OS/390

TSO/E
Primer

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Primer

IBM

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About This Book

This book is an introduction to TSO/E. Its objective is to teach you how to do basic tasks using TSO/E. *OS/390 TSO/E User's Guide*, SC28-1968, gives more detail about these tasks and also includes more complex tasks.

Who Should Use This Book

New users of TSO/E should read this book. It assumes that you have no experience using TSO/E, you have little or no programming experience, and you know how to use a computer terminal.

Because computer terminals vary, we do not include specific information about them. If you do not know how to use your terminal, be sure to learn about it before trying the exercises in this book. The exercises were tested on an IBM PC 3270 display terminal.

How This Book Is Organized

This book starts with information about how to begin a TSO/E session. It continues with overviews of several TSO/E environments and basic tasks you can do in those environments. Exercises throughout the book reinforce how to do the basic tasks.

The chapters. and their purposes are as follows:

- Chapter 1, "Introduction" gives a definition of TSO/E and describes three TSO/E environments.

- Chapter 2, "Beginning a TSO/E Session" describes how to use the LOGON command with a user ID and password to begin a TSO/E session. It also describes how to use the LOGOFF command to end the session.

- Chapter 3, "Using Panels" helps you to recognize various kinds of panels, enter panel commands, use program function (PF) keys, and scroll through information that exceeds the screen size.

- Chapter 4, "Using the Information Center Facility" introduces the Information Center Facility and describes how to use various types of panels, use * to get a list, use the tutorial and help panels, and exit the Information Center Facility.

- Chapter 5, "Using ISPF/PDF" gives a very brief overview of how ISPF/PDF helps a TSO/E user and describes how to use the ISPF/PDF tutorial and exit ISPF/PDF.

- Chapter 6, "Using Line Mode TSO/E" describes how to type simple TSO/E commands, respond to the symbol ***, use the attention interrupt key, and type a question mark (?) for more information about a message.

- Chapter 7, "Using Data Sets" defines the different types of data sets and data set naming rules and conventions. It then shows how to create, display, edit, and delete a data set in ISPF/PDF, and how to create and delete a data set in line mode TSO/E.

- Chapter 8, "Sending Data to a Printer or to Another User" describes how to use the Information Center Facility to print data sets, how to use ISPF/PDF to

print data sets and screen images, and how to use line mode TSO/E to print
data sets, send and receive messages, and send and receive data sets.

- Chapter 9, "Tips and Techniques" describes ways to work more effectively with
  panels, tips for editing material, how to fix common problems for panels, and
  techniques to use in line mode TSO/E.

- Appendix A, "Information Center Facility Standard Services" gives a brief
  description of the services offered by the Information Center Facility.

- Appendix B, "PF Keys Summary" is a summary of the PF key functions and
  equivalent commands.

How to Use This Book

This book describes *standard* procedures and uses *standard* panels as examples.
Installations often customize TSO/E environments. Thus the way you log on, the
panels you see, and other procedures at your installation might be different from
the ones described in this book. Consult your installation's documentation if you
encounter prolems performing the tasks described here.

Where to Find More Information

Please see the *OS/390 Information Roadmap*, GC28-1727, for an overview on the
documentation associated with OS/390.

The latest OS/390 documentation is available on the *OS/390 Collection* CD ROM
(GC23-3292).

The following OS/390 TSO/E documentation has been updated for version 2
release 4. The updated documentation is available **only on CD ROM**. Hardcopy
versions of these documents for OS/390 version 1 release 2 can still be ordered:

- *OS/390 TSO/E Primer* (GC28-1967)
- *OS/390 TSO/E REXX User's guide* (SC28-1974)
- *OS/390 TSO/E Guide to SRPI* (SC28-1976)
- *OS/390 TSO/E VM/PC User's Guide for OS/390 Host Services* (SC28-1977)

The following OS/390 TSO/E documentation has been updated for version 2
release 4, and is now available **only on CD ROM**:

- *OS/390 TSO/E System Diagnosis: Data Areas* (SC33-6678)

The following OS/390 TSO/E documentation has been updated for version 2
release 4 and is available as hardcopy and on CD ROM:

- *OS/390 TSO/E General Information* (GC28-1964)
- *OS/390 TSO/E Messages* (GC28-1978)
- *OS/390 TSO/E Customization* (GC28-1965)
- *OS/390 TSO/E Programming Services* (SC28-1971)
- *OS/390 TSO/E System Programming Command Reference* (SC28-1972)
- *OS/390 TSO/E Command Reference* (SC28-1969)
- *OS/390 TSO/E CLISTs* (SC28-1973)
- *OS/390 TSO/E REXX Reference* (SC28-1975)

The following OS/390 TSO/E documentation has not been updated for version 2 release 4. The version 1 release 2 documents are still available as hardcopy and on CD ROM:

- *OS/390 TSO/E Administration* (SC28-1966)
- *OS/390 TSO/E User's Guide* (SC28-1968)
- *OS/390 TSO/E Programming Guide* (SC28-1970)

Chapter 1. Introduction

TSO/E is a base element of the OS/390* operating system that allows users to interactively work with the system.

You can use TSO/E in any one of the following three environments:

- The Information Center Facility

  Perhaps the easiest way to use TSO/E is through the Information Center Facility. It uses panels and provides a way to display services such as:

  - Office support – (mail, names directory)
  - Decision support – (data analysis)
  - Document preparation – (reports, charts, graphs).

  More information about the Information Center Facility is in Chapter 4, "Using the Information Center Facility".

- ISPF/PDF

  The Interactive System Productivity Facility (ISPF) and its Program Development Facility (ISPF/PDF) work together with TSO/E to provide panels with which users can interact. ISPF provides the underlying dialog management service that displays panels and enables a user to navigate through the panels. ISPF/PDF is a dialog of ISPF that helps maintain libraries of information in TSO/E and allows a user to manage the library through facilities such as browse, edit, and utilities.

  More information about ISPF/PDF is in Chapter 5, "Using ISPF/PDF", Chapter 7, "Using Data Sets", and Chapter 8, "Sending Data to a Printer or to Another User".

- Line Mode TSO/E

  The way programmers originally communicated interactively with the MVS operating system was with TSO/E commands typed on a terminal, one line at a time. It is a quick and direct way to use TSO/E.

  More information about line mode TSO/E is in Chapter 6, "Using Line Mode TSO/E", Chapter 7, "Using Data Sets", and Chapter 8, "Sending Data to a Printer or to Another User".

TSO/E is a powerful tool for both programmers and non-programmers. The introduction of new products and the use of ISPF is moving TSO/E from a programmer's tool to a highly flexible subsystem that delivers computing resources to the end user. Now anyone can use TSO/E to do many diverse tasks in several environments. This book shows you how to do some of the basic tasks.

Chapter 2. Beginning a TSO/E Session

After reading this chapter, you will be able to:

- Recognize special keys on your keyboard
- Use the LOGON command to begin a TSO/E session
- Type information in an input field
- Use the LOGOFF command to end a TSO/E session.

Special Keys on Your Keyboard

Before you begin a TSO/E session, you need to know about some important keys on your keyboard. Because keyboards vary, we cannot tell you exactly where on your keyboard to find these keys or how they are labeled. If you cannot find the following keys, ask someone at your installation to help you.

Enter Key

This key submits information you type on the display screen. Before you press the Enter key, you can change the information. Pressing the Enter key submits the information to the system.

The Enter key often is labeled with the word "Enter". Sometimes the key that returns you to the beginning of the next line also submits information. The return key often is labeled with a bent arrow.

↵

Cursor Keys

These keys move the cursor one space in the direction in which they point. When you continue to press on a cursor key, the cursor continues to move in the direction in which the key points, possibly looping around the screen.

The cursor keys often are labeled with arrows:
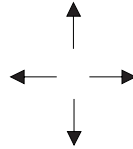
Reset Key

This key changes a condition previously set, such as unlocking the keyboard when the keyboard locks. Locking is when the keyboard is unable to send input to the screen. The keyboard might lock when you try to type in a field that does not accept input. The reset key unlocks the screen and allows you to move the cursor to a valid input area on the screen.

The reset key often is labeled with the word "Reset".

Attention Interrupt Key

This key allows you to interrupt or end a process that is taking place. If you are in a process you want to stop or see a message requesting information you do not have, you can press the attention interrupt key to end the process.

The attention interrupt key often is labeled "PA1". Sometimes it is called an escape key and is labeled "Esc".

PF Keys

Program function (PF) keys represent a command or a series of commands. Keyboards can have 12 or 24 PF keys, each one labeled with its number as "PF1" or "F1".

Generally the PF keys are preset to default values, but you can change those values. For more information about PF keys, see "Using PF Keys" on page 3-7.

Logging On

Logging on to a computer with TSO/E means starting a TSO/E session and identifying yourself to TSO/E. This chapter discusses ways to log on and gives examples of one logon process. Your installation might have a different logon process. If you find that the examples in this book do not match what is on your display screen, ask someone at your installation to help you log on.

When you log on, TSO/E needs to know who you are and needs proof that you are who you claim to be.

User ID

Your TSO/E **user ID** is a group of characters that identifies who you are. It is unique to you and often is your name, your initials, your department number, or any valid combination of characters defined by your installation. It can be no longer than 7 characters and may contain numeric (0 to 9) and alphabetic (A to Z) characters, but must begin with an alphabetic character. For the purpose of examples in this book, we will use **yourid** as your user ID. If you don't have a TSO/E user ID at this time, have your TSO/E administrator assign one to you.

Password

Your **password** is a group of up to 8 characters that provides proof of who you claim to be. Passwords are not made public but user IDs generally are available to anyone on the system. Thus anyone can try to log on with your user ID, but only you or those who know your password, can actually log on and begin a TSO/E session under your user ID.

If your installation requires a password, your administrator gives you one and tells you the restrictions, if any, your installation has on password usage.

LOGON Command

To log on, most installations require that you type the LOGON command. LOGON is the TSO/E command that tells TSO/E you want to begin a computer session. You can type commands either in uppercase or lowercase.

Exercise

To log on to TSO/E, type:

`LOGON yourid`

Be sure to substitute your real user ID for *yourid* and press the Enter key.

When you first log on, an *input inhibitor* symbol appears briefly on your screen. The input inhibitor tells you the system is processing your input and is temporarily unable to accept additional input. Soon the input inhibitor disappears and you see one of the following:

- The word READY, which means TSO/E is ready for a command. If you see the READY message as soon as you log on, you can continue to read this chapter or you can skip to "Logging Off" on page 2-6.

- A message that prompts you for information such as a password. If you see a prompting message, type the information after the message and press the Enter key. You eventually see the word READY, which means that TSO/E is ready for a command. You can continue to read or you can skip to "Logging Off" on page 2-6.

Logging On

- A screen similar to the following:

```
------------------------------ TSO/E LOGON ------------------------------
PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow
You may request specific HELP information by entering a '?' in any entry field.
   ENTER LOGON PARAMETERS BELOW:                 RACF LOGON PARAMETERS:

   USERID   ===> YOURID                          SECLABEL     ===>

   PASSWORD ===> -                               NEW PASSWORD ===>

   PROCEDURE ===> MYPROC                         GROUP IDENT  ===>

   ACCT NMBR ===> 00123

   SIZE     ===> 5800

   PERFORM  ===>

   COMMAND  ===> EXEC (SETUP)


   ENTER AN 'S' BEFORE EACH OPTION DESIRED BELOW:

        -NOMAIL         -NONOTICE        -RECONNECT        -OIDCARD
```

What you see on the screen is called a *panel*. A panel is a predefined display image that fills your screen. Notice that your user ID appears in capital letters to the right of the USERID arrow and other information required by your installation appears in capital letters to the right of other arrows. The computer generally re-displays information in uppercase regardless of how you typed it.

The area to the right of the arrow is called an *input field*.

```
                space
                 \/
PASSWORD ===>   _____

             input field
```

You can type information only in input fields. If you type anywhere else on the screen, the keyboard locks. To unlock the keyboard, press the **reset key**.

Exercise

Move the cursor to the space immediately after the arrow pointing to the USERID field. Try to type a letter, and then notice the input inhibitor. Press the reset key to unlock the screen.

Now move the cursor to the PASSWORD input field and type the password that your administrator gave you. Notice that the characters do not appear when you type them. Suppressing the password prevents others from seeing it as you type it.

Getting Information About Logon Fields

To find out more information about a field on the logon panel, type ? in the field and press the Enter key.

Exercise

Type ? in the PASSWORD field and press the Enter key. Notice that the ? doesn't display when you type it. A paragraph appears with a description of a password. When you finish reading the paragraph, press the Enter key to return to the logon panel.

Notes:

1. From now on, instead of telling you to press the Enter key after typing specific information, we simply tell you to *enter* specific information. Thus the previous paragraph would begin:

2. To find out more information about a field on the logon panel, enter ? in the field.

3. .In some cases you need to type information in several fields before pressing the Enter key. In those cases, we say to *type* specific information and when you are finished, press the Enter key.

When you are finished typing information in the necessary fields on the logon panel, press the Enter key.

What you see next depends upon how your installation modified the logon process. Some installations display one or more groups of messages at the top of the screen followed by three asterisks ***. Three asterisks in line mode TSO/E mean that you must press the Enter key to see a new screen of information.

```
 FIRST SHIFT SUNDAY ALL MVS SYSTEMS UP UNATTENDED EXCEPT BAQ,90B AND
BIQ,90D.   NO OTHER SYSTEMS AVAILABLE.

 ACCESS TO TSO SERVICES CAN BE GAINED VIA TSO2 OR TSO3 LOGON COMMAND.

 BULLETIN #40:   NEW ONLINE HARDWARE ALTERATION/INSTALLATION REQUEST
                 PROCEDURES

 ***
```

If you press the Enter key while the preceding panel is displayed, you see the word READY, which indicates that TSO/E is ready for a command.

Logging Off

LOGOFF Command

Logging off TSO/E ends the TSO/E session. To log off, enter the LOGOFF command after the READY message and press the Enter key.

```
READY
logoff
```

You then see a message similar to:

```
YOURID LOGGED OFF TSO AT 14:24:38 ON OCTOBER 24,1987
```

If you don't see a READY message, ask someone at your installation to show you how to log off.

Where Do I Go From Here?
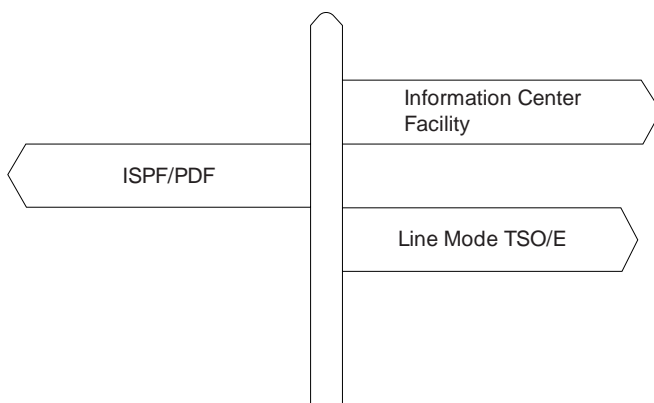
Information Center Facility – If you have access to the Information Center Facility, you probably have access to all three environments (Information Center Facility, ISPF/PDF, and line mode TSO/E) and can read consecutively through the entire book.

ISPF/PDF – If you do not have access to the Information Center Facility but you can access ISPF/PDF, read Chapter 3, "Using Panels" and then skip to Chapter 5, "Using ISPF/PDF" and read through the rest of the book.

Line Mode TSO/E – If you do not have access to either the Information Center Facility or ISPF/PDF, go to Chapter 6, "Using Line Mode TSO/E" and continue to read through the sections labeled **LMT**.

The following chart summarizes the three environments and gives the advantages of each, the recommended tasks for each, and where in this book to find information about them.

Figure 2-1. Summary of three environments of TSO/E		
Information Center Facility	**ISPF/PDF**	**Line Mode TSO/E**
Description	**Description**	**Description**
Panels that help you access services and products offered by your installation.	Panels that help you maintain libraries of information.	A command language that interacts directly with the MVS operating system.
Advantages	**Advantages**	**Advantages**
1. Easy for beginners to use. The panels have directions and available help. 2. Can access different services and products from one place.	1. Easy for beginners to use. The panels have available help. 2. Can do library maintenance tasks from one place. 3. Provides a powerful editing tool.	1. Commands are more direct than panels. 2. Commands work faster than panels.
Recommended Tasks	**Recommended Tasks**	**Recommended Tasks**
Tasks involving office tools and office management, such as: 1. Receiving installation news 2. Using a names directory 3. Sending and receiving mail 4. Registering for and taking a computer course 5. Accessing other products to perform data analysis, graphics, and so on.	Tasks involving data processing and text processing, such as: 1. Creating and editing data sets 2. Printing data sets 3. Using installation-defined dialogs.	Tasks involving interaction with the MVS operating system, such as: 1. Logging on and off the system 2. Creating data sets 3. Sending messages and data sets to other users 4. Issuing commands set up by your installation.
Where to Find Information	**Where to Find Information**	**Where to Find Information**
Chapters 2, 3, 4 and look for the ICF symbol.	Chapters 2, 3, 5, 7, 8, 9 and look for the PDF symbol.	Chapters 2, 6, 7, 8, 9 and look for the LMT symbol.

Where Do I Go From Here?

