his own data sets and a data set belonging to any user he has joined. The system manager can present any cataloged data set.

Operation	Operand
PC?	$\left[\text{NAMES} = \left\{ \begin{array}{l} \text{data set name} \\ \text{(data set name[,...])} \end{array} \right\} \right] [, \text{USERID} = \text{user identification}]$

NAMES

identifies one or more cataloged data sets for which status information is to be presented.

Specified as: one or more fully or partially qualified data set names. When two or more names are specified, they must be enclosed in parentheses.

System Default: every data set in the specified user's catalog will be presented.

USERID

identifies the user whose data sets are to be presented.

Specified as: the user's three- to eight-character user identification.

System Default: the manager's or administrator's own user identification is assumed.

Functional Description: PC? provides the following information about each data set requested:

1. Access -- if the data set is owned by the user, the owner access is given. If the data set is owned by someone else, the user access is given.
2. Ownership -- if the data set is owned by someone else, the user identification of that owner is given.

Programming Notes: The specified information will be printed at the system administrator's or system manager's terminal. He can terminate the presentation at any point by pressing the ATTENTION key.

Example: The administrator wants the names of all data sets for user MOEBOW.

Administrator: pc?,moebow

System: DATA SETS IN CATALOG WITH QUALIFIER MOEBOW**
 MOEBOW**.A.B.C, ACCESS:RW
 MOEBOW**.A.B.D, ACCESS:RO
 MOEBOW**.A.C, ACCESS:RO,OWNER:JOHN45A
 (presents remainder of names in the catalog)

▶ QUIT Command

This command withdraws a user's access to TSS/360 that was granted in a previous JOIN command. The administrator can quit only those users he has joined. The manager can quit any user.

Operation	Operand
QUIT	USERID=user identification

USERID

identifies the person being quit.

Specified as: The user identification assigned with a JOIN command.

If the user was joined by a system administrator, the user's identification is prefixed by the first two characters of the administrator's USERID. This prefixed USERID must be entered in the QUIT command. (If the user was joined by a system manager, there is no prefix added to his USERID.)

Functional Description: The QUIT command is executed immediately if the designated person has no tasks currently active in the system. His data sets are disposed of, and he is barred from logging on until he is joined again.

If the designated person has one or more active tasks in the system when the QUIT command is issued, the manager or administrator is infor-

med that the command cannot be executed immediately. He can cancel the command by pressing the ATTENTION key, or wait until the active tasks are completed, at which time the QUIT command will be executed.

Upon execution of the QUIT command, a message is issued asking if all the person's cataloged data sets are to be erased. Response to this message is:

1. Enter E to erase all data sets.
2. Default (by pressing RETURN key) to dispose of each data set individually.

If the message is defaulted, the data set names are presented one at a time. Three options are provided for the disposition of each data set: erase the data set, add the data set to the catalog of another user under the administrator's or manager's jurisdiction, or store the data set on a private disk volume under user identification TSS****. Choice of option in response to each data set name is indicated in this manner:

1. To erase the data set, enter:

```
[E]
```

2. To add the data set to another user's catalog, enter:

```
[C,user identification,data set name]
```

user identification

specifies the user ID of the user to whose catalog the data set is to be added. This user must have been joined by the administrator who designates him; the system administrator can only add a data set to a catalog of a user under his jurisdiction. The system manager can add a data set to any catalog except the system operator's.

data set name

specifies the name under which the data set is to be entered in the designated user's catalog.

3. To store the data set on a private disk volume, enter:

```
[D,volume identification,data set name[,device type]]
```

volume identification

specifies from one to six alphameric characters that identify the private disk volume on which the data set is to be stored.

data set name

specifies the name to be assigned to the data set when it is copied on the private disk volume.

device type

specifies the type of direct access device (2311 or 2314) on which the private volume is to reside. If neither 2311 nor 2314 is specified (that is, the parameter is either defaulted or specified incorrectly), the installation-specified default value is assumed.

Programming Notes: The QUIT command is valid only in conversational tasks; it is ignored in nonconversational mode.

The manager may quit anyone except himself and the system operator. The administrator may quit any user he has joined.

Example: User USERRESU is to be deprived of access to the system, and his data sets are to be disposed of.

Administrator: quit userresu

System: (requests administrator to enter E to erase all USERRESU's data sets or to have data set names presented for individual disposition)

Administrator: (presses RETURN key)

System: (requests administrator to enter disposition option following data set names) DA.RESU.B

Administrator: e

System: DA.RESU.K

Administrator: c, axfrank, frank.ab

System: DA.RESU.M

Administrator: d, 067845, db.argo, 2314

► QUITRJE Command

This command removes an RJE station ID from the acknowledgment data set and so revokes that station's access to the time-sharing system.