Chapter 3. Using Panels

When you finish reading this chapter, you will be able to:

- Recognize data entry panels, menu panels, list panels, and edit panels.
- Type commands such as HELP, END, KEYS, and PFSHOW.
- Use program function (PF) keys to end a function, get help, and move the cursor to the COMMAND/OPTION line.
- Scroll through information that exceeds the screen size.

What is a Panel?

A panel is a predefined display image that fills your screen. Generally you can add and delete information on the panel in specific areas called *fields*. Fields are often indicated by arrows: ===>. If you try to type anywhere other than in a field, the keyboard locks and you need to press the reset key to unlock the keyboard. Following are some types of panels used in this book.

Data Entry Panel

Sometimes, as on the LOGON panel, fields are displayed throughout the panel. This type of panel is called a *data entry panel*. When you finish typing information on a data entry panel, you generally press the Enter key to process that information and proceed to the next panel.

```
------------------------------ TSO/E LOGON ----------------------------------
PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow
You may request specific HELP information by entering a '?' in any entry field.
   ENTER LOGON PARAMETERS BELOW:                   RACF LOGON PARAMETERS:


   USERID    ===> YOURID                          SECLABEL     ===>


   PASSWORD  ===> -                               NEW PASSWORD ===>

   PROCEDURE ===> MYPROC                          GROUP IDENT  ===>

   ACCT NMBR ===> 00123

   SIZE      ===> 5800

   PERFORM   ===>

   COMMAND   ===> EXEC (SETUP)


   ENTER AN 'S' BEFORE EACH OPTION DESIRED BELOW:

          -NOMAIL          -NONOTICE        -RECONNECT        -OIDCARD
```

Menu Panel

Another type of panel is called a *menu panel*. Like a menu in a restaurant, it displays a list of choices. At the top (or bottom) of the menu panel is a field labeled OPTION. To select an item from the menu panel, enter the item's number or character on the OPTION line. On the OPTION line you can also enter any command accepted by the panel.

```
----------------------- ISPF/PDF PRIMARY OPTION MENU -----------------------
OPTION ===> 3
                                                          USERID   - YOURID
    0  ISPF PARMS  - Specify terminal and user parameters TIME     - 12:47
    1  BROWSE      - Display source data or output listings TERMINAL - 3277
    2  EDIT        - Create or change source data          PF KEYS  - 12
    3  UTILITIES   - Perform utility functions
    4  FOREGROUND  - Invoke language processors in foreground
    5  BATCH       - Submit job for language processing
    6  COMMAND     - Enter TSO command or CLIST
    7  DIALOG TEST - Perform dialog testing
    8  LM UTILITIES- Perform library administrator utility functions
    9  IBM PRODUCTS- Additional IBM program development products
    C  CHANGES     - Display summary of changes for this release
    T  TUTORIAL    - Display information about ISPF/PDF
    X  EXIT        - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
```

List Panel

A panel that displays a list of items is a **list panel**. At the top (or bottom) is a field labeled COMMAND. In the COMMAND field you can enter any command accepted by the panel. To the left of each item is a blank space or a single underscore called an *action field*. To select an item, you generally enter s in the action field unless directions tell you differently.

```
 LIBRARY - PREFIX.MEMO.TEXT ---------------------------------- ROW 00001 OF 00008
 COMMAND ===>                                                  SCROLL ===> PAGE
   NAME     RENAME    VV.MM  CREATED      CHANGED      SIZE  INIT  MOD  ID
   APR13              01.02  87/04/13  87/05/21 09.55   44    39    4 YOURID
   AUG01              01.00  87/08/01  87/08/01 10.01   24    24    0 YOURID
   FEB27              01.01  87/02/27  87/03/07 14.52   12    11    2 YOURID
   JAN10              01.00  87/01/10  87/01/10 17:07   21    21    0 YOURID
   JUL01              01.01  87/07/07  87/07/07 12.52   10    10    0 YOURID
 s JUL14              01.00  87/07/14  87/07/14 16.15   20    20    0 YOURID
   JUN04              01.00  87/06/04  87/06/04 11.23   85    85    0 YOURID
   JUN18              01.04  87/06/18  87/06/27 08.43   34    36    6 YOURID
   MAR30              01.03  87/03/30  87/06/12 11.03   15    15    2 YOURID
   **END**
```

Edit Panel

The panel on which you type or edit blocks of data is a data entry panel called an
edit panel. At the top (or bottom) is a COMMAND field for entering commands that
the panel accepts, but the bulk of the panel is for data. When no data has been
entered, you see empty space with single quotes on the left.

```
 EDIT ---- PREFIX.TEST.DATA ------------------------------------ COLUMNS 001 072
 COMMAND ===>                                                      SCROLL ===> HALF
 ****** ************************ TOP OF DATA **********************************
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ****** ************************* BOTTOM OF DATA ******************************
```

When data is entered in the blank space, the single quotes become **line numbers**.
To exit and save the data on an edit panel, enter the END command on the
COMMAND line.

```
 EDIT ---- PREFIX.MEMO.TEXT(FEB27) ----------------------------- COLUMNS 001 072
 COMMAND ===>                                                      SCROLL ===> HALF
 ****** ************************ TOP OF DATA **********************************
 000001 My Dear Sir,
 000002
 000003    In response to your urgent request for my immediate
 000004 presence, I am beginning the process of asking for a leave
 000005 of absence.
 000006     With any luck, I should be able to meet with you
 000007 shortly and should be able to spend at least a fortnight
 000008 with you working out the details.
 000009    I am anticipating your discourse on the particulars of
 000010 this extraordinary case.
 000011
 ****** ************************* BOTTOM OF DATA ******************************
```

For more information about editing text, see "Using ISPF/PDF Edit" on page 7-9.

Panel Hierarchies

Before you use panels, you need to first understand how they are organized. Panel organization is similar to the organizational hierarchy for a large company. At the top is the chairman of the board and stemming from the chairman are top executives of the company. Each top executive is responsible for managers, who in turn are responsible for the people who work for them.

In panels, the main menu panel is at the top. Stemming from the main menu panel are options you can select. Selecting an option might take you directly to the service or task you wish to perform, or the option might be another menu panel that leads to other options.
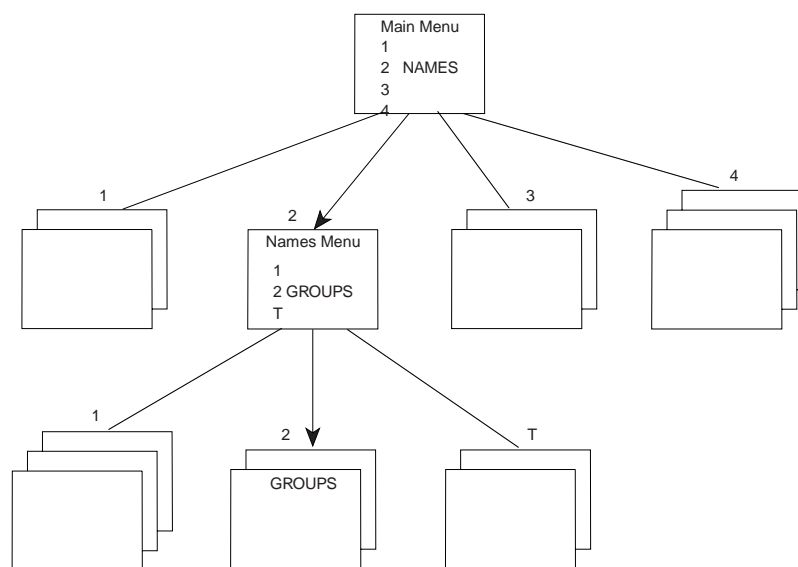
Figure 3-1. Panel hierarchies

You begin at the main menu panel and select your way down through options and other menu panels at lower levels. Thus to get to the GROUPS option, you select NAMES from the main menu panel and select GROUPS from the names menu panel. When you exit, you generally retrace your way back up through each level you came down. When you exit the GROUPS option, you go to the names menu panel first and then to the main menu panel.

Getting Help While Using Panels

Help for Panels

If while using a panel, you don't understand what to do, you can enter the HELP command on the COMMAND/OPTION line. A help panel then appears with information about the panel you were viewing. A help panel can look something like the following:

```
HELP              INFORMATION CENTER FACILITY - COURSE SELECTION        Page 1 of 6
COMMAND ===>

        The previous panel displays a list of courses, each having
        an associated course condition and course type.

        Each entry has the following format:

        action field
        |                COURSE                CONDITION         TYPE
        |
        V                                      assigned
        _   course name                       condition       course type

        The list starts with all the courses for which you are
        the author.  After these courses, you see the courses in
        which you are registered.  The remaining courses are in
        alphabetical order according to course name.  If there are
        more names than fit on a screen, use the UP and DOWN PF
        keys to scroll through the list.


    ENTER = Forward                                  PF 3 = End help
```

When you finish reading the help panel, enter end on the COMMAND line to return
to the panel on which you were working.

Help for Messages

When you use panels, you receive two types of messages.

- Informational messages – These messages are statements of fact about the
  processing that is taking place and require no response from you. An
  informational message might look like:

```
The group was added to the directory.  ICQCA222.
```

- Error messages – These messages inform you of errors in processing and are
  accompanied by an audible alarm. The error might be with the system or might
  be a result of your actions. An error message might look like:

```
"V" is not valid on a blank row.  ICQCA228
```

If you don't understand the message, you can enter the HELP command on the
COMMAND/OPTION line. If you are using the Information Center Facility, a help
panel then appears with information about the message you were viewing. The
help panel for the previous error message example is:

```
HELP                          MESSAGE - ICQCA228
COMMAND ===>

         "V" is not valid on a blank row.  ICQCA228

         Explanation:  You cannot type V in the action field to
         the left of a blank row.  Typing V indicates that you want
         to view more detailed information about what is described
         in that row.




         ENTER = Help for panel              PF 3 = End help
```

To return to the panel on which you received the message, enter end on the
COMMAND line.

Using PF Keys

Up to now you have issued commands such as END and HELP by entering them
on the COMMAND/OPTION line of a panel. Another way to issue a command is to
press a program function (PF) key. A PF key represents a command or a series of
commands. Pressing one PF key is equivalent to typing the command on the
COMMAND line and pressing the Enter key.

Keyboards can have 12 or 24 PF keys. Generally the PF keys are preset to default
values. To see your PF key values, enter keys on the COMMAND/OPTION line of
any panel on which you can use TSO/E.

If you have 24 PF keys, you first see the values for PF keys 13-24. Generally
these values are the same as the ones for PF keys 1-12. (To see values 1-12,
press the Enter key.) You can compare your preset values to the following default
values:

```
PF13 ===> HELP
PF14 ===> SPLIT
PF15 ===> END
PF16 ===> RETURN
PF17 ===> RFIND
PF18 ===> RCHANGE
PF19 ===> UP
PF20 ===> DOWN
PF21 ===> SWAP
PF22 ===> LEFT
PF23 ===> RIGHT
PF24 ===> RETRIEVE
```

Using PF Keys

If you have 12 PF keys, you see the values for PF keys 1-12. You can compare your preset values to the following default values:

```
PF 1 ===> HELP
PF 2 ===> SPLIT
PF 3 ===> END
PF 4 ===> RETURN
PF 5 ===> RFIND
PF 6 ===> RCHANGE
PF 7 ===> UP
PF 8 ===> DOWN
PF 9 ===> SWAP
PF10 ===> LEFT
PF11 ===> RIGHT
PF12 ===> RETRIEVE
```

To display PF key defaults on each panel as you work, type `pfshow` on the COMMAND/OPTION line. You then see the PF key defaults displayed on the bottom two lines of the panel.

```
----------------------- ISPF/PDF PRIMARY OPTION MENU -----------------------
OPTION ===>
                                                      USERID   - YOURID
     0  ISPF PARMS  - Specify terminal and user parameters    TIME     - 12:47
     1  BROWSE      - Display source data or output listings   TERMINAL - 3277
     2  EDIT        - Create or change source data             PF KEYS  - 12
     3  UTILITIES   - Perform utility functions
     4  FOREGROUND  - Invoke language processors in foreground
     5  BATCH       - Submit job for language processing
     6  COMMAND     - Enter TSO command or CLIST
     7  DIALOG TEST - Perform dialog testing
     8  LM UTILITIES- Perform library administrator utility functions
     9  IBM PRODUCTS- Additional IBM program development products
     C  CHANGES     - Display summary of changes for this release
     T  TUTORIAL    - Display information about ISPF/PDF
     X  EXIT        - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.



 PF 1=HELP      2=SPLIT     3=END      4=RETURN    5=RFIND     6=RCHANGE
 PF 7=UP        8=DOWN      9=SWAP     10=LEFT     11=RIGHT    12=RETRIEVE
```

To remove the PF key defaults from the bottom of each panel, enter `pfshow off` on the COMMAND/OPTION line.

Note: From now on when we refer to issuing certain commands, we mention using the default PF keys. For example, we say press the END PF key (PF 3), however, you still can enter the equivalent command on the COMMAND or OPTION line.

For more information about PF keys, see Appendix B, "PF Keys Summary".

Scrolling

What happens if the data on an edit panel or a list of items is too long to fit on one screen? For example, the list of names on the following panel extends below the bottom of the screen.

```
                      NAMES - LIST OF NAMES
 COMMAND ===>                                      SCROLL ===> PAGE

To view, V, modify, M, delete, D, a name, or copy, C, to the
master directory, type the letter to the left of the selected name.
To add a name, type A on the COMMAND line.
">" beside a name indicates that it is in your private directory.

    LAST NAME          FIRST NAME      PHONE          USER ID  SYSTEM
_   Green              Doris           266-4387       DORAG    COMP1
     MGR                  DeptC

_   Green              Janice          266-6795       JEG1     COMP1
                          DeptE

_   >Greenburg         John            266-6332       JWG      COMP1
     MGR                  DeptA

_   Greenly            Mary                            MAG2     COMP1
                          DeptW

_   Griswald           Thomas          266-6437       TGRIS    COMP2
                          DeptC
```

When a list is longer than one screen length, you can do something called **scrolling**. Scrolling treats information as if it were on a scroll that can be moved up and down behind the screen. You generally press PF keys to move the information.

Scrolling involves a *scroll direction* and a *scroll amount*. The four scroll directions are the same as commands you can type and usually are assigned to PF keys.

Command	PF Key
DOWN	PF 8
UP	PF 7
LEFT	PF 10
RIGHT	PF 11

You can indicate a scroll amount in the upper right hand corner of scrollable panels. There you see a field marked:

```
SCROLL ===>
```

The possible values for the scroll field are:

- A number from **1-9999**, representing the number of lines or columns to be scrolled.

- **Page** or **p**, indicating that a full page (screen) is to be scrolled.

- **Half** or **h**, indicating that a half-page is to be scrolled.

- **Csr** or **c**, indicating that the screen is to be scrolled to the line on which you see the cursor.

- **Max** or **m**, indicating that the panel is to be scrolled the maximum amount to the beginning or the end of the information. After max or m is used, the scroll value reverts to its previous value.

- **Data** or **d**, indicating that the panel is to be scrolled a full page, minus one line.

You might notice that all scroll amounts, except for max, stay in the SCROLL field until you change them.

Chapter 4. Using the Information Center Facility

When you finish reading this chapter, you will be able to:

- Display the Information Center Facility User Services main menu panel.

- Do the following tasks on panels:

    - Select options from menu panels
    - Enter data on data entry panels
    - Scroll and select items from list panels

- Use * to get a list.

- Use the tutorial and help panels.

- Exit the Information Center Facility.

For more information, see the Information Center Facility on-line tutorial and help panels.

What is the Information Center Facility?

The TSO/E Information Center Facility is a set of panels that enable you to use certain services and products. The services and products that you can use are displayed on a main menu panel that might look like this:

```
                TSO/E INFORMATION CENTER FACILITY USER SERVICES
 Option  ===>

 Select one of the following options.  To scroll, press UP or DOWN.

     0  DESCRIBE    - Read a short description of options on this panel
     1  NEWS        - Obtain system news
     2  NAMES       - Find a name/phone number
     3  OFFICE      - Use mail/document/other office services Facility
     4  PROGRAM     - Use program creation/execution services
     5  ANALYSIS    - Perform data analysis/report creation/decision support
     6  CHART       - Create charts/graphs
     7  COURSES     - Use education services
     8  PDF         - Use ISPF/PDF services
     9  PROBLEM     - Report problems
    10  UTILITY     - Use utility services
     I  INTRO       - Learn to use the Information Center Facility
     T  TUTORIAL    - Read descriptions of options on this panel
     X  EXIT        - Exit from the Information Center Facility


 To view PF key definitions, type KEYS on COMMAND or OPTION line of any panel.
```

The services and products displayed at your installation might not be the same as the ones shown in the example.

For a description of the standard services, see Appendix A, "Information Center Facility Standard Services".

Getting to the Information Center Facility

How to get to the Information Center Facility main menu panel depends on how your installation is set up. First log on to TSO/E. After logging on, one of the following should happen:

* The Information Center Facility User Services menu panel appears, or

* Another menu panel appears with the Information Center Facility as an option. To get to the Information Center Facility, enter its option ID on the OPTION line, or

* The READY message appears. To get to the Information Center Facility, enter `icqicf` after the READY message. (ICQICF is the default command; your installation might have changed it.)

If none of the above situations occur, ask someone at your installation for help.

Your installation may have tailored Information Center Facility selections for different groups of users to make the panel selections correspond to the tasks the users commonly perform. If you have been given authorization, you can use the Information Center Facility panels tailored for a specific user group or department. "Using the PROGRAM Service to Specify a Group" on page 4-10 explains how to specify the name of a group whose Information Center Facility panels you want to use for your next session.

Using the Information Center Facility

You can learn how to use the Information Center Facility from information that you see on the screen. Standard services that IBM provides have on-line tutorials; directions are on every panel; messages guide you as you go along; and if you need help for a panel or a message, you can display a help panel that describes what to do in more detail.

But, before you use the standard services offered by the Information Center Facility, you need to know a few basic procedures.

Reading the directions on each panel – Most panels have directions telling you what to do on that panel. You generally move to another panel by following those directions. Until you are familiar with the Information Center Facility, read the directions carefully because they change from panel to panel.

Processing information on a panel – To process information on most panels, type the information in the required field(s) and press the Enter key. You usually see another panel as a result of the information processed.

On scrollable panels, such as edit panels and some list panels, you can process more than one item of information. When you press the Enter key, you do not see another panel. You must press the END PF key (PF 3) to end the process and display another panel.

Exercise

Select an option on the Information Center Facility main menu by typing the option number on the OPTION line and pressing the Enter key. Stop when the new panel appears.

Exiting a panel – To exit most panels without processing information, press the END PF key (PF 3) or enter the word `end` on the COMMAND/OPTION line of the panel. To exit a service you select from the main menu panel, press the RETURN PF key (PF 4) or press the END PF key (PF 3) repeatedly on every panel that appears until you return to the main menu panel for the Information Center Facility.

If you cannot exit a panel by pressing the END PF key (PF 3), the directions generally tell you how to exit.

Exercise

Press the END PF key (PF 3) on the panel displayed in the previous exercise. Your Information Center Facility main menu panel reappears.

Getting help for a panel or a message – If the directions on a panel are unclear or you receive a message on your screen that is unclear, you can get more information by pressing the HELP PF key (PF 1) or by entering the word `help` on the COMMAND/OPTION line of the panel.

┌─ **Exercise** ──┐

Press the HELP PF key (PF 1) on the main menu panel. Read the panel and
when you are finished, press the END PF key (PF 3).

└──┘

With these basic procedures in mind, we will use the NAMES service and learn as
we go.

Using the NAMES Service

The NAMES service of the Information Center Facility is an on-line directory, much
like a phone book. It can contain names, phone numbers, addresses, and other
information such as user IDs, and department names.

If you don't have NAMES on your menu panel, it might be helpful to read through
the following example before selecting a different option.

Display the Information Center Facility main menu panel and select NAMES (option
2) from the list of services.

```
              TSO/E INFORMATION CENTER FACILITY USER SERVICES
Option  ===> 2

Select one of the following options.  To scroll, press UP or DOWN.

    0  DESCRIBE    - Read a short description of options on this panel
    1  NEWS        - Obtain system news
    2  NAMES       - Find a name/phone number
    3  OFFICE      - Use mail/document/other office services Facility
    4  PROGRAM     - Use program creation/execution services
    5  ANALYSIS    - Perform data analysis/report creation/decision support
    6  CHART       - Create charts/graphs
    7  COURSES     - Use education services
    8  PDF         - Use ISPF/PDF services
    9  PROBLEM     - Report problems
   10  UTILITY     - Use utility services
    I  INTRO       - Learn to use the Information Center Facility
    T  TUTORIAL    - Read descriptions of options on this panel
    X  EXIT        - Exit from the Information Center Facility


To view PF key definitions, type KEYS on COMMAND or OPTION line of any panel.

```

After selecting NAMES, another menu panel appears. Enter 1 on the OPTION line
to select the NAMES option.

```
            INFORMATION CENTER FACILITY - NAMES DIRECTORY

OPTION  ===> 1

Select the desired option.

   1  NAMES       - Find a name/phone number, or create and maintain names
   2  GROUPS      - Find a group of names, or create and maintain groups
   T  TUTORIAL    - Learn to use the names directory


The following options are for advanced use of the names directory

   3  CLOSE       - Close the directories
   4  CHANGE      - Change the private directory prefix
```

The next panel you see is a data entry panel that contains input fields. These input fields contain underscores to indicate the maximum number of characters allowed.

```
                     NAMES - NAME IDENTIFICATION
COMMAND ===>

To find, modify, or delete a name, type the information where requested.
All information is optional. To request a list, "*" may be used.
To add a name, type A on the COMMAND line.

   LAST NAME         ===> *_____
   FIRST OR NICKNAME ===> *_____
   USER ID           ===> *_____

 Additional search information
   DIRECTORY         ===> BOTH___    Search Master, Private, or Both directories
   DEPARTMENT NUMBER ===> *_____
   DEPARTMENT NAME   ===> *_____
   JOB TITLE         ===> *_____

   DIRECTORY ID      ===> *_____    Unique identifier for names directory
   SYSTEM NODE       ===> *_____   System ID
```

You do not always need to type information in an input field. For some fields you can:

- **Use the preset value:** Some fields in the Information Center Facility already have a value in them. That value is the **default** supplied by the system. Often you can type another value over the displayed default value. Sometimes the default is the previous value entered.

  The word **BOTH** in the DIRECTORY field on the Names – Name Identification panel is a system-supplied default value. You can type the words private or master over it.

- **Leave the field blank:** Some fields in the Information Center Facility are blank. If the information is optional, you do not need to fill them in. All the fields on the Names – Name Identification panel are optional.

> • **Use an asterisk (*):** In the Information Center Facility, the * is used to request a list of items that can be entered in a field.

Using an * to Get a List

Notice the ***** at the beginning of each of the input fields on the previous panel. You can think of the word *all* when you see * in a field, because all possible entries are listed. Don't press the Enter key now, but if you did, you would see a full list of every name in your installation's names directory.

You can restrict a list of items by typing information over the *. If you enter the name Marvin in the FIRST OR NICKNAME field and leave * in all other fields, you see a panel with a list of people in the directory named Marvin. For example, you might see:

```
Marvin Abrams
Marvin Long
Marvin Scott
```

Another way to restrict the list is to type partial information in a field followed by *. If you typed **s*** in the LAST NAME field and **mar*** in the FIRST OR NICKNAME field and left * in all other fields, you would see a panel with a list of people whose first name begins with 'mar' and whose last name begins with 's'.

```
Marianne Sawyer
Marvin Scott
Mary Sergio
```

In some cases, when you type a word in a field that accepts * and you don't add *, the system adds it. For example if you type green in the LAST NAME field, the system automatically adds * at the end. As a result, you might see a list with last names:

```
Greene, Greener, Greenfield, Greenly
```

Exercise

Display the Names – Name Identification panel. Enter G in the LAST NAME field. If your administration has set up a system-wide names directory, a list of names starting with G appears on the Names – List of Names panel.

The panel you see after entering the letter G is a list panel and might look something like the following:

```
                          NAMES - LIST OF NAMES
COMMAND ===>                                              SCROLL ===> PAGE

To view, V, modify, M, delete, D, a name, or copy, C, to the
master directory, type the letter to the left of the selected name.
To add a name, type A on the COMMAND line.
">" beside a name indicates that it is in your private directory.

      LAST NAME              FIRST NAME      PHONE           USER ID  SYSTEM
  _   Gates                  Doris           266-4387        DORAG    COMP1
       MGR                    DeptC
  _   Ginsberg               John            266-6795        JEG1     COMP1
                              DeptE
  _  >Graham                 David           266-6332        DWG      COMP1
       MGR                    DeptA
  _   Greeley                Mary                            GREELEY  COMP1
                              DeptW
********************************* END OF LIST *******************************
```

List panels display a number of items with action fields, in this case, a single
underscore to the left of each item. The action codes you can type in those fields,
such as V (to view the directory entry) and M (to modify it), are given in the
directions on the panel.

Scrolling

In "Scrolling" on page 3-9, we discussed how to view information that exceeds the
screen size. Now that you have displayed a panel with a list, you can practice
scrolling.

> ### Exercise
>
> Make sure the Names – List of Names panel is displayed on your screen.
> Press the DOWN PF key (PF 8). If your list of names extends to more than
> one screen, you see another panel with more names. If your list of names does
> not extend to more than one screen, nothing happens. (To get a longer list, go
> back to the Names – Names Identification panel and put * in all the fields.)
>
> Now press the UP PF key (PF 7). You see the original panel of names.

Remember that scrolling involves a scroll direction and a scroll amount. Now you
can practice changing the scroll amount in the SCROLL field.

┌─ **Exercise** ───┐

Display your entire list of names by leaving * in all the name identification fields
on the Names – Name Identification panel. Press the Enter key to display the
Names – List of Names panel. Type max in the SCROLL field and press the
DOWN PF key (PF 8). You see the bottom of the list.

Now type data in the SCROLL field and press the UP PF key (PF 7). You see
the top name of the previous panel on the bottom of the current panel.

Try scrolling through the list of names by using the following:

Scroll amount   PF key
     10 ...... DOWN (PF 8)
     half .... UP   (PF 7)
     csr ..... UP   (PF 7)

└──┘

Other Commands

So far we have discussed the PF key commands, the KEY command to see current
values of PF keys, and PFSHOW to display PF key values on your screen.

Other commands you can use in the Information Center Facility are IC and GO.

IC Command

What if you need to get to the Information Center main menu panel quickly but you
don't want to stop what you are doing? For example, you might be updating your
names directory and want to briefly view a news item. The IC command allows you
to leave an Information Center Facility panel and return temporarily to the
Information Center Facility main menu panel. You can then select and use other
services.

```
                        NAMES - LIST OF NAMES
COMMAND ===> IC                                    SCROLL ===> PAGE

To view, V, modify, M, delete, D, a name, or copy, C, to the
master directory, type the letter to the left of the selected name.
  ⋮
```

```
           TSO/E INFORMATION CENTER FACILITY USER SERVICES
Option  ===> 1

  1  NEWS       - Obtain system news
  ⋮
```

```
                 INFORMATION CENTER FACILITY  -  NEWS

COMMAND ===>
To take the tutorial for NEWS, type T on the COMMAND line.  For a list
of new news items, type NEW on the COMMAND line.
  ⋮
```

To return to the panel on which you typed IC, press the END PF key (PF 3) one or more times.

Exercise

Display the Names – List of Names panel. Enter `ic` on the COMMAND line to display the Information Center Facility main menu panel. Select an option such as NEWS (option 1) from the menu panel. When you see the first panel of the option, press the END PF key (PF 3) until you see the Names – List of Names panel again.

GO Command

A command similar to IC but even more direct is the GO command. GO takes you directly to an option instead of having to select it from the main menu panel. For example, to go to the OFFICE option from any Information Center Facility panel, enter `go office` on the COMMAND/OPTION line.

Note: GO selects only products and services that were defined by Application Manager. If products and services at your installation were not defined by Application Manager, the GO command is not effective. In addition, GO does not select the options DESCRIBE, TUTORIAL, and EXIT.

```
                         NAMES - LIST OF NAMES
COMMAND ===> go office                              SCROLL ===> PAGE

To view, V, modify, M, delete, D, a name, or copy, C, to the
master directory, type the letter to the left of the selected name.
  ⋮
```

```
            Information Center Facility - Office Services

Option ===>

Select one of the following options.  To scroll press UP or DOWN.

  0 DESCRIBE  - Read a short description of the options on this panel.
  ⋮
```

To return to the panel on which you typed the GO command, press the END PF key (PF 3) one or more times.

Exercise

Display the Names – List of Names panel. Enter `go office` on the COMMAND line. (If you don't have OFFICE, type the keyword of another option from your main menu panel and precede it with `go`.)

Then press the END PF key (PF 3) until you see the Names – List of Names panel again.

Using the PROGRAM Service to Specify a Group

The PROGRAM service of the Information Center Facility provides a selection of environments in which you can create or execute programs. In addition, it allows you to request to use Information Center Facility menu panels tailored for a specific group of users.

Information Center Facility menu panels allow users to access Information Center Facility services. Because different departments or groups of users may require different services to perform their work, your installation may have tailored menu selections for different groups. If you have authorization to use the menu panels defined for a specific group, you can request to use these panels for your next Information Center Facility session by specifying a group. When you specify a group, the menu selections defined to that group will appear each time you use the Information Center Facility. Note that these selections will not be used for your current session.

Display the Information Center Facility main menu panel and select PROGRAM (option 4) from the list of services.

```
              TSO/E INFORMATION CENTER FACILITY USER SERVICES
 Option  ===> 4

 Select one of the following options.  To scroll, press UP or DOWN.

    0  DESCRIBE   - Read a short description of options on this panel
    1  NEWS       - Obtain system news
    2  NAMES      - Find a name/phone number
    3  OFFICE     - Use mail/document/other office services Facility
    4  PROGRAM    - Use program creation/execution services
    5  ANALYSIS   - Perform data analysis/report creation/decision support
    6  CHART      - Create charts/graphs
    7  COURSES    - Use education services
    8  PDF        - Use ISPF/PDF services
    9  PROBLEM    - Report problems
   10  UTILITY    - Use utility services
    I  INTRO      - Learn to use the Information Center Facility
    T  TUTORIAL   - Read descriptions of options on this panel
    X  EXIT       - Exit from the Information Center Facility


 To view PF key definitions, type KEYS on COMMAND or OPTION line of any panel.
```

After selecting PROGRAM, another menu panel appears. Enter 6 on the OPTION line to select the GROUPSPEC option.

```
          Information Center Facility - Programmer Services
Option   ===> 6

Select one of the following options.  To scroll, press UP or DOWN.

   0  DESCRIBE     - Read a short description of the options on this panel
   1  BASIC        - Program in IBM BASIC/MVS environment
   2  APL2         - Program in APL2 environment
   3  VSAPL        - Program in VSAPL environment
   4  TIF          - Use the Information Facility
   5  AS           - Use the Application System
   6 GROUPSPEC     - Group Specification
   ⋮
```

The next panel displayed is a data entry panel. You can do one of three things on
this panel:

- Enter a GROUP ID (name) that you are authorized to use

- Enter an asterisk (*) for a list of group names you can select from

- Enter a part of a name with an asterisk (*) as a suffix for a list of group names
  beginning with the characters entered.

In this example, an asterisk (*) is entered for a list of group names.

```
                  Application Manager - Group Specification

COMMAND ===>
Type the group name to be used during application invocation and press ENTER.
Blank the Group ID field to turn off group applications and press ENTER.
To exit, press END.

     Group ID ===> *          Group name, *, or part of name with * suffix
```

The panel you see after entering an asterisk (*) on the Group Specification panel
looks something like the following.

```
                  Application Manager - List of Groups

COMMAND ===>                                         Scroll ===> PAGE
Type S in the S column to select an application group and press ENTER.
To exit, press END.

S     Group
      GROUP2
_
      GROUP3
_
s     GROUP4
      NEWGROUP
_
```

In the example, GROUP4 has been selected as the group under which the next
Information Center Facility session will run. If you want to use menu panels
defined for the group, GROUP4, exit the Information Center Facility, and start a

new session, or logoff and logon again. The menu selections will be displayed for all your Information Center Facility sessions until you change the group ID.

Specifying Blank to Cancel Group Selection

If you want to stop using the menu selections defined for a group, GROUP4 in the example, blank out the GROUP ID field on the Group Specification panel and press the Enter key.

```
                  Application Manager - Group Specification

COMMAND ===>
Type the group name to be used during application invocation and press ENTER.
Blank the Group ID field to turn off group applications and press ENTER.
To exit, press END.

    Group ID ===>              Group name, *, or part of name with * suffix
```

Learning More About the Information Center Facility

Because your installation might offer services in the Information Center Facility that differ from the standard services, we don't go into detail about every option on the standard menu panel. Instead, we show you how to use a tutorial and let you learn on your own. Also, remember that you can press the HELP PF key (PF 1) to find out more information about a displayed panel.

You can read an introductory tutorial about how to use the Information Center Facility by selecting the INTRO option (option I) from the main menu panel. You then see the following panel.

```
                USING THE INFORMATION CENTER FACILITY
 TUTORIAL
 OPTION  ===>

        To view the topics in sequence, press the ENTER key.
        To choose a specific topic, type the highlighted number
        for the topic to the right of the OPTION arrow and
        press the ENTER key.

        1  NEWUSER      - Information for beginners
        2  OVERVIEW      - Description of the Information Center

        3  PFKEYS       - Using PF keys
        4  PANELS       - Using panels
        5  COMMANDS     - Using commands
        6  MESSAGES     - Receiving messages
        7  HELP         - Obtaining help
        8  ***          - Responding to ***
        9  PUBS         - Additional sources of information



 ENTER = Read in sequence                        PF 3 = End tutorial
  PF 7 = Prior list of options                   PF10 = Backward
```

While in a tutorial option, you can:

- Read through the tutorial sequentially by pressing the Enter key to see the next panel.

- Skip around in the tutorial by selecting specific options.

- Exit the tutorial at any time by pressing the END PF key (PF 3).

To avoid feeling "lost" in the tutorial, keep in mind that:

- If you press the Enter key to read through the options sequentially, you don't return to the menu panel, but continue to the next menu panel.