Operation	Operand
QUITRJE	STATION=station name

STATION

specifies the RJE station ID. It may be from three to eight alphameric characters; the first must be alphabetic.

Functional Description: QUITRJE removes the RJE station ID from the validation data set which is a member of the acknowledgment data set (TSS****RJEACK). After this command is executed, an RJESTART card bearing this station ID will not be accepted.

Example: The manager or administrator wishes to deny access to RJE station ID ABC123.

Administrator: quitrje abc123

System: (removes ABC123 from the acknowledgment data set.)

► REJOIN Command

This command permits the manager or administrator to change any characteristics (except the user ID) with which a user was joined to the system. The manager may change the characteristics of anyone but himself and the system operator. An administrator may change those of any user he has joined.

Operation	Operand
REJOIN	USERID=user identification[,PASSWORD=identifier] [CHARGE=charge number][,PRIORITY=priority] [,PRIV=(privilege[,...])][,AUTH=authority][,RATION=key] [,BATCH={Y N}][,RJE={Y N}]

USERID

identifies the user whose characteristics are to be changed.

Specified as: the three-character to eight-character user identification.

PASSWORD

specifies the new password to be used by the person being rejoined.

Specified as: from one to eight alphameric or special characters available at the terminal (except tab, embedded blanks, comma, backspace, percent sign, equal sign, and right and left parentheses). A password of from one to eight blanks must be entered to delete a previous password.

System Default: the password with which the user was last joined is retained.

CHARGE

specifies the new billing account number that is to be used by the person being rejoined.

Specified as: from one to six alphameric characters (to which the system prefixes the first two characters of the person's user identification).

System Default: the billing account number with which the user was joined (or previously rejoined) is retained.

PRIORITY

specifies the new priority to be assigned to the task of the person being rejoined.

Specified as: a one-digit numeric code from 0 to 9; 9 is the lowest priority and 0 the highest.

System Default: the priority value with which the user was last joined is retained.

PRIV

identifies the new privilege classes assigned to the person being rejoined.

Specified as: one or more alphabetic characters. The system administrator may issue any privilege codes except A, B, F, and F. The system manager may issue any privilege codes except A and F.

System Default: the privilege class with which the user was last joined is retained.

AUTH

identifies the new authorization assigned to the person being rejoined.

Specified as:

U -- normal authorization.

P -- system programmer authorization (has access to certain parts of the system and to certain privileged SVCs and macro instructions).

O -- privileged system programmer authorization (has access to all parts of the system and to all SVCs and macro instructions). This authority code can be specified only by the system manager.

System Default: the authorization with which the user was last joined is retained.

RATION

determines the new resource limits imposed on the person being rejoined.

Specified as: a one-digit numeric code from 1 to 9. Ration codes are described in System Programmer's Guide under "Installation Accounting Routines."

System Default: the ration with which the user was last joined is retained.

Note: For initial values of resource limits supplied with the system, see the "User Limits Table" in System Programmer's Guide.

BATCH

specifies whether the user now wants to be able to enter nonconversational SYSIN data sets via the BULKIO input facility.

Specified as:

Y -- yes.

N -- no

System Default: the value with which the user was last joined is retained.

RJE

specifies whether the user is allowed to enter PRINT commands to any RJE station.

Specified as:

Y -- yes.

N -- no.

System Default: N.

Functional Description: The REJOIN command is a variation of the JOIN command and provides much of the same function. Although it cannot be used to join individuals to the system, the REJOIN command permits any characteristics with which a user was joined, except the user identification, to be changed without quitting him from the system and joining him again.

Example: An administrator wants to provide normal user REMARK with the facilities available to the system programmer. Prior to issuing the REJOIN command, the user's characteristics are:

```
USERID=REMARK;PASSWORD=CIRE;CHARGE=RE100;PRIORITY=9;PRIV=D;
AUTH=U;RATION=2;BATCH=N
```

Administrator: rejoin remark,,,,,p,1

System: (alters user's characteristics to user identification
REMARK, password CIRE, charge number RE100, priority 9,
privilege class D, authority P, ration 1, and batch N)

► SARD Command

This command displays the current system resources, the number of users on the system, and the number of tasks awaiting execution in background mode.

Operation	Operand
SARD	

Note: The SARD command has no operands.