  For example, if you don't select an option from Menu 1 and press the Enter key, you see the options sequentially. After all the options are displayed, you see Menu 2.
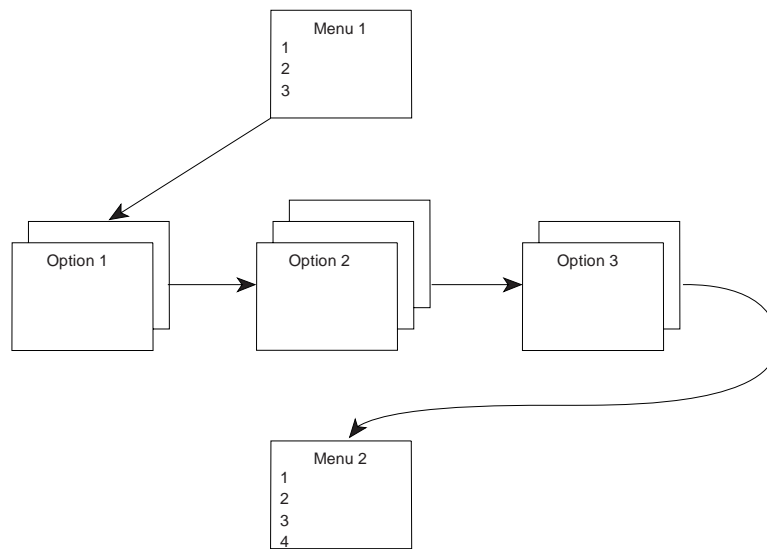
Figure 4-1. Reading through a tutorial sequentially

- If you select an option from a menu panel, that menu panel is the starting point and ending point for the option. You can select options sequentially, or you can select only the options about which you want to read. When you finish with all the options on the menu panel, you see the next menu panel.

  For example, if you select Option 1 from Menu 1, you see the Option 1 tutorial. When the tutorial is over, you again see Menu 1 from which you can select Option 2. After all the options are selected, you see Menu 2.

Figure   4-2. Reading a tutorial by selecting options

- If you become confused about where you are in the tutorial, first press the UP
  PF key (PF 7) to see the prior menu panel. If you still feel confused, press the
  END PF key (PF 3) to display the Information Center Facility user services
  menu panel. You can then re-select the tutorial option and start over.
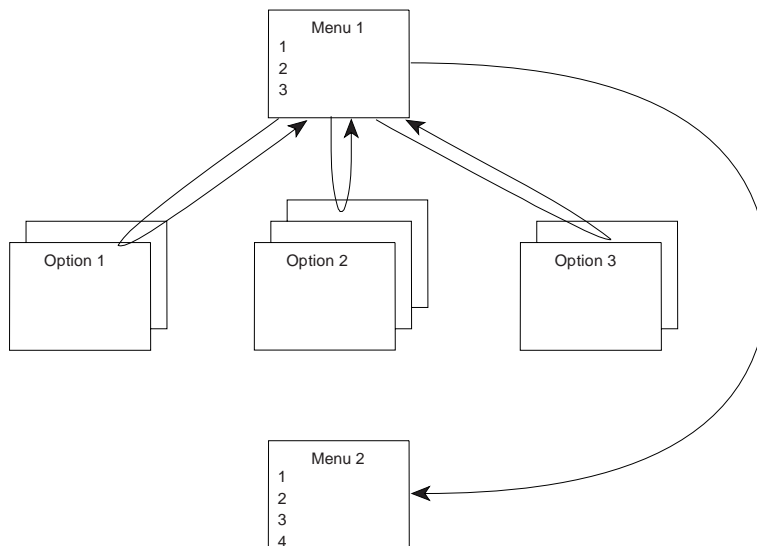

Exercise

Display the Information Center Facility User Services menu panel. Select the
INTRO option (option I). Notice the PF key definitions at the bottom and the
way they "flip the pages" of the tutorial.

Reading the Tutorial for a Standard Service

You can get to the tutorial for a standard service in two ways:

1. Select the TUTORIAL option (option T) from a main menu panel. You then see
   a tutorial menu panel. Select the option whose tutorial you want to read.

   Exercise

   Display the main menu panel for the Information Center Facility. Select the
   TUTORIAL option (option T). Choose an option about which you want to
   learn and select that option from the tutorial menu panel. To return to the
   main menu panel, press the END PF key (PF 3).

   ---

2. Select an option from the main menu panel. Enter T on the COMMAND line of
   the first panel within the option.

   Exercise

   Display the Information Center Facility main menu panel. Select an option
   such as NEWS (option 1). On the first news panel, enter T on the
   COMMAND line. To return to the news option, press the END PF key (PF
   3).

Exiting the Information Center Facility

1. RETURN PF key

   When you are finished using the Information Center Facility, you can exit it by pressing the RETURN PF key (PF 4) or by pressing the END PF key (PF 3) repeatedly until you see a menu panel with an option X to exit.

2. X Option

   To exit that menu panel, enter x on its OPTION line and on the OPTION lines of other menu panels that follow. You might then see the READY message or you might be automatically logged off.

3. LOGOFF command

   If you want to end your TSO/E session, enter logoff, after the READY message.

Exiting the Information Center Facility

Chapter 5. Using ISPF/PDF

When you finish reading this chapter, you will be able to:

- Get to the ISPF/PDF primary option menu panel

- Use the ISPF/PDF tutorial

- Exit ISPF/PDF.

For more information, see *OS/390 ISPF User's Guide*, SC28-1239.

What is ISPF/PDF?

The Interactive System Productivity Facility/Program Development Facility
(ISPF/PDF) is a set of panels that helps you manage libraries of information on the
MVS system. The ISPF/PDF Primary Option Menu displays a collection of tasks
related to program development and management, whereas the Information Center
Facility main menu panel displays a collection of services and products, one of
which might be ISPF/PDF. The first ISPF/PDF panel you see probably looks like
this:

```
----------------------- ISPF/PDF PRIMARY OPTION MENU -----------------------
OPTION ===>
                                                     USERID   - YOURID
    0  ISPF PARMS  - Specify terminal and user parameters   TIME     - 12:47
    1  BROWSE      - Display source data or output listings  TERMINAL - 3277
    2  EDIT        - Create or change source data           PF KEYS  - 12
    3  UTILITIES   - Perform utility functions
    4  FOREGROUND  - Invoke language processors in foreground
    5  BATCH       - Submit job for language processing
    6  COMMAND     - Enter TSO command or CLIST
    7  DIALOG TEST - Perform dialog testing
    8  LM UTILITIES- Perform library administrator utility functions
    9  IBM PRODUCTS- Additional IBM program development products
    C  CHANGES     - Display summary of changes for this release
    T  TUTORIAL    - Display information about ISPF/PDF
    X  EXIT        - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
```

Getting to ISPF/PDF

How you get to the ISPF/PDF Primary Option Menu depends on how your installation is set up. First log on to TSO/E. After logging on, one of the following happens:

- The ISPF/PDF Primary Option Menu appears, or

- Another menu panel appears with ISPF/PDF as an option. To get to ISPF/PDF, enter the option ID of ISPF/PDF on the OPTION line, or

- The READY message appears. To get to ISPF/PDF, enter pdf under the READY message.

If none of the above situations occur, ask someone at your installation for help. Also, if you did not read Chapter 3, "Using Panels" and are not familiar with panels, you might want to read that chapter now.

What You Can Do With ISPF/PDF

At the beginning of this chapter, we mentioned that ISPF/PDF is a way to manage libraries of information. The libraries are made up of units called *data sets* that can be stored and retrieved. You can have different kinds of information in data sets. Some examples are:

- Programs written in languages such as assembler language, COBOL, or PL/I.

- Data such as inventory records, personnel files, or a series of numbers to be processed.

- Text for memos, reports, and all kinds of documentation from recipes to a doctoral thesis.

You can find more information about data sets in "Types of Data Sets" on page 7-2.

The ISPF/PDF Primary Option Menu offers options that you can select to do the following tasks:

- Create a data set (option 3).

- Browse (option 1) or edit (option 2) a data set.

- Use system utilities (option 3) to:

    - Print a data set
    - Rename a data set
    - Copy a data set
    - Delete a data set.

- Issue a TSO/E command from a special ISPF/PDF panel (option 6).

Most of these tasks are covered in Chapter 7, "Using Data Sets".

Like the Information Center Facility, ISPF/PDF has a tutorial that explains how to use it. The TUTORIAL option is generally displayed on the ISPF/PDF Primary Option Menu.

While reading the ISPF/PDF tutorial, keep in mind that you can:

- Read through the tutorial sequentially by pressing the Enter key to see the next panel.

- Skip around in the tutorial by selecting specific options.

- Exit the tutorial at any time by pressing the END PF key (PF 3).

In addition, if you need help while doing a task on an ISPF/PDF panel, press the HELP PF key (PF 1) to see the section of tutorial that relates to that panel.

Exercise

Display the ISPF/PDF Primary Option Menu. Select the TUTORIAL option (option T) by entering T on the OPTION line. Read through as much of the tutorial as you want by following the directions on the panels. The first three panels describe how to use the tutorial. When you are finished, press the END PF key (PF 3) to return to the ISPF/PDF Primary Option Menu.

Exiting ISPF/PDF

1. RETURN PF key

   When you are finished using ISPF/PDF, exit it by pressing the RETURN PF key (PF 4), or by pressing the END PF key (PF 3) repeatedly until you see a menu panel with an option X to exit.

2. X Option

   To exit that menu panel, enter x on its OPTION line and on the OPTION lines of other menu panels that follow. You then see the READY message.

3. LOGOFF command

   If you want to end your TSO/E session, enter logoff, under the READY message.

Chapter 6. Using Line Mode TSO/E

After reading this chapter, you will be able to:

- Type simple commands after the READY message

- Respond to ***

- Use the attention interrupt key

- Use ? for more information about a message.

For more information, see *TSO/E User's Guide*, SC28-1968.

What is Line Mode TSO/E?

Line mode TSO/E is the way programmers originally communicated interactively with the MVS operating system. They issued TSO/E commands and entered text at the terminal one line at a time rather than from panels.

You can still use line mode TSO/E to communicate with the MVS system. To use line mode TSO/E, enter a command after the READY message is displayed. The READY message indicates that you are in line mode TSO/E.

When you are in either ISPF/PDF or the Information Center Facility, you need only press the RETURN PF key (PF 4) or press the END PF key (PF 3) repeatedly until you see the READY message.

TSO/E Commands

Commands in one form or another make things happen in TSO/E. In line mode TSO/E you issue commands in their original form. So far you have issued the LOGON and LOGOFF commands.

With panels, you issue commands in a different form by selecting options and entering information in fields. In addition, panels have commands of their own, such as the PF key commands and KEYS.

TSO/E line mode commands consist of the **command name** and possibly one or more **operands**. The command is usually a familiar word that describes what the command does; for instance, the RENAME command changes the name of a data set.

Operands provide specific information. For instance, the operands for the RENAME command are the old data set name and the new data set name. Commands can have two kinds of operands, **positional** and **keyword**.

Positional Operands

If a command has positional operands, you must specify them whenever you issue the command. As the name 'positional' suggests, the operands must follow the command in a certain order. In the case of the RENAME command, the old data set name must be positioned first and the new data set name must be positioned second.

```
RENAME  old.data   new.data
        \      /   \      /
         \    /     \    /
        operand 1   operand 2
```

Keyword Operands

Keyword operands are specific names or symbols that have a particular meaning to the system. They can be in any order, but they cannot appear before positional operands. The word DATASET is a keyword that is followed by the name of the data set enclosed within parentheses.

```
TRANSMIT   nodeid.userid   DATASET(dataset.name)
               \       /   \               /
                \     /     \             /
           positional operand    keyword operand
```

Some simple TSO/E syntax rules are:

- The command name must always be first.

- Positional operands must be next after the command. If there is more than one positional operand, the operands must be in a particular order.

- Keyword operands, if any, can be in any order after positional operands.

- If more than one item is within the parentheses following a keyword, the items must be separated by a comma or a space.

  ```
  TRANSMIT nodeid.userid DATASET(my.data1) MEMBERS(mem1,mem2,mem3)
  ```

> **Note**
>
> The examples in this book show invariable items, such as commands and operands, in capital letters and variable items, such as data set names, in lower case letters. For example:
>
> ```
> RENAME old.data new.data
> ```
>
> RENAME is the command name and must be included first as specified or in abbreviated form. You can substitute any data set names for the names old.data and new.data.
>
> You do not need to type the invariable items with capital letters.

Some commands and some keywords can be abbreviated. For example, you can type the former TRANSMIT example as follows:

```
XMIT nodeid.userid DA(my.data1) MEM(mem1,mem2,mem3)
```

Not all commands and keywords can be abbreviated, however. For more information about abbreviating, see "Abbreviating Commands and Keywords" on page 9-18.

Following are the commands and functions we cover in this book.

```
Command        Function
ALLOCATE       Create new data sets
HELP           Obtain help for a TSO/E command
LOGOFF         End a TSO/E session
LOGON          Begin a TSO/E session
LISTCAT        List your data sets
LISTDS         List information about a data set
PRINTDS        Print data sets
PROFILE        Display or change terminal characteristics
RECEIVE        Receive transmitted data
RENAME         Change the name of a data set
SEND           Send a short message
TRANSMIT       Send a longer message or a data set
```

Where to Enter Commands

You can enter TSO/E commands in three places:

1. After the READY message. For example, to issue the RENAME command, enter:

   ```
   READY
   RENAME old.data new.data
   ```

2. From the ISPF/PDF COMMAND option (option 6). For example, to issue the RENAME command from the COMMAND option, select option 6 from the ISPF/PDF Primary Option Menu and enter:

   ```
   ENTER TSO COMMAND OR CLIST BELOW:
   ===> RENAME old.data new.data
   ```

3. On any ISPF/PDF panel. Type the TSO/E command on the COMMAND or OPTION line preceded by tso. For example, to issue the RENAME command from an ISPF/PDF panel, enter:

   ```
   COMMAND ===> TSO RENAME old.data new.data
   ```

Most of the examples in this book show the commands as typed after the READY message, but keep in mind that commands can be entered in the other two places as well.

Exercise

Enter the words `for what` after the READY message.

```
 READY
for what
```

You then see:

```
COMMAND FOR NOT FOUND
READY
```

Now enter the word `help`

```
 READY
HELP
```

You see a list of TSO/E commands followed by ***.

```
LANGUAGE PROCESSING COMMANDS:

ASM   INVOKE ASSEMBLER PROMPTER AND ASSEMBLER F COMPILER.
CALC  INVOKE ITF:PL/1 PROCESSOR FOR DESK CALCULATOR MODE.
COBOL INVOKE COBOL PROMPTER AND ANS COBOL COMPILER.
FORT  INVOKE FORTRAN PROMPTER AND FORTRAN IV G1 COMPILER.

PROGRAM CONTROL COMMANDS:

CALL   LOAD AND EXECUTE THE SPECIFIED LOAD MODULE.
LINK   INVOKE LINK PROMPTER AND LINKAGE EDITOR.
LOADGO LOAD AND EXECUTE PROGRAM.
***
```

Press the Enter key. You see another screen of commands followed by ***.
Keep pressing the Enter key until you see the READY message again.

Symbols and Keys

Three Asterisks ***

The symbol *** means press the Enter key to continue. You generally see *** at the bottom of a screen or after a message that interrupts your work.

Attention Interrupt Key

What happens if you change your mind about something you enter and you want to stop processing? Another key on your keyboard interrupts a process and takes you back to the READY message. Sometimes this key is labeled **PA1**. Locate the attention interrupt key on your keyboard.

Exercise

Enter the following after the READY message:

```
HELP logon help
```

You then see:

```
 INVALID KEYWORD, HELP
 REENTER THIS OPERAND -
```

To get out of this process, press the attention interrupt key. You see the READY message again.

Question Mark

Some line mode TSO/E messages have layers of additional messages. To see an additional message, enter a question mark (?) under the original message on the extreme left-hand side of the screen. If no message is available, you see:

```
NO INFORMATION AVAILABLE
```

Exercise

After the READY message, enter:

```
HELP for
```

You then see:

```
 HELP NOT AVAILABLE+
 READY
```

Enter a ? after the READY message to see another message:

```
 READY
?
 COMMAND FOR NOT FOUND, FOR MORE HELP ENTER HELP
 READY
```

If you enter another ?, you see:

```
NO INFORMATION AVAILABLE
```

Chapter 7. Using Data Sets

After reading this chapter, you will be able to:

- Differentiate between sequential and partitioned data sets

- Name a data set using the naming rules and conventions

- Use ISPF/PDF to:

    – Create a sequential data set
    – Create a partitioned data set
    – Display a sequential data set
    – Display a partitioned data set
    – List data set names
    – Edit a data set
    – Delete a data set.

- Use line mode TSO/E to create, list, and delete a data set.

For more information in this chapter, see:

- *OS/390 ISPF Edit and Edit Macros*, SC28-1312
- *OS/390 ISPF User's Guide*, SC28-1239
- *TSO/E Command Reference*, SC28-1969
- *TSO/E User's Guide*, SC28-1968.

Types of Data Sets

We mentioned in Chapter 5, "Using ISPF/PDF" that a data set contains information that can be stored and retrieved. Data sets can contain many kinds of information – programs, numerical data, inventory records, memos, reports, and so on.

TSO/E manages data sets much the same way you might manage a filing system. When you first begin a filing system, you might have only a few categories; for instance, bills, insurance, and taxes. You delegate a file to each category, mark an empty file folder with the category name, and begin to put appropriate information in each file.

Similarly, TSO/E manages simple files called *sequential data sets*. These files can have one or more names separated by periods such as `BILLS`, or `CURRENT.BILLS`, or `MY.CURRENT.BILLS`. The contents of sequential data sets are arranged in sequence in a single file.

```
00001  1/04   Groceries          $42.21      Paid
00002  1/05   Gasoline           $18.00      Paid
00003  1/13   Towing charge      $25.00      Unpaid
00004  1/14   Snow tires         $70.95      Unpaid
00005  1/16   Groceries          $67.14      Paid
00006  1/16   Gas and electric   $112.52     Unpaid
00007  1/17   Telephone          $80.05      Unpaid
```

When your file for bills becomes so full it is difficult to find information in the file, you can subdivide the information into smaller categories. Suppose you decide to divide the file into the categories 'paid' and 'unpaid'. You then mark up two new folders with the new category names. Both folders are still under the general category 'bills'.

Similarly TSO/E manages subdivided files called *partitioned data sets* or *PDS*. A PDS can contain one or more *members*. Each member is like a sequential data set in that the contents are arranged in sequence. Partitioned data sets generally have three names separated by periods and a member name in parentheses.

```
MY.CURRENT.BILLS(PAID)
MY.CURRENT.BILLS(UNPAID)
```

Information you might have in a PDS are programs of a particular type, such as COBOL programs with one program per member.

```
MY.TEST.COBOL(PROG1)
MY.TEST.COBOL(PROG2)
MY.TEST.COBOL(PROG3)
MY.TEST.COBOL(SAMPLE)
```

Data Set Naming Rules

When you name a file in your personal filing system, you can name it anything you want. A computer system, however, imposes some rules for naming data sets. The rules for naming TSO/E data sets are:

- A data set name consists of one or more parts connected by periods. Each part is called a *qualifier*.

- Each qualifier must begin with an alphabetic character (A to Z) or a special character (@,#,$).

- The remaining characters in each qualifier can be alphabetic, special, or numeric (0 to 9) characters.

- Each qualifier must be 1 to 8 characters in length.

- The maximum length of a complete data set name before specifying a member name is 44 characters, including the periods.

Some valid TSO/E data set names are:

```
X
PREFIX.TEST1
DEPT58.IDEAS.FUTURE.APPROVED.#4
```

Data Set Naming Conventions

In addition to the rules, there are naming conventions, specifically conventions that define a data set to ISPF/PDF. These conventions are an offshoot of the rules and provide standards that make it easier to use TSO/E whether in ISPF/PDF or in line mode TSO/E. Thus a data set name that follows the data set naming rules does not necessarily follow the conventions.

The conventions are:

- Both sequential and partitioned data set names consist of three qualifiers.

- PROJECT, the first qualifier, is your prefix as specified by the PROFILE command. Sometimes your prefix is your TSO/E user ID.

- GROUP, the second qualifier, can be any meaningful name.

- TYPE, the third qualifier, is a description of the type of information in the data set such as data, text, or the name of a programming language.

An ISPF/PDF data set with a member might be named as follows:

```
PROJECT   ===> prefix
GROUP     ===> memo
TYPE      ===> text
MEMBER    ===> feb27
```

Allocating a Data Set

When you create a file in your personal filing system, you get a folder, label it, and put it in a particular place in the file cabinet. Until you put items in the folder, it is empty.

On a computer system, we talk of *allocating* a data set when we create one because we allocate or allot space for data on a storage device. You allocate the space first and later put something into that space.

Using Data Sets in ISPF/PDF

You can do many data set management tasks with ISPF/PDF. The ones we discuss in this section are creating data sets, listing information about data sets, editing data sets, and deleting data sets.

Creating a Data Set in ISPF/PDF

In ISPF/PDF you create a data set by selecting the UTILITIES option (option 3) from the ISPF/PDF Primary Option Menu.

```
------------------------  ISPF/PDF PRIMARY OPTION MENU  ------------------------
OPTION ===> 3
                                                      USERID   - YOURID
     0  ISPF PARMS  - Specify terminal and user parameters    TIME     - 12:47
     1  BROWSE      - Display source data or output listings   TERMINAL - 3277
     2  EDIT        - Create or change source data             PF KEYS  - 12
     3  UTILITIES   - Perform utility functions
     4  FOREGROUND  - Invoke language processors in foreground
     5  BATCH       - Submit job for language processing
     6  COMMAND     - Enter TSO command or CLIST
     7  DIALOG TEST - Perform dialog testing
     8  LM UTILITIES- Perform library administrator utility functions
     9  IBM PRODUCTS- Additional IBM program development products
     C  CHANGES     - Display summary of changes for this release
     T  TUTORIAL    - Display information about ISPF/PDF
     X  EXIT        - Terminate ISPF using log and list defaults

 Enter END command to terminate ISPF.
```

You then see the Utility Selection Menu that allows you to do many data set management tasks. Select the DATASET option (option 2) to allocate a data set.

```
------------------------  UTILITY SELECTION MENU  ----------------------------
OPTION ===> 2

     1  LIBRARY     - Compress or print data set.  Print index listing.
                        Print, rename, delete, or browse members
     2  DATASET     - Allocate, rename, delete, catalog, uncatalog, or
                        display information of an entire data set
     3  MOVE/COPY   - Move, copy, or promote members or data sets
     4  DSLIST      - Print or display (to process) list of data set names
                        Print or display VTOC information
     5  RESET       - Reset statistics for members of ISPF library
     6  HARDCOPY    - Initiate hardcopy output
     8  OUTLIST     - Display, delete or print held job output
     9  COMMANDS    - Create/change an application command table
    10  CONVERT     - Convert old format messages/menu panels to new format
    11  FORMAT      - Format definition for formatted data Edit/Browse
    12  SUPERC      - Compare data sets (Standard dialog)
    13  SUPERCE     - Compare data sets (Extended dialog)
    14  SEARCH-FOR  - Search data sets for strings of data
```

At this point, you must decide what type of data set you are creating. Remember that a sequential data set has data in a single file and a partitioned data set (PDS) has data in subdivided files called members.

Creating a Sequential Data Set

The next panel you see allows you to specify an action and a data set name.
Because you want to allocate a new data set, type A on the OPTION line. Then
specify the three data set qualifiers in the three ISPF LIBRARY fields.

```
------------------------------ DATA SET UTILITY ----------------------------
OPTION ===> a

    A - Allocate new data set            C - Catalog data set
    R - Rename entire data set           U - Uncatalog data set
    D - Delete entire data set           S - Data set information (short)
    blank - Data set information

ISPF LIBRARY:
    PROJECT ===>  prefix
    GROUP   ===>  test
    TYPE    ===>  data

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>            (If not cataloged, required for option "C")

DATA SET PASSWORD ===>           (If password protected)
```

When you press the Enter key, you see a panel with a column of input fields that
specify the details of allocating a data set. When you finish typing information in
the fields, press the Enter key to create the data set.

```
--------------------------- ALLOCATE NEW DATA SET --------------------------
COMMAND ===>

DATA SET NAME:  PREFIX.TEST.DATA

    VOLUME SERIAL      ===>              (Blank for authorized default volume)*
    GENERIC UNIT       ===>              (Generic group name or unit address)*
    SPACE UNITS        ===> blks         (BLKS, TRKS or CYLS)
    PRIMARY QUAN       ===> 20           (in above units)
    SECONDARY QUAN     ===> 10           (in above units)
    DIRECTORY BLOCKS   ===> 0            (0 for sequential data set)
    RECORD FORMAT      ===> FB
    RECORD LENGTH      ===> 80
    BLOCK SIZE         ===> 800
    EXPIRATION DATE    ===>              (YY/MM/DD
                                          YY.DDD in Julian form
                                          DDDD for retention period in days
                                          or blank)


    ( * Only one of these fields may be specified)


```

The previous panel shows an example of values for creating a sequential data set.
However, you might want to find out the values your installation recommends.

Basically the fields on the Allocate New Data Set panel determine data set attributes, such as:

- On which storage device the data set goes (VOLUME SERIAL, GENERIC UNIT). You may leave these fields blank.

- Size of the space (SPACE UNITS, PRIMARY QUANTITY, SECONDARY QUANTITY).

- The amount of space needed for a PDS directory (DIRECTORY BLOCKS). The general rule is one directory block for every six members.

- The kind of records you want in the data set (RECORD FORMAT, RECORD LENGTH, BLOCK SIZE).

- How long you want to keep the data set (EXPIRATION DATE). You may leave this field blank.

For more information about these fields, press the HELP PF key (PF 1) while the Allocate New Data Set panel is displayed, or see *TSO/E User's Guide*, SC28-1968.

Note: When you display the Allocate New Data Set panel, the fields generally show the values from the previous allocation. If you want to allocate a data set with the same attributes as an existing data set, specify the existing data set name on the Data Set Utility panel and leave the OPTION line blank. After the data set information is displayed for the existing data set, you can return to the Data Set Utility panel, specify the new data set name, enter A on the OPTION line, and the correct attributes appear on the Allocate New Data Set panel.

Exercise

Create a sequential data set by following the example starting at "Creating a Data Set in ISPF/PDF" on page 7-4. When you press the Enter key on the last panel, your data set is created and you see in the upper right-hand corner of the panel, the message:

```
DATA SET ALLOCATED
```

Creating a Partitioned Data Set

A PDS requires a different arrangement of space than a sequential data set. The PDS consists of two parts. One part contains the members. The other part is a directory of all the members and where they are located.

The steps for creating a PDS are the same as creating a sequential data set, except you specify space for the directory. After selecting the DATASET option (option 2) from the Utility Selection Menu, type A on the OPTION line and specify three data set qualifiers in the three ISPF LIBRARY fields. You don't name members at this time. You name members on the edit panel one at a time as you add them.

```
----------------------------- DATA SET UTILITY -----------------------------
OPTION ===> a

    A - Allocate new data set              C - Catalog data set
    R - Rename entire data set             U - Uncatalog data set
    D - Delete entire data set             S - Data set information (short)
    blank - Data set information

ISPF LIBRARY:
    PROJECT ===>  prefix
    GROUP   ===>  memo
    TYPE    ===>  text

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>           (If not cataloged, required for option "C")

DATA SET PASSWORD ===>           (If password protected)
```

A PDS requires a different arrangement of space than a sequential data set. In the following example, notice that the DIRECTORY BLOCKS field has a value of **12**. A sequential data set must have a value of **0** in this field. A general rule is to allow one directory block for every six members in a PDS.

```
--------------------------- ALLOCATE NEW DATA SET ---------------------------
COMMAND ===>

DATA SET NAME:  PREFIX.MEMO.TEXT

    VOLUME SERIAL      ===>              (Blank for authorized default volume)*
    GENERIC UNIT       ===>              (Generic group name or unit address)*
    SPACE UNITS        ===> blks         (BLKS, TRKS or CYLS)
    PRIMARY QUAN       ===> 50           (in above units)
    SECONDARY QUAN     ===> 20           (in above units)
    DIRECTORY BLOCKS   ===> 12           (0 for sequential data set)
    RECORD FORMAT      ===> VB
    RECORD LENGTH      ===> 255
    BLOCK SIZE         ===> 5100
    EXPIRATION DATE    ===>              (YY/MM/DD
                                          YY.DDD in Julian form
                                          DDDD for retention period in days
                                          or blank)


    ( * Only one of these fields may be specified)
```

The previous panel shows an example of values for a PDS. However, you might want to find out the values your installation recommends.

To review what the allocate fields represent, see the list on 7-6. For more information about these fields, press the HELP PF key (PF 1) while the Allocate New Data Set panel is displayed, or see *TSO/E User's Guide*, SC28-1968.

Exercise

Create a PDS named PREFIX.MEMO.TEXT following the example starting at "Creating a Partitioned Data Set" on page 7-6. Be sure to change the DIRECTORY BLOCK field from 0 (for a sequential data set) to a number greater than 0. When you press the Enter key on the last panel, your data set is created and you see the message:

```
DATA SET ALLOCATED
```

Listing Data Set Information in ISPF/PDF

After you have created a number of data sets, you might need a way to display their names. To display a list of all your data set names in ISPF/PDF, select the UTILITIES option (option 3) from the ISPF/PDF Primary Option Menu, and from the Utility Selection Menu, select the DSLIST option (option 4).

```
------------------------- UTILITY SELECTION MENU ---------------------------
OPTION ===> 4

    1  LIBRARY     - Compress or print data set.  Print index listing.
                         Print, rename, delete, or browse members
    2  DATASET     - Allocate, rename, delete, catalog, uncatalog, or
                         display information of an entire data set
    3  MOVE/COPY   - Move, copy, or promote members or data sets
    4  DSLIST      - Print or display (to process) list of data set names
                         Print or display VTOC information
    5  RESET       - Reset statistics for members of ISPF library
    6  HARDCOPY    - Initiate hardcopy output
    8  OUTLIST     - Display, delete or print held job output
    9  COMMANDS    - Create/change an application command table
   10  CONVERT     - Convert old format messages/menu panels to new format
   11  FORMAT      - Format definition for formatted data Edit/Browse
   12  SUPERC      - Compare data sets (Standard dialog)
   13  SUPERCE     - Compare data sets (Extended dialog)
   14  SEARCH-FOR  - Search data sets for strings of data
```

You then see a panel that lets you specify what type of list you want and shows you the line commands you can issue on the resulting list.

```
-------------------------- DATA SET LIST UTILITY -------------------------
OPTION ===>

  blank - Display data set list *            P  - Print data set list
  V     - Display VTOC information only      PV - Print VTOC information only

Enter one or both of the parameters below:
  DSNAME LEVEL  ===>  PREFIX
  VOLUME        ===>


  INITIAL DISPLAY VIEW   ===>  VOLUME  (VOLUME,SPACE,ATTRIB,TOTAL)
  CONFIRM DELETE REQUEST ===>  YES     (YES or NO)

* The following line commands will be available when the list is displayed

B - Browse data set        C - Catalog data set      F - Free unused space
E - Edit data set          U - Uncatalog data set     = - Repeat last command
D - Delete data set        P - Print entire data set
R - Rename data set        X - Print index listing
I - Data set information   M - Display member list
S - Information (short)     Z - Compress data set      TSO command or CLIST
```

The list of data sets for PREFIX with a VOLUME format might look something like
the following panel. The data sets listed at the beginning of the list are data sets
for system use. You might not be permitted to issue line commands for these data
sets.

```
DSLIST - DATA SETS BEGINNING WITH PREFIX -------------------------- ROW 1 OF 9
COMMAND ===>                                                SCROLL ===> PAGE
COMMAND     NAME                              MESSAGE              VOLUME
--------------------------------------------------------------------------------
        PREFIX.$10$09$5                                            MAR87B
        PREFIX.$15$38$5                                            OCT87A
        PREFIX.ABDRVR7.ISPPLIB                                     FEB87B
        PREFIX.CURRENT.BILLS                                       TSO007
        PREFIX.MEMO.TEXT                                           NOV87C
        PREFIX.MY.CLIST                                            TSO005
        PREFIX.SAMPLE.TEXT                                         MIGRAT
        PREFIX.TEST.COBOL                                          MIGRAT
        PREFIX.TEST.DATA                                           NOV87C
*************************** END OF DATA SET LIST ******************************
```

Using ISPF/PDF Edit

Before you can edit a data set, you must first create it. When it is created, it is an
empty data set; it contains no information. To display information in a data set, to
put information into a data set, or to change information in a data set, use the EDIT
option (option 2) of ISPF/PDF.

To use ISPF/PDF edit, select the EDIT option (option 2) from the ISPF/PDF
Primary Option Menu.

```
----------------------- ISPF/PDF PRIMARY OPTION MENU -----------------------
OPTION ===> 2
                                                          USERID   - YOURID
   0  ISPF PARMS  - Specify terminal and user parameters  TIME     - 12:47
   1  BROWSE      - Display source data or output listings TERMINAL - 3277
   2  EDIT        - Create or change source data           PF KEYS  - 12
   3  UTILITIES   - Perform utility functions
   4  FOREGROUND  - Invoke language processors in foreground
   5  BATCH       - Submit job for language processing
   6  COMMAND     - Enter TSO command or CLIST
   7  DIALOG TEST - Perform dialog testing
   8  LM UTILITIES- Perform library administrator utility functions
   9  IBM PRODUCTS- Additional IBM program development products
   C  CHANGES     - Display summary of changes for this release
   T  TUTORIAL    - Display information about ISPF/PDF
   X  EXIT        - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
```

You then see a panel on which you can specify the name of a data set. The data set you specify must have been previously created.

Displaying a Sequential Data Set
To display a sequential data set to edit, specify the first three qualifiers on the Edit – Entry Panel and leave the MEMBER field blank.

```
----------------------------- EDIT - ENTRY PANEL ---------------------------
COMMAND ===>

ISPF LIBRARY:
   PROJECT ===> prefix
   GROUP   ===> test     ===>            ===>            ===>
   TYPE    ===> data
   MEMBER  ===>                          (Blank for member selection list)

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
   DATA SET NAME      ===>
   VOLUME SERIAL      ===>               (If not cataloged)

   DATA SET PASSWORD ===>                (If password protected)

   PROFILE NAME       ===>               (Blank defaults to data set type)

   INITIAL MACRO      ===>        LOCK        ===> YES    (YES, NO or NEVER)

   FORMAT NAME        ===>        MIXED MODE ===> NO     (YES or NO)
```

When you press the Enter key, you see the contents of the data set. If the data set contains data, you see the data.

```
EDIT ---- PREFIX.SAMPLE.TEXT----------------------------------- COLUMNS 001 072
COMMAND ===>                                                    SCROLL ===> HALF
****** ************************ TOP OF DATA ************************************
000001 This is the first line.
000002 And this is the next one.
000003 This line is special and should be duplicated.
000004 This line is special and should be duplicated.
000005 This line belongs at the end.
****** ************************ BOTTOM OF DATA *********************************
```

If it is an empty data set, you see a blank edit display panel.

```
 EDIT ---- PREFIX.NEW.DATA -------------------------------------- COLUMNS 001 072
 COMMAND ===>                                                    SCROLL ===> HALF
 ****** ************************* TOP OF DATA ***********************************
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ''''''
 ****** ************************ BOTTOM OF DATA ********************************
```

Notice the single quotes to the left of the panel. When you press the Enter key
after typing information on the screen, the single quotes become line numbers.
These line numbers label the *records* in the data set.