Functional Description: SARD displays the following system information:

- Line 0: the current date and time.
Line 1: any unanswered messages requiring replies.
Line 2: a current total of system users, according to type:
- CONV -- conversational users;
 - BACK -- nonconversational users, including remote users;
 - REM -- nonconversational tasks initiated by the BACK command;
 - RJEA -- number of active RJE stations.
- Line 3: the current total of jobs awaiting execution on the batch work queue (BWQ):
- EXEC -- number of tasks initiated by the EXECUTE command;
 - PRNT -- number of print jobs;
 - PNCH -- number of punch jobs;
 - TAPE -- number of tape jobs (both read and write);
 - RJE -- number of RJE jobs.
- Line 4: the current total of available private devices:
- PTRS -- number of printers;
 - RDRS -- number of card readers;
 - PUNS -- number of punches;
 - TAPS -- number of tape drives;
 - DISK -- number of disk drives.
- Line 5: the current total of available auxiliary and public pages:
- PUB -- number of public pages;
 - TEM -- number of temporary pages that may be available when tasks log off;
 - AUXDR -- number of auxiliary drum pages;
 - AUXDK -- number of auxiliary disk pages.

Example: You issue the SARD command from the console:

Administrator: SARD

System: SYSTEM ACTIVITY AND RESOURCES AT date and time
REPLYS:XXX
USERS - CONV: XXXX BACK: XXXX REM: XXXX RJEA: XXXX
QUEUES- EXEC: XXXX PRNT: XXXX PNCH: XXXX TAPE: XXXX RJE: XXXX
AVAIL - PTRS: XXXX RDRS: XXXX PUNS: XXXX TAPS: XXXX DISK:XXXX
PAGES - PUB: XXXXXXXX TEM: XXXXXXXX AUXDR: XXXXXXXX AUXDK:XXXXXXXX

▶ USAGE Command

This command presents the accounting data that has been accumulated for a user. The system administrator can present or reset his own statistics or those of any user he has joined. The system manager can present or reset any user's accounting statistics.

Operation	Operand
USAGE	[USERID=user identification][,RESET={Y N}]

USERID

the identification of the user whose accounting statistics are to be presented.

Specified as: the three- to eight-character user identification.

System Default: the administrator's or manager's own accounting statistics will be presented.

RESET

indicates whether the manager or administrator wants the user's (or his own) accumulative accounting statistics to be set to zero.

Specified as:

Y -- yes.

N -- no.

System default: N.

Functional Description: The accounting statistics for the specified user identification, the accumulative statistics in the user table, and the usage statistics for the current task are tallied and presented to the manager or administrator. Conversationally, the data set is presented at the terminal; nonconversationally, in the SYSOUT data set.

The user's accounting statistics will always be displayed, that is, the accumulative statistics cannot be reset to zero without displaying all of his accounting data. Furthermore, the display will be of his statistics before the accumulative data are reset to zero, although subsequent entry of the USAGE command will display them with their new values.

Two types of statistics are presented: accumulative statistics reflect total usage of resources from JOIN time to the present; current statistics reflect usage during the present task. The statistics displayed are summarized in Table 3.

When this command is issued for an inactive user, no current statistics will be presented. Zero-value statistics are not presented at any time.

The information is presented in this format:

```
/TEMP STOR=ratio;current;accum
/PERM STOR=ratio;current;accum
/DA DEV=ratio;current;accum
/MAG TAP=ratio;current;accum
/PRINTERS=ratio;current;accum
/RD-PUN=ratio;current;accum
/TSS TASKS=ratio;current
/BULKIN=accum
/BULKOUT=accum/CPU TIME=ratio;current;accum
/CONN TIME=ratio;current;accum
```


Examples:

1. The administrator wants usage statistics for user BIJOV.

Administrator: usage bijov

System: (presents statistics for user BIJOV)

2. The manager wants to reset his own accumulative statistics to zero.

Manager: usage ,Y

System: (presents statistics for SYSMANGR and resets the accumulative statistics to zero)