Exercise

Edit a sequential data set that you previously allocated. If the data set is not
empty, read the contents and press the END PF key (PF 3) to save the data
and exit. If the data set is empty, press the Enter key and observe that the
space disappears between the TOP OF DATA and BOTTOM OF DATA lines.
Then press the END PF key (PF 3) to save the data set and exit.

Displaying a Partitioned Data Set

To display a partitioned data set to edit, specify the first three qualifiers on the Edit – Entry Panel. Then you can do one of two things:

- Specify a member name in the MEMBER field.

```
  ---------------------------- EDIT - ENTRY PANEL ----------------------------
  COMMAND ===>

  ISPF LIBRARY:
     PROJECT ===> prefix
     GROUP   ===> memo     ===>             ===>            ===>
     TYPE    ===> text
     MEMBER  ===> feb27    (Blank for member selection list)

  OTHER PARTITIONED OR SEQUENTIAL DATA SET:
     DATA SET NAME     ===>
     VOLUME SERIAL     ===>             (If not cataloged)

     DATA SET PASSWORD ===>             (If password protected)

     PROFILE NAME      ===>             (Blank defaults to data set type)

     INITIAL MACRO     ===>        LOCK      ===> YES    (YES, NO or NEVER)

     FORMAT NAME       ===>        MIXED MODE ===> NO     (YES or NO)
```

If the member exists, you see the contents of the member. If the member doesn't exist, it is created and you see a blank edit display panel.

- Leave the member field blank and press the Enter key to see a list of members and information about each member. If the list extends beyond one screen, you can use the UP and DOWN PF keys (PF 7 and PF 8) to scroll backward and forward through the list.

To select a member to edit, enter s to the left of the member name.

```
  LIBRARY - PREFIX.MEMO.TEXT -------------------------------- ROW 00001 OF 00008
  COMMAND ===>                                                SCROLL ===> PAGE
    NAME      RENAME   VV.MM   CREATED        CHANGED      SIZE   INIT  MOD  ID
    APR13              01.02  87/04/13   87/05/21 09.55     44     39    4  YOURID
    AUG01              01.00  87/08/01   87/08/01 10.01     24     24    0  YOURID
    FEB27              01.01  87/02/27   87/03/07 14.52     12     11    2  YOURID
    JAN10              01.00  87/01/10   87/01/10 17:07     21     21    0  YOURID
    JUL01              01.01  87/07/07   87/07/07 12.52     10     10    0  YOURID
  s JUL14              01.00  87/07/14   87/07/14 16.15     20     20    0  YOURID
    JUN04              01.00  87/06/04   87/06/04 11.23     85     85    0  YOURID
    JUN18              01.04  87/06/18   87/06/27 08.43     34     36    6  YOURID
    MAR30              01.03  87/03/30   87/06/12 11.03     15     15    2  YOURID
    **END**
```

If no members exist, you see a message stating that the data set has no members. You can create a member by entering a name in the MEMBER field.

Exercise

Edit a PDS that you previously allocated. On the Edit – Entry Panel, type a new member name and press the Enter key. You see a blank edit display panel. To save and exit the empty member, press the END PF key (PF 3).

Editing a Data Set

Editing information in a data set means adding information, deleting information, or changing information that is already there. Even after you press the Enter key, you can continue to add or change information. To save information and exit the edit panel, press the END PF key (PF 3).

Exercise

Display a blank edit panel and move the cursor to the space immediately after the first line of single quotes. Press the space bar.

```
      |
      v
''''''
      _
```

The input inhibitor appears because that one column does not accept input. Now press the reset key and use the right arrow key to move the cursor one space over. Then type the following:

```
''''''  This is the first line.
''''''  And this is the next one.
''''''  This line belongs at the end.
''''''  This line doesn't belong anywhere.
''''''  This line is special and should be duplicated.
```

When you finish, press the Enter key to display the line numbers. Notice that the 'bottom of data' line moves up to the last line of input and the remaining lines with single quotes disappear.

To save the data and exit the data set, press the END PF key (PF 3).

Using Line Commands

You can manipulate entire lines in an edit session by entering the following line commands:

> **d** – delete the line
>
> **i** – insert a blank line
>
> **r** – repeat the line on the next line
>
> **c** – copy the line anywhere in the data
>
> **m** – move the line anywhere in the data
>
> > **a** – after this line (used with copy and move)
> > **b** – before this line (used with copy and move).

You can type line commands anywhere in the line number.   **d**00004, or 0**d**0004, or 00000**d** are valid examples.

Adding a number directly after a line command causes the command to affect the number of lines specified. The following example deletes the next three lines.

```
d30002
00003
00004
```

If you typed **0** over the 0 after the **3**, you would delete 30 lines (or the rest of the file if it contained fewer than 30 more lines).

To manipulate unnumbered blocks of lines, double the line command on the first and last line of the block. The following example deletes a block of lines.

dd0001
000002
dd0003

Exercise

Display the edit panel with the text you typed in the previous exercise. Then do the following by using line commands and pressing the Enter key:

1. Delete line 4 by typing d and pressing the Enter key.

   d00004

2. Move line 3 to the end by typing m and a and pressing the Enter key.

   m00003
   a00004
   ****** ***********BOTTOM OF DATA *************

3. Repeat line 3 by typing r and pressing the Enter key.

   r00003

4. Insert 5 blank lines after line 4 by typing i5 and pressing the Enter key.

   i50004

When you are finished, if you did not press the Enter key twice after step 4, your screen looks like the following panel. When you press the Enter key a second time, the inserted lines disappear because you didn't type anything in them.

To save the data and exit the data set, press the END PF key (PF 3).

```
EDIT ---- PREFIX.SAMPLE.TEXT ---------------------------------- COLUMNS 007 078
COMMAND ===>                                                  SCROLL ===> HALF
****** *********************** TOP OF DATA ************************************
000001 This is the first line.
000002 And this is the next one.
000003 This line is special and should be duplicated.
000004 This line is special and should be duplicated.
''''''
''''''
''''''
''''''
''''''
000005 This line belongs at the end.
****** *********************** BOTTOM OF DATA *********************************
```

Continuous Insert

To insert lines continuously, type I where you want to begin inserting them, press the Enter key, and type a line of data. Each time you press the Enter key, a new line appears and the cursor automatically goes to the next line. This continues as long as you don't enter information away from the current line or press the Enter key twice in a row.

Exercise

On the previous edit panel, enter i on line number 00004. Then enter the following on the first inserted line:

```
''''''  Continuous inserting
```

and enter on the second:

```
'''''' is one way
```

and enter on the third:

```
'''''' to enter bulk data.
```

Remember, you must press the Enter key to get to the next line. To end the continuous insert, press the Enter key twice in a row. To save the data and exit the data set, press the END PF key (PF 3).

Exercise

On the previous edit panel, experiment by entering the following line commands:

```
cc0001 This is the first line.
000002 And this is the next one.
000003 This line is special and should be duplicated.
cc0004 This line is special and should be duplicated.
000005 Continuous inserting
000006 is one way
a00007 to enter bulk data.
000008 This line belongs at the end.
```

You then see the following. Change the information by entering:

```
dd0001 This is the first line.
000002 And this is the next one.
000003 This line is special and should be duplicated.
dd0004 This line is special and should be duplicated.
000005 Continuous inserting
000006 is one way
000007 to enter bulk data.
000008 This is the first line.
d20009 And this is the next one.
000010 This line is special and should be duplicated.
000011 This line is special and should be duplicated.
000012 This line belongs at the end.
```

You then see the following. Change the information again by entering:

```
b00001 Continuous inserting
000002 is one way
000003 to enter bulk data.
m00004 This is the first line.
000005 This line is special and should be duplicated.
000006 This line belongs at the end.
```

The final results look like the following:

```
000001 This is the first line.
000002 Continuous inserting
000003 is one way
000004 to enter bulk data.
000005 This line is special and should be duplicated.
000006 This line belongs at the end.
```

Saving Data

To save information in a data set and still remain in the edit session, enter `save` on the COMMAND line. To save and exit, press the END PF key (PF 3).

Scrolling Through Data

When data extends to more than one screen in an edit session, use the UP and DOWN PF keys (PF 7 and PF 8) to scroll backward and forward through the data.

Cancelling Data

If you decide not to keep the information you added or changed in an edit session, you can type `cancel` on the COMMAND line. When you type cancel, you cancel everything added and changed since you began the edit session or since you last entered the SAVE command. Information from previous edit sessions and information saved by previous SAVE commands is not cancelled.

Exiting an Edit Session

To exit an edit session and save information, press the END PF key (PF 3). To exit an edit session without saving information, type `cancel` on the COMMAND line and then press the END PF key (PF 3).

Deleting a Data Set in ISPF/PDF

Sometimes the information in a data set becomes obsolete and you need to delete the data set. To delete one or more data sets, select the ISPF/PDF UTILITIES option (option 3) from the ISPF/PDF Primary Option Menu.

```
----------------------- ISPF/PDF PRIMARY OPTION MENU -----------------------
OPTION ===> 3
                                                      USERID   - YOURID
    0  ISPF PARMS  - Specify terminal and user parameters   TIME    - 12:47
    1  BROWSE      - Display source data or output listings  TERMINAL - 3277
    2  EDIT        - Create or change source data            PF KEYS  - 12
    3  UTILITIES   - Perform utility functions
    4  FOREGROUND  - Invoke language processors in foreground
    5  BATCH       - Submit job for language processing
    6  COMMAND     - Enter TSO command or CLIST
    7  DIALOG TEST - Perform dialog testing
    8  LM UTILITIES- Perform library administrator utility functions
    9  IBM PRODUCTS- Additional IBM program development products
    C  CHANGES     - Display summary of changes for this release
    T  TUTORIAL    - Display information about ISPF/PDF
    X  EXIT        - Terminate ISPF using log and list defaults

 Enter END command to terminate ISPF.
```

You then see the Utility Selection Menu from which you can select options to delete an entire data set or data set members.

Using Data Sets in ISPF/PDF

Deleting an Entire Data Set

To delete an entire data set, select the DATASET option (option 2).

```
------------------------- UTILITY SELECTION MENU ----------------------------
OPTION ===> 2

     1  LIBRARY      - Compress or print data set.  Print index listing.
                          Print, rename, delete, or browse members
     2  DATASET      - Allocate, rename, delete, catalog, uncatalog, or
                          display information of an entire data set
     3  MOVE/COPY    - Move, copy, or promote members or data sets
     4  DSLIST       - Print or display (to process) list of data set names
                          Print or display VTOC information
     5  RESET        - Reset statistics for members of ISPF library
     6  HARDCOPY     - Initiate hardcopy output
     8  OUTLIST      - Display, delete or print held job output
     9  COMMANDS     - Create/change an application command table
    10  CONVERT      - Convert old format messages/menu panels to new format
    11  FORMAT       - Format definition for formatted data Edit/Browse
    12  SUPERC       - Compare data sets (Standard dialog)
    13  SUPERCE      - Compare data sets (Extended dialog)
    14  SEARCH-FOR   - Search data sets for strings of data
```

The next panel you see allows you to do several data set management tasks. To delete a data set, type D for delete on the OPTION line. Then specify the three data set qualifiers in the ISPF LIBRARY fields.

```
----------------------------- DATA SET UTILITY -----------------------------
OPTION ===> d

    A - Allocate new data set              C - Catalog data set
    R - Rename entire data set             U - Uncatalog data set
    D - Delete entire data set             S - Data set information (short)
    blank - Data set information

ISPF LIBRARY:
    PROJECT ===>  prefix
    GROUP   ===>  newtest
    TYPE    ===>  data

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>           (If not cataloged, required for option "C")

DATA SET PASSWORD ===>           (If password protected)
```

When you press the Enter key, you see the Confirm Delete panel to ensure that you didn't type the D by mistake. To delete the data set, press the Enter key. To cancel the delete process, press the END PF key (PF 3).

```
----------------------------- CONFIRM DELETE ------------------------------
COMMAND ===>

DATA SET NAME:  PREFIX.NEWTEST.DATA
VOLUME:         TSO018
CREATION DATE:  87/02/15


INSTRUCTIONS:

    Press ENTER key to confirm delete request.
       (The data set will be deleted and uncataloged.)

    Enter END command to cancel delete request.
```

Exercise

Create another sequential data set by following the example starting at
"Creating a Data Set in ISPF/PDF" on page 7-4. Name the new data set
PREFIX.NEWTEST.DATA.

Now delete the new data set you just created by following the example starting
at "Deleting a Data Set in ISPF/PDF" on page 7-17. When you press the Enter
key on the delete confirmation panel, you see the message:

```
DATA SET DELETED
```

Deleting One Member of a Data Set

To delete a single member of a PDS, select the UTILITIES option (option 3) from
the ISPF/PDF Primary Option Menu. Then from the Utility Selection Menu, select
the LIBRARY option (option 1).

```
-------------------------- UTILITY SELECTION MENU ---------------------------
OPTION ===> 1

    1  LIBRARY     - Compress or print data set.  Print index listing.
                       Print, rename, delete, or browse members
    2  DATASET     - Allocate, rename, delete, catalog, uncatalog, or
                       display information of an entire data set
    3  MOVE/COPY   - Move, copy, or promote members or data sets
    4  DSLIST      - Print or display (to process) list of data set names
                       Print or display VTOC information
    5  RESET       - Reset statistics for members of ISPF library
    6  HARDCOPY    - Initiate hardcopy output
    8  OUTLIST     - Display, delete or print held job output
    9  COMMANDS    - Create/change an application command table
   10  CONVERT     - Convert old format messages/menu panels to new format
   11  FORMAT      - Format definition for formatted data Edit/Browse
   12  SUPERC      - Compare data sets (Standard dialog)
   13  SUPERCE     - Compare data sets (Extended dialog)
   14  SEARCH-FOR  - Search data sets for strings of data
```

The next panel you see allows you to do many different tasks with data set
members. To delete one member of a data set, type D on the OPTION line of the
Library Utility panel and specify the three data set qualifiers plus the member name

in the ISPF LIBRARY fields. When you press the Enter key, the member is deleted with no chance for you to retract the deletion with a Confirm Delete panel.

```
------------------------------ LIBRARY UTILITY ------------------------------
OPTION ===> d

    blank - Display member list              B - Browse member
    C - Compress data set                    P - Print member
    X - Print index listing                  R - Rename member
    L - Print entire data set                D - Delete member
    I - Data set information                 S - Data set information (short)

ISPF LIBRARY:
    PROJECT ===> prefix
    GROUP   ===> memo       ===>              ===>              ===>
    TYPE    ===> text
    MEMBER  ===> apr13  (If option "P", "R", "D", or "B" selected)
    NEWNAME ===>                    (If option "R" selected)


OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>               (If not cataloged)

DATA SET PASSWORD ===>               (If password protected)
```

Deleting More than One Member of a Data Set

To delete more than one member of a data set, you can display a member list from which you can select members. To display the member list, leave the OPTION line blank on the Library Utility panel. Then specify the three data set qualifiers in the ISPF LIBRARY field and leave the MEMBER field blank.

```
------------------------------ LIBRARY UTILITY ------------------------------
OPTION ===>

    blank - Display member list              B - Browse member
    C - Compress data set                    P - Print member
    X - Print index listing                  R - Rename member
    L - Print entire data set                D - Delete member
    I - Data set information                 S - Data set information (short)

ISPF LIBRARY:
    PROJECT ===> prefix
    GROUP   ===> memo       ===>              ===>              ===>
    TYPE    ===> text
    MEMBER  ===>                    (If option "P", "R", "D", or "B" selected)
    NEWNAME ===>                    (If option "R" selected)


OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>               (If not cataloged)

DATA SET PASSWORD ===>               (If password protected)
```

You then see a list of member names and information about each member. To delete members, type d next to the members you want deleted. When you press the Enter key, the word '*DELETED' appears next to the members you selected and the member is deleted. When you are finished deleting members, press the END PF key (PF 3).

Note: On this panel you can also type b to browse, p to print, and r to rename members.

```
 LIBRARY - PREFIX.MEMO.TEXT -------------------------------- ROW 00001 OF 00007
 COMMAND ===>                                                SCROLL ===> PAGE
    NAME    RENAME    VV.MM   CREATED      CHANGED       SIZE  INIT  MOD  ID
    APR13             01.02  87/04/13  87/05/21 09.55     44    39    4 YOURID
 d  AUG01             01.00  87/08/01  87/08/01 10.01     24    24    0 YOURID
    FEB27             01.01  87/02/27  87/03/07 14.52     12    11    2 YOURID
    JAN10             01.00  87/01/10  87/01/10 17:07     21    21    0 YOURID
    JUL01             01.01  87/07/07  87/07/07 12.52     10    10    0 YOURID
    JUL14             01.00  87/07/14  87/07/14 16.15     20    20    0 YOURID
 d  JUN04             01.00  87/06/04  87/06/04 11.23     85    85    0 YOURID
 d  JUN18             01.04  87/06/18  87/06/27 08.43     34    36    6 YOURID
    MAR30             01.03  87/03/30  87/06/12 11.03     15    15    2 YOURID
    **END**
```

Using Data Sets in Line Mode TSO/E

In line mode TSO/E, you can do the same data set management tasks you did using ISPF/PDF. The tasks we discuss in this section are creating data sets, listing information about data sets, and deleting data sets.