Table 3. Key to values displayed for the USAGE command

Field	Statistic		
	ration	current usage	accumulative
TEMP STOR (temporary storage)	number of pages available for this user's data sets	number of pages of this type currently occupied by this user's data sets	number of page-seconds utilized in storing this user's data sets since the accumulative statistic was last set to zero; calculated by summing the time (in seconds) each page was, or has been assigned to the user
PERM STOR (permanent storage)			
DA DEV (direct access devices)	number of devices of this type available to this user	number of devices of this type currently assigned to this user	number of device-seconds utilized by this user since the accumulative statistic was last set to zero; calculated by summing the time (in seconds) each device was, or has been, assigned to this user
MAG TAP (magnetic tape)			
PRINTERS (high-speed printers)			
RD-PUN (card readers and card punches)			
TSS TASKS	maximum number of tasks that can be associated with this user	number of active tasks currently associated with this user	(not applicable)
BULKIN	(not applicable)	(not applicable)	total number of bulk input (BULKIN) and bulk output (BULKOUT) records associated with this user since this accumulative statistic was last set to zero
BULKOUT			
CPU TIME (execution time)	maximum amount of CPU execution time permitted to tasks associated with this user; presented in the form hhh.mm.ss, where hhh is in hours, mm is in minutes, and ss is in seconds	time spent executing in the CPU since the current user task was logged on; presented in the form mm.ss.nn, where mm is in minutes, ss is in seconds and nn is in milliseconds	time spent executing in the CPU since this accumulative statistic was last set to zero; presented in the form hhh.mm.ss, where hhh is in hours, mm is in minutes, and ss is in seconds; it is this value that is compared to the maximum amount of CPU execution time permitted (the ration) to see if the user has exceeded his limit
CONN TIME (connect time)	maximum amount of time that this user can be connected to the system from a terminal; presented in the form hhh.mm.ss, where hhh is in hours, mm is in minutes, and ss is in seconds	time elapsed since the current user task was logged on; presented in the form hhh.mm.ss where hhh is in hours, mm is in minutes, and ss is in seconds	sum of the current times of each terminal session since this accumulative statistic was last set to zero; presented in the form hhh.mm.ss, where hhh is in hours, mm is in minutes, and ss is in seconds; it is this value that is compared to the ration to see if the user has exceeded his limit

SECTION 4: SYSTEM ADMINISTRATOR TERMINAL SESSION

The following is an example of a system administrator's conversational task. The underscore that the system prints to request a new command is shown on a line separate from the administrator's entry. In practice, the underscore would appear beneath the first character of the next command, as

dss?

since the system actually issues an underscore followed by a backspace. Comments are provided to the right of the activity to summarize the action being performed by each group of lines.

Administrator: (dials in terminal)

System: (unlocks keyboard for the administrator to log on)

Administrator: logon gpoadm,gpa9 logs on

System: _

Administrator: join user4,grubbo,a0,3 joins new user

System: (joins user)

-

Administrator: cancel 0025 cancels nonconversational task

System: (cancels task)

-

Administrator: quit gpuser5 quits user

System: (requests type of disposition of user data sets)

-

Administrator: e

System: (quits user)

-

Administrator: logoff logs off

System: (acknowledges LOGOFF command)

APPENDIX A: FACILITIES AVAILABLE BY PRIVILEGE CLASS AND AUTHORIZATION

Individuals assigned particular privilege classes and authorization codes may employ facilities unique to their class or code. A summary of the facilities associated with each class or code follows.

Privilege Class F

CANCEL, JOIN (full eight-character user IDs and all privilege classes except A and F), LOGON, LOGOFF, DSS?, LINE?, and QUIT command options indicated in Manager's and Administrator's Guide; all commands in Command System User's Guide (not requiring specific authority or privilege codes); all command facility options available to B class user.

Privilege Class B

Same as privilege class F except that he can join user IDs of only one character to six characters, prefixed by the system with first two characters of administrator's ID, and he can only assign D privilege classes.

Privilege Class A

ASNBD, BCST, CANCEL, DROP, FORCE, HOLD, MSG, PRINT, REPLY, RT, SHUT-DOWN, and USAGE command options indicated in Operator's Guide; all commands in Command System User's Guide (not requiring additional privilege).

Privilege Class D

All commands in Command System User's Guide.

Privilege Class E

Use of MSAM and TAM macro instruction facilities; additional BSAM and QSAM options; On Line Test System (OLTS) facilities; Virtual Memory Error Recording Procedures (VMERP); and ability to reference devices symbolically.

Authorization U

1. Cannot invoke Time Sharing Support System (TSSS), but can use it if connected by a master system programmer.
2. PCS Usage
 - Can use PCS to display (using absolute virtual addresses) privileged or nonprivileged system routines residing in virtual storage.
 - Can use PCS to DISPLAY, SET, or AT (using symbolic labels) in his own public or private nonprivileged virtual CSECTs.
 - Cannot use PCS to display privileged CSECTs, public system CSECTs, or to display (symbolically) areas of nonprivileged system CSECTs (because system symbols will not be resolved).

3. Can code and assemble or compile nonprivileged or privileged code (obtaining privileged macro expansions by use of the DCLASS macro instruction), but cannot load or execute any privileged code (as privileged) from his USERLIB or JOBLIBS because of dynamic loader protection. U authorization programmers who assemble privileged CSECTs must have O authorization programmers load and execute that code as privileged.