REMEMBER

When using TSO/E commands:

1. You can stop a process by pressing the attention interrupt key (PA1). For example, if you see a message you don't understand and want to stop doing what you started, press PA1.

2. In examples of commands, the words you *must* type such as commands and keywords are in capital letters. The variable words such as data set names and user IDs are in lower case letters.

   COMMAND KEYWORD(data set name)

3. When specifying a data set name in a command, you do not need to include the first qualifier if it is your prefix. Thus to specify data set PREFIX.TEST.DATA, you can type: TEST.DATA. When you include the first qualifier, you must enclose the data set name in single quotes: 'PREFIX.TEST.DATA'.

4. When a command processes successfully, you usually see another READY message. When a command does not process successfully, you see an error message.

Creating a Data Set in Line Mode TSO/E

To create a data set in line mode TSO/E, use the ALLOCATE command. If you know how to use it, it can be quicker than allocating with ISPF/PDF panels.

Allocating a Data Set Like Another

The ALLOCATE command has a very complex syntax because of the many data set attributes you can specify. Instead of learning the complex syntax, you can take a shortcut and allocate a data set like an existing one. Thus you can create a data set named PREFIX.NEWTEST.DATA with the same attributes as the one named PREFIX.TEST.DATA by entering after the READY message:

```
ALLOCATE DATASET(newtest.data) LIKE(test.data)
```

Notice that we didn't include the word prefix as the first qualifier. TSO/E assumes your prefix, sometimes your user ID, as the first qualifier unless the data set is placed within single quotes. The following is also correct:

```
ALLOCATE DATASET('prefix.newtest.data') LIKE('prefix.test.data')
```

Your prefix is usually assigned by an administrator and appears in your user profile. For more information about prefixes and user profiles, see "Displaying a User Profile" on page 9-19.

For more information about the ALLOCATE command and its other functions, see *TSO/E User's Guide*, SC28-1968.

Exercise

Be sure that you completed the previous exercises and that PREFIX.TEST.DATA exists. Then enter after the READY message the abbreviated version of the first ALLOCATE command example:

```
ALLOC DA(newtest.data) LIKE(test.data)
```

You then see another READY message, which indicates that the command was successful. If instead you see an error message or a prompting message, the command was unsuccessful.

Now enter the incorrect command:

```
ALLOC DA(brandnew.data) LIKE(prefix.newtest.data)
```

(The command is incorrect because the first qualifier **prefix** is included in the second data set name, but the data set is not enclosed in single quotes.)

You see:

```
   DATA SET PREFIX.PREFIX.NEWTEST.DATA NOT IN CATALOG OR
 CATALOG CAN NOT BE ACCESSED
   ENTER MODEL DATA SET NAME -
```

Notice the double prefix in the above data set name.

If you want to correct the error and create a data set named PREFIX.BRANDNEW.DATA, you can type newtest.data in response to the message prompt. If you want to end the process and see another READY message, press the attention interrupt (PA1) key.

Listing Data Set Names in Line Mode TSO/E

Before you use the ALLOCATE command to create a data set like another, you might want to see a list of your data sets. Remember, your data sets have your prefix as the first qualifier. To display a list of your data sets, enter after the READY message:

```
LISTCAT
```

You then see a list of data set names that might include:

```
PREFIX.TEST.DATA
PREFIX.MEMO.TEXT
```

Knowing how to display a list of your data sets can be helpful, especially if you forget a data set name.

Listing Information About Data Sets

Another command you might need is the LISTDS command. LISTDS followed by a data set name lists attributes about that particular data set, such as the record format, record length, block size, and data set organization. The keyword MEMBERS used with the LISTDS command adds a list of the members of a data set.

Thus to see data set information and a list of members for PREFIX.MEMO.TEXT, enter after the READY message:

```
LISTDS 'prefix.memo.text' MEMBERS
```

You then see something similar to the following:

```
PREFIX.MEMO.TEXT
--RECFM-LRECL-BLKSIZE-DSORG
  VM    255   5100    PO
--VOLUMES--
  NOV87C
--MEMBERS--
  APR13
  AUG01
  FEB27
  JAN10
  JUL01
  JUL14
  JUN04
  JUN18
```

For more information about data set attributes, see *TSO/E User's Guide*, SC28-1968.

Deleting a Data Set in Line Mode TSO/E

The DELETE command is simple to use and you might find it more convenient than using ISPF/PDF panels. However, no delete confirmation is displayed to give you a chance to change your mind or correct the data set name. To delete the data set PREFIX.NEWTEST.DATA, enter after the READY message:

```
DELETE newtest.data
```

As you did with the ALLOCATE command, you need not specify the first qualifier of a data set when it is your prefix. TSO/E assumes your prefix, usually your user ID, as the first qualifier unless the data set is placed within single quotes. You must use quotes to delete a data set with a first qualifier other than your prefix.

```
DELETE 'project1.version2.data'
```

Exercise

Make sure PREFIX.NEWTEST.DATA exists by listing your data sets with the LISTCAT command. If PREFIX.NEWTEST.DATA does not exist, create it with the ALLOCATE command. Then enter after the READY message:

```
DELETE newtest.data
```

You see the line mode message:

```
ENTRY (A) PREFIX.NEWTEST.DATA DELETED
READY
```

Now try to delete a data set that does not exist by entering:

```
DELETE nosuch.data
```

You see:

```
ERROR QUALIFYING PREFIX.NOSUCH.DATA
** DEFAULT SERVICE ROUTINE ERROR CODE 20,
LOCATE ERROR CODE 8  LASTCC=8
READY
```

Chapter 8. Sending Data to a Printer or to Another User

When you finish reading this chapter, you will be able to:

- Use the Information Center Facility to print a data set and members of a partitioned data set

- Use ISPF/PDF to print a data set and members of a partitioned data set and screen images.

- Use line mode TSO/E to print a data set and members of a partitioned data set.

- Use line mode TSO/E to send and receive messages and data sets.

For more information, see:

- *OS/390 ISPF User's Guide*, SC28-1239
- *TSO/E Command Reference*, SC28-1969
- *TSO/E User's Guide*, SC28-1968.

Printing and Communicating Using TSO/E

One of the benefits of using TSO/E is being able to send data throughout the system. You can send data to a printer or you can communicate with other users. There are many ways to communicate in TSO/E including using the OFFICE products in the Information Center Facility. This book discusses only the basic ways to print data using the Information Center Facility print services, ISPF/PDF panels, and line mode TSO/E. It also discusses sending data to another user using ISPF/PDF panels and line mode TSO/E.

Printing Data Sets in the Information Center Facility

Using the UTILITY service of the Information Center Facility, you can request to print a sequential data set, or a partitioned data set with some or all of its members. Each time you print a data set or member(s) of a data set, you can select the printer you want to use.

To select a data set and a printer on which to print, display the Information Center Facility main menu panel and select UTILITY (option 10) from the list of services.

```
              TSO/E INFORMATION CENTER FACILITY USER SERVICES
 Option  ===> 10

 Select one of the following options.  To scroll, press UP or DOWN.

    0  DESCRIBE    - Read a short description of options on this panel
    1  NEWS        - Obtain system news
    2  NAMES       - Find a name/phone number
    3  OFFICE      - Use mail/document/other office services Facility
    4  PROGRAM     - Use program creation/execution services
    5  ANALYSIS    - Perform data analysis/report creation/decision support
    6  CHART       - Create charts/graphs
    7  COURSES     - Use education services
    8  PDF         - Use ISPF/PDF services
    9  PROBLEM     - Report problems
   10  UTILITY     - Use utility services
    I  INTRO       - Learn to use the Information Center Facility
    T  TUTORIAL    - Read descriptions of options on this panel
    X  EXIT        - Exit from the Information Center Facility


 To view PF key definitions, type KEYS on COMMAND or OPTION line of any panel.

```

After selecting UTILITY, another menu panel appears. Enter P on the Option line to select the HARDCOPY option.

```
             Information Center Facility - Utilities Panel

 Option ===> P

 Select one of the following options.  To scroll press UP or DOWN.

     0 DESCRIBE   - Read a short description of the options on this panel
     P HARDCOPY   - Print a sequential or partitioned data set
     T TUTORIAL   - Read a detailed description of the options on this panel
     X EXIT       - Return




 To view PF key definitions, type KEYS on COMMAND or OPTION line of any panel.
```

The next panel that appears is a data entry panel on which you can enter a data set name or member name and printer selection information. From this panel, you can:

- Print a sequential data set, one or more members of a partitioned data set, or an entire partitioned data set

- Display a data set selection list

- Display a printer selection list

- Specify the number of copies you want to print.

These tasks are described in the following topics.

```
                              Print Request
  COMMAND ===>

 DATA SET:
    Project        ===>  _____    Project or owner of dataset
    File Name      ===>  _____    Name or part of name with * suffix
    File Type      ===>  _____    Type or part of type with * suffix
    File Member    ===>  _____    Member or part of member with * suffix
                                     (Optional if data set is partitioned)

 OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    Data Set Name     ===>  _____

 PRINTER SELECTION  (if known):
    Printer Location  ===>  _____    Printer location or *
    Printer Format    ===>  _____    Document format or *
    Printer Type      ===>  _____    Printer Type or *

 Number of copies     ===>  ___         Specify 1 to 255 copies
```

Printing an Entire Data Set

To print an entire data set, type the three data set qualifiers (project, file name, file type) in the DATA SET fields. Fill in the PRINTER SELECTION fields and press the Enter key.

```
                            Print Request
 COMMAND ===>

 DATA SET:
    Project       ===> PREFIX___    Project or owner of dataset
    File Name     ===> MEMO_____    Name or part of name with * suffix
    File Type     ===> TEST_____    Type or part of type with * suffix
    File Member   ===> _____     Member or part of member with * suffix
                                    (Optional if data set is partitioned)

 OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    Data Set Name   ===>  _____

 PRINTER SELECTION  (if known):
    Printer Location  ===>  RNS 18S_____    Printer location or *
    Printer Format    ===>  L4SAMP_____   Document format or *
    Printer Type      ===>  TEST1_____    Printer Type or *

 Number of copies    ===>  1__          Specify 1 to 255 copies
```

If you need information about which printers are available for use, see "Displaying a Printer Selection List" on page 8-7. That topic describes how to request a list of available printers.

Displaying a Data Set Selection List

To display a list of data sets so that you may select one to print, type in a project name (prefix) and type asterisks (*) for file name and file type.

```
                            Print Request
 COMMAND ===>

 DATA SET:
    Project       ===> PREFIX___    Project or owner of dataset
    File Name     ===> *_____    Name or part of name with * suffix
    File Type     ===> *_____    Type or part of type with * suffix
    File Member   ===> _____     Member or part of member with * suffix
                                    (Optional if data set is partitioned)

 OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    Data Set Name   ===>  _____

 PRINTER SELECTION  (if known):
    Printer Location  ===>  _____    Printer location or *
    Printer Format    ===>  _____    Document format or *
    Printer Type      ===>  _____    Printer Type or *

 Number of copies    ===>  1__          Specify 1 to 255 copies
```

When you press the Enter key, a list of data sets with *prefix* as the first qualifier is displayed. Type S next to the data set you want to print. (You may select only one data set to print from this panel.)

```
          ICF - LIST OF FILES                              ROW  1 OF 4
COMMAND ===>                                         SCROLL ===> PAGE
Type S to select or D to delete next to the desired FILE.

   PROJECT    FILE NAME   FILE TYPE

 _ PREFIX     MEMO        TEXT
 _ PREFIX     TEST        DATA
 s PREFIX     SAMPLE      TEXT
 _ PREFIX     WORK        DATA
*****************************BOTTOM OF DATA************************************
```

After you press the END key, the Print Request panel is displayed with the selected
data set name filled in. Fill in the PRINTER SELECTION fields and press the Enter
key to print the data set.

```
                           Print Request
 COMMAND ===>

DATA SET:
   Project      ===> PREFIX___    Project or owner of dataset
   File Name    ===> SAMPLE___    Name or part of name with * suffix
   File Type    ===> TEXT_____    Type or part of type with * suffix
   File Member  ===> _____     Member or part of member with * suffix
                                  (Optional if data set is partitioned)

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
   Data Set Name    ===> _____

PRINTER SELECTION  (if known):
   Printer Location  ===> **RNS 18S**_____   Printer location or *
   Printer Format    ===> **L4SAMP**_____   Document format or *
   Printer Type      ===> **TEST1**_____   Printer Type or *

Number of copies     ===> 1__        Specify 1 to 255 copies
```

If you need information about which printers are available for use, see "Displaying a
Printer Selection List" on page 8-7. That topic describes how to request a list of
available printers.

Printing One or More Data Set Members

To print one member of a data set, type in the project, file name, file type, and file member on the Print Request panel. Type in the Printer Selection information and press the Enter key.

```
                            Print Request
 COMMAND ===>

 DATA SET:
    Project      ===> PREFIX___    Project or owner of dataset
    File Name    ===> SAMPLE___    Name or part of name with * suffix
    File Type    ===> TEXT_____    Type or part of type with * suffix
    File Member  ===> MEM1_____    Member or part of member with * suffix
                                   (Optional if data set is partitioned)

 OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    Data Set Name    ===>    _____

 PRINTER SELECTION  (if known):
    Printer Location ===> RNS 18S_____   Printer location or *
    Printer Format   ===> L4SAMP_____   Document format or *
    Printer Type     ===> TEST1_____   Printer Type or *

 Number of copies    ===> 1__          Specify 1 to 255 copies
```

To print more than one data set member, display a member list from which you can select members to print. To display the member list, fill in the project, file name, and file type and type an asterisk (*) in the file member field.

```
                            Print Request
 COMMAND ===>

 DATA SET:
    Project      ===> PREFIX___    Project or owner of dataset
    File Name    ===> SAMPLE___    Name or part of name with * suffix
    File Type    ===> TEXT_____    Type or part of type with * suffix
    File Member  ===> *_____    Member or part of member with * suffix
                                   (Optional if data set is partitioned)

 OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    Data Set Name    ===>    _____

 PRINTER SELECTION  (if known):
    Printer Location ===> RNS 18S_____   Printer location or *
    Printer Format   ===> L4SAMP_____   Document format or *
    Printer Type     ===> TEST1_____   Printer Type or *

 Number of copies    ===> 1__          Specify 1 to 255 copies
```

When you press the Enter key, you see a list of members and information about each member. To select members for printing, type an S next to the members you want printed. Press the END key once and the Member List panel is re-displayed. This allows you to confirm your request to print the members. Press the END key again to print all of the selected members. If you have not yet filled in a printer name, when you press the END key you are prompted for a printer name.

If you need information about which printers are available for use, see "Displaying a Printer Selection List". That topic describes how to request a list of available printers.

```
------------------------------ Member List ---------------- ROW  1 OF 5  00020
COMMAND ===>                                                   SCROLL ===> PAGE

Type S in the S column to select a member or members for printing.
To exit and print selections, press END.  To  exit without printing type CANCEL.

S  Member         VV.MM  Created    Last Modified  Size  Init  Mod  ID
   MEM1           01.02  89/03/30   89/04/05 15:59   10    21    2  PREFIX
   MEM3           01.01  89/03/30   89/04/03 14:07    1     1    0  PREFIX
s  MEM4           01.03  89/04/03   89/04/03 14:21    1     1    0  PREFIX
s  NEWMEM         01.02  89/04/03   89/04/04 07:21    1     1    0  PREFIX
s  TESTMEM        01.02  89/04/05   89/04/05 14:14    1     1    0  PREFIX
********************************BOTTOM OF DATA*********************************
```

Displaying a Printer Selection List

When you want to print information, but are unsure which printers are available for your use, you can display a list of printers. Type an asterisk (*) in each of the three PRINTER SELECTION fields and press the Enter key. (This can be done either before or after the DATA SET fields are filled in.)

```
                        Print Request
 COMMAND ===>

DATA SET:
   Project      ===> PREFIX___   Project or owner of dataset
   File Name    ===> TEST_____   Name or part of name with * suffix
   File Type    ===> DATA_____   Type or part of type with * suffix
   File Member  ===> _____    (Optional if data set is partitioned)

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
   Data Set Name    ===> _____

PRINTER SELECTION  (if known):
   Printer Location ===> *_____   Printer location or *
   Printer Format   ===> *_____   Document format or *
   Printer Type     ===> *_____   Printer Type or *

Number of copies    ===> 1__        Specify 1 to 255 copies
```

A panel is displayed that lists the printers you can select for printing. Follow the instructions on the panel to choose a printer. Press END to return to the Print Request panel with the PRINTER SELECTION information filled in.

Printing Data in ISPF/PDF

Your installation might have one or more ways to print information in ISPF/PDF and a way to select a printer from a list of printers. Because printing capabilities vary from one installation to another, this topic discusses only the standard way to print in ISPF/PDF.

In ISPF/PDF, you can send two types of data to a system printer:

- Data sets
- Screen images of your TSO/E session.

Before you can send data to the system printer, someone must define a **job statement** for you. A job statement is written in job control language (JCL) and identifies work you send to a printer. The job statement can contain your user ID, name, an account number, and the class and priority assigned to the job. Make sure you have your job statement defined before you try the exercises in this chapter.