Note: The dynamic loader erases the PRVLGD and SYSTEM attributes to prevent U authorization programmers from changing privileged system code. U authorization programmers can run privileged system code as nonprivileged by creating their own IVM symbols and overlaying special SVC instructions.

4. Could have O authorization programmer put a privileged CSECT he had created into SYSLIB and could then, subsequently, execute that code (depending on whether that code references system data sets).
5. Can execute any privileged code in SYSLIB from nonprivileged code only indirectly by establishing the proper linkage.

Authorization P

1. Can use TSSS as a master system programmer (MSP) or as a task system programmer (TSP) if residing at the proper terminal.
2. PCS Usage
 - Can use PCS (the DISPLAY command) for public or privileged CSECTs; cannot use the SET or AT commands in public or privileged code.
 - Can use PCS (DISPLAY, symbolically; SET, AT commands) into private nonprivileged system code as well as into his own nonprivileged routines (loaded from his USERLIB and JOBLIBS) that reside in virtual storage.
 - Because the dynamic loader strips the PRIVILEGED attribute from privileged system modules when they are loaded for a P authorization programmer (from USERLIB or JOBLIB), the private copy he receives is nonprivileged, and he can debug and alter that copy.
3. Can assemble or compile nonprivileged or privileged code (obtaining privileged macro expansions by use of the DCLASS macro instruction) but cannot load this privileged code (as privileged) from his USERLIB or JOBLIB because of dynamic loader protection. Therefore he will not be able to execute privileged code (as privileged) from those libraries.
4. He can execute any privileged code in SYSLIB from nonprivileged code by dynamically loading the code and establishing appropriate linkage.
5. Has right to execute CONFG and SWICH macro instructions.

Authorization O

1. Can use TSSS as an MSP or TSP if residing at the proper terminal.
2. PCS Usage
 - Can use PCS (the DISPLAY or SET commands) in public or privileged system code (using symbols).

- Can use PCS (the DISPLAY, AT, or SET commands) in nonprivileged virtual storage (using symbolic labels).
3. Can code nonprivileged or privileged code (in conjunction with DCLASS) to go into USERLIB, JOBLIB, or SYSLIB and can execute privileged code from any of these libraries. He can also execute any privileged code or write into any privileged code.
 4. Has exclusive right to the LVPSW macro instruction (SVC) and can execute CONFIG and SWICH macro instructions.
 5. He alone can execute privileged code.
 6. Can use the DISPLAY, SET, or DUMP commands for IVM.
 7. Use of CVV and UPDTUSER facilities.
 8. Can use OPEN for privileged system data sets.

APPENDIX B: COMMAND FORMATS

Table 4 presents the format illustrations of special commands that are used by system managers and system administrators.

Table 4. Summary of command format illustrations

Operation	Operand
CANCEL	BSN=batch sequence number
DSS?	[NAMES= { data set name (data set name[,...]) }] [,USERID=user identification]
EVV	DEVICE=device type,VOLUME=(volume serial number[,...]) ,USERID=user identification
EXHIBIT	OPTION= UID [,TYPE= { ALL CONV BACK UID.userid }] [,FORM= { LONG SHORT }] BWQ [,TYPE= { ALL UID.userid BSN.number PRINT PUNCH TAPE EXEC RJE }]
FLOW	[BATCH=batch task limit][,CONV=conversational task limit] [, BACK=background task limit][,BULKIO=Y N][,MTT=mtt administrator limit][,APP=(mtt application name,relative application number,application user limit),...]
JOIN	USERID=user identification[,PASSWORD=identifier], CHARGE=charge number[,PRIORITY=priority] [,PRIV=(privilege[,...])][,AUTH=authority] [,RATION=key][,BATCH={Y N}][,RJE={Y N}]
JOINRJE	STATION=station name[,TYPE=station type] [,MRF={Y N}][,TAB={Y N}][,BRK={Y N}][,REC={Y N}]
LINE?	DSNAME=data set name [, { line number (first line number,last line number) } [,...]
LOGOFF	
LOGON	user identification[,password][,addressing] [,charge number][,control section packing] [,maximum auxiliary storage][,pristine][,user IVM code]

Table 4. Summary of command format illustrations (part 2 of 2)

Operation	Operand
PC?	[NAMES= { data set name (data set name[,...]) }] [,USERID=user identification]
QUIT	USERID=user identification
QUITRJE	STATION=station name
REJOIN	USERID=user identification[,PASSWORD=identifier] [CHARGE=charge number][,PRIORITY=priority] [,PRIV=(privilege[,...])][,AUTH=authority][,RATION=key] [,BATCH={Y N}][,RJE={Y N}]
SARD	
USAGE	[USERID=user identification][,RESET={Y N}]

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