To find out if you have a job statement, select the ISPF PARMS option (option 0) from the ISPF/PDF Primary Option Menu.

```
  ----------------------- ISPF/PDF PRIMARY OPTION MENU -----------------------
OPTION ===> 0
                                                            USERID   - YOURID
   0  ISPF PARMS  - Specify terminal and user parameters    TIME     - 12:47
   1  BROWSE      - Display source data or output listings  TERMINAL - 3277
   2  EDIT        - Create or change source data            PF KEYS  - 12
   3  UTILITIES   - Perform utility functions
   4  FOREGROUND  - Invoke language processors in foreground
   5  BATCH       - Submit job for language processing
   6  COMMAND     - Enter TSO command or CLIST
   7  DIALOG TEST - Perform dialog testing
   8  LM UTILITIES- Perform library administrator utility functions
   9  IBM PRODUCTS- Additional IBM program development products
   C  CHANGES     - Display summary of changes for this release
   T  TUTORIAL    - Display information about ISPF/PDF
   X  EXIT        - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
```

On the next panel you see, select the LOG/LIST option (option 2).

```
  -------------------------- ISPF PARAMETER OPTIONS --------------------------
OPTION ===> 2

   1  TERMINAL     - Specify terminal characteristics
   2  LOG/LIST     - Specify ISPF log and list defaults
   3  PF KEYS      - Specify PF keys for 3278 terminal with 24 PF keys
   4  DISPLAY      - Specify screen display characteristics
   5  LIST         - Specify list data set characteristics
   6  GRAPHIC      - Specify GDDM graphic print parameters
   7  ENVIRON      - Specify ENVIRON command settings
```

At the bottom of the Log and List Defaults panel under the JOB STATEMENT INFORMATION field, look for several lines of information that might look something like the following:

```
------------------------ LOG and LIST DEFAULTS ----------------------------
COMMAND ===>

LOG DATA SET DEFAULT OPTIONS                 LIST DATA SET DEFAULT OPTIONS
---------------------------                  -----------------------------
Process option    ===> D                     Process option    ===> PD
SYSOUT class      ===> A                      SYSOUT class      ===> A
Local printer ID  ===>                        Local printer ID  ===>
Lines per page    ===> 60                     Lines per page    ===> 60
Primary pages     ===> 10                     Primary pages     ===> 100
Secondary pages   ===> 10                     Secondary pages   ===> 200

VALID PROCESS OPTIONS:
 PD - Print data set and delete          D - Delete data set (without printing)
 K  - Keep data set (append subsequent information to same data set)
 KN - Keep data set and allocate new data set

JOB STATEMENT INFORMATION:       (Required for system printer)
  ===>//YOURIDA  JOB  (ACCOUNT4),'YOUR NAME',
  ===>// CLASS=5,MSGCLASS=W,NOTIFY=YOURID
  ===>//* COMMENT
  ===>//* COMMENT

```

If you do not have a job statement, see a TSO/E administrator to help you define one.

Printing a Data Set in ISPF/PDF

When you request to print something from the UTILITIES option (option 3) in ISPF/PDF, it goes to an intermediary data set called a LIST data set. The LIST data set collects information you want printed during your ISPF/PDF session. When you exit ISPF/PDF, the LIST data set can be:

- Printed and then deleted

- Deleted and not printed

- Kept and not printed.

More about LIST data sets is covered in "Exiting ISPF/PDF With a LIST Data Set" on page 8-14.

You might have noticed on the ISPF/PDF Utilities Selection Menu that you can print entire data sets or members of a data set with the LIBRARY option (option 1).

Printing a data set follows the same procedure as allocating and deleting a data set. First select the UTILITIES option (option 3) from the ISPF/PDF Primary Option Menu.

Printing Data in ISPF/PDF

```
----------------------- ISPF/PDF PRIMARY OPTION MENU -----------------------
OPTION ===> 3
                                                        USERID   - YOURID
    0  ISPF PARMS  - Specify terminal and user parameters   TIME     - 12:47
    1  BROWSE      - Display source data or output listings TERMINAL - 3277
    2  EDIT        - Create or change source data           PF KEYS  - 12
    3  UTILITIES   - Perform utility functions
    4  FOREGROUND  - Invoke language processors in foreground
    5  BATCH       - Submit job for language processing
    6  COMMAND     - Enter TSO command or CLIST
    7  DIALOG TEST - Perform dialog testing
    8  LM UTILITIES- Perform library administrator utility functions
    9  IBM PRODUCTS- Additional IBM program development products
    C  CHANGES     - Display summary of changes for this release
    T  TUTORIAL    - Display information about ISPF/PDF
    X  EXIT        - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
```

From the Utility Selection Menu, select the LIBRARY option (option 1).

```
-------------------------- UTILITY SELECTION MENU ----------------------------
OPTION ===> 1

    1  LIBRARY     - Compress or print data set.  Print index listing.
                       Print, rename, delete, or browse members
    2  DATASET     - Allocate, rename, delete, catalog, uncatalog, or
                       display information of an entire data set
    3  MOVE/COPY   - Move, copy, or promote members or data sets
    4  DSLIST      - Print or display (to process) list of data set names
                       Print or display VTOC information
    5  RESET       - Reset statistics for members of ISPF library
    6  HARDCOPY    - Initiate hardcopy output
    8  OUTLIST     - Display, delete or print held job output
    9  COMMANDS    - Create/change an application command table
   10  CONVERT     - Convert old format messages/menu panels to new format
   11  FORMAT      - Format definition for formatted data Edit/Browse
   12  SUPERC      - Compare data sets (Standard dialog)
   13  SUPERCE     - Compare data sets (Extended dialog)
   14  SEARCH-FOR  - Search data sets for strings of data
```

Printing an Entire Data Set

To print an entire data set, type L on the OPTION line and specify the three data
set qualifiers in the ISPF LIBRARY fields. When you press the Enter key, the data
set is sent to the LIST data set to await your exit from ISPF/PDF.

```
------------------------------ LIBRARY UTILITY -----------------------------
OPTION ===> L

    blank - Display member list          B - Browse member
    C - Compress data set                P - Print member
    X - Print index listing              R - Rename member
    L - Print entire data set            D - Delete member
    I - Data set information             S - Data set information (short)

ISPF LIBRARY:
    PROJECT ===>  prefix
    GROUP   ===>  test      ===>            ===>            ===>
    TYPE    ===>  data
    MEMBER  ===>                 (If option "P", "R", "D", or "B" selected)
    NEWNAME ===>                 (If option "R" selected)


OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>           (If not cataloged)

DATA SET PASSWORD ===>           (If password protected)
```

Exercise

Print an entire data set by following the examples starting at "Printing a Data
Set in ISPF/PDF" on page 8-9. If you have a data set named
PREFIX.TEST.DATA, enter its name on the Library Utility panel. If you don't
have a data set named PREFIX.TEST.DATA, enter the name of a data set you
do have. (To display the names of your data sets, select the DSLIST option
(option 4) on the Utility Selection Menu panel.)

When the data set goes to the LIST data set, you see the message:

```
DATA SET PRINTED
```

Printing One Data Set Member

To print one member of a data set, type P on the OPTION line of the Library Utility
panel and specify the three data set qualifiers plus the member name in the ISPF
LIBRARY fields. When you press the Enter key, the member is sent to the LIST
data set to await your exit from ISPF/PDF.

```
  ----------------------------- LIBRARY UTILITY ----------------------------
OPTION ===> p

    blank - Display member list            B - Browse member
    C - Compress data set                  P - Print member
    X - Print index listing                R - Rename member
    L - Print entire data set              D - Delete member
    I - Data set information               S - Data set information (short)

ISPF LIBRARY:
    PROJECT ===>  prefix
    GROUP   ===>  memo       ===>            ===>            ===>
    TYPE    ===>  text
    MEMBER  ===>  feb27       (If option "P", "R", "D", or "B" selected)
    NEWNAME ===>                      (If option "R" selected)


OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>              (If not cataloged)

DATA SET PASSWORD ===>              (If password protected)
```

Printing More Than One Data Set Member

To print more than one member of a data set, you need to display a member list
from which you can select members. To display the member list, leave the
OPTION line blank on the Library Utility panel. Then specify the three data set
qualifiers in the ISPF LIBRARY field and leave the MEMBER field blank.

```
  ----------------------------- LIBRARY UTILITY ----------------------------
OPTION ===>

    blank - Display member list            B - Browse member
    C - Compress data set                  P - Print member
    X - Print index listing                R - Rename member
    L - Print entire data set              D - Delete member
    I - Data set information               S - Data set information (short)

ISPF LIBRARY:
    PROJECT ===>  prefix
    GROUP   ===>  memo       ===>            ===>            ===>
    TYPE    ===>  text
    MEMBER  ===>                      (If option "P", "R", "D", or "B" selected)
    NEWNAME ===>                      (If option "R" selected)


OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>              (If not cataloged)

DATA SET PASSWORD ===>              (If password protected)
```

You then see a list of member names and information about each member. To
print members, type p next to the members you want printed. When you press the
Enter key, the word '*PRINTED' appears next to the members you selected and the

member is sent to the LIST data set. When you are finished printing members, press the END PF key (PF 3).

Note: On this panel you can also type b to browse, r to rename, and d to delete a member.

```
LIBRARY - PREFIX.MEMO.TEXT --------------------------------- ROW 00001 OF 00008
COMMAND ===>                                                   SCROLL ===> PAGE
   NAME     RENAME     VV.MM   CREATED       CHANGED      SIZE   INIT   MOD   ID
   APR13               01.02  87/04/13   87/05/21 09.55    44     39     4 YOURID
 p AUG01               01.00  87/08/01   87/08/01 10.01    24     24     0 YOURID
 p FEB27               01.01  87/02/27   87/03/07 14.52    12     11     2 YOURID
   JAN10               01.00  87/01/10   87/01/10 17:07    21     21     0 YOURID
   JUL01               01.01  87/07/07   87/07/07 12.52    10     10     0 YOURID
   JUL14               01.00  87/07/14   87/07/14 16.15    20     20     0 YOURID
 p JUN04               01.00  87/06/04   87/06/04 11.23    85     85     0 YOURID
 p JUN18               01.04  87/06/18   87/06/27 08.43    34     36     6 YOURID
   MAR30               01.03  87/03/30   87/06/12 11.03    15     15     2 YOURID
   **END**
```

Exercise

Print a member of a data set by following the examples starting at "Printing One Data Set Member" on page 8-12. If you have a data set member named PREFIX.MEMO.TEXT(FEB27), enter its name on the Library Utility panel. (To display the names of your data sets, select the DSLIST option (option 4) on the Utility Selection Menu panel.) When the member goes to the LIST data set, you see the message:

```
MEMBER FEB27 PRINTED
```

If you have more than one member in PREFIX.MEMO.TEXT, leave blank the OPTION line and the MEMBER field to display a list of members. Select members to print by entering P in the action field next to them. Press the END PF key (PF 3) to exit the list panel and to see the message:

```
n MEMBERS PROCESSED
```

(*n* represents the number of members selected.)

Printing Screen Images in ISPF/PDF

If you need to print a single screen of information, you can take a "snapshot" of the screen by pressing the PRINT PF key or by entering print on the COMMAND/OPTION line. If you don't have a PRINT PF key set up and you want one, see "Changing PF Key Defaults" on page 9-9. The "snapshots" are stored in the LIST data set to await your exit of ISPF/PDF.

```
┌─ Exercise ──────────────────────────────────────────────────────────┐
│                                                                       │
│  Press the PRINT PF key or enter print on the COMMAND/OPTION line of  │
│  any                                                                  │
│  panel.  You then see the message:                                    │
│                                                                       │
│   ┌──────────────────────────────────────────────────────────────┐   │
│   │                                                                │   │
│   │  PHYSICAL SCREEN PRINTED                                       │   │
│   │                                                                │   │
│   └──────────────────────────────────────────────────────────────┘   │
│                                                                       │
└───────────────────────────────────────────────────────────────────────┘
```

Exiting ISPF/PDF With a LIST Data Set

When you exit ISPF/PDF after requesting to print data, the LIST data set, which contains the data to be printed, is processed. How it is processed depends on the default that was set in the LOG/LIST function of the ISPF PARMS option.

To see and possibly override the default, press the END PF (PF 3) on the ISPF/PDF Primary Option Menu, instead of entering X on the OPTION line to complete the exit and accept the defaults. You then see a panel that displays the default disposition for your list data set.

```
 --------------  SPECIFY DISPOSITION OF LOG AND LIST DATA SETS  ----------------
 COMMAND ===>

 LOG OPTIONS FOR THIS SESSION           LIST OPTIONS FOR THIS SESSION
 ---------------------------            -----------------------------
 Process option    ===> D               Process option     ===> PD
 SYSOUT class      ===>                  SYSOUT class       ===> A
 Local printer ID  ===>                  Local printer ID   ===>

 VALID PROCESS OPTIONS:
     PD - Print data set and delete
     D  - Delete data set without printing
     K  - Keep data set (allocate same data set in next session)
     KN - Keep data set and allocate new data set in next session

   Press ENTER key to complete ISPF termination.
   Enter END command to return to the primary option menu panel.

 JOB STATEMENT INFORMATION:  (Required for system printer)
   ===>//YOURIDX  JOB  (2445,DEPT2,BLD90),'YOUR NAME',
   ===>//   CLASS=5,MSGCLASS=W,NOTIFY=YOURID
   ===>
   ===>
```

You can change the default by typing one of the following in the Process option field under LIST OPTIONS FOR THIS SESSION:

- **PD** – To print the LIST data set and then delete it.

- **D** – To delete the LIST data set without printing it.

- **K** – To keep the LIST data set without printing it because you might want to add to it and print it later.

- **KN** – To allocate a new LIST data set and keep it without printing it.

If your job statement was previously defined, it appears under JOB STATEMENT INFORMATION. If it is not defined, see your TSO/E administrator to help you define one before you print data.

For more information about setting these defaults, see "Changing Display Terminal Characteristics" on page 9-7.

Exercise

Press the END PF key (PF 3) repeatedly to exit ISPF/PDF until you see the LOG and LIST disposition panel. If you want to print all the information in your LIST data set, enter pd in the Process Option field. The LIST data set is then sent to the default printer. If you do not want to print the information in the LIST data set, enter d in the Process option field.

Sending Data in Line Mode TSO/E

Using line mode TSO/E commands, you can send data in many ways. In this section we discuss printing data sets, sending and receiving short messages, sending and receiving longer messages, and sending and receiving data sets.

REMEMBER

When using TSO/E commands:

1. You can stop a process by pressing the attention interrupt key (PA1). For example, if you see a message you don't understand and want to stop doing what you started, press PA1.

2. In examples of commands, the words that you *must* type, such as commands and keywords, are in capital letters. The variable words, such as data set names and user IDs, are in lower case letters.

   `COMMAND KEYWORD(data set name)`

3. When specifying a data set name in a command, you do not need to include the first qualifier if it is your prefix. Thus to specify data set PREFIX.TEST.DATA, you can type: `DATA`. When you include the first qualifier, you must enclose the data set name in single quotes: `'PREFIX.TEST.DATA'`.

4. When a command processes successfully, you usually see another READY message. When a command does not process successfully, you see an error message.

Printing a Data Set in Line Mode TSO/E

The PRINTDS command sends data sets directly to a system printer defined by your installation. As you did with the ALLOCATE and DELETE commands, you can issue the PRINTDS command in line mode TSO/E to do the work of several panels. To print the sequential data set PREFIX.TEST.DATA, enter after the READY message:

`PRINTDS DATASET(test.data)`

Remember that you do not need to specify the first qualifier if the first qualifier is your prefix.

Similarly, to print member FEB27 of partitioned data set PREFIX.MEMO.TEXT, enter:

```
PRINTDS DATASET(memo.text(feb27))
```

When using the PRINTDS command with a PDS, you can print either one specified member or the entire PDS. If you print an entire PDS, all the members plus the directory for the PDS are printed.

Exercise

To make sure the data set PREFIX.MEMO.TEXT exists and it has a member FEB27, do the following:

- Enter the LISTCAT command to see a list of your data sets. Look for PREFIX.MEMO.TEXT. If it doesn't exist, create it by allocating it LIKE another PDS, or follow the example in Chapter 7 for creating a partitioned data set in ISPF/PDF.

- To see a list of members for PREFIX.MEMO.TEXT, enter:

  ```
  LISTDS memo.text MEMBERS
  ```

If FEB27 does not exist, create it and edit it to add text. Then display the READY message and enter:

```
PRINTDS DATASET(memo.text(feb27))
```

Another READY message appears under the command, which indicates that the command was successful. If you see an error or a prompting message, the command was not successful.

This time, enter a TSO/E line command on an ISPF/PDF panel. On the COMMAND or OPTION line of any ISPF/PDF panel, enter the following PRINTDS command:

```
===> TSO PRINTDS DATASET(memo.text)
```

You see the bottom few lines of the panel disappear for a few moments. Then they reappear, which means the command was processed. If the command had not been processed, a line mode type of message would appear at the bottom.

Communicating With Other Users

Generally, the address of a user consists of:

- A user ID, and
- A **system node**, which is the ID of a computer system in a network.

Often a person's user ID and system node are in the names directory of the Information Center Facility. When you know a person's address, you can send:

- Messages

  - Short messages to other users on your system node
  - Longer messages to users not necessarily on your system node.

- Data sets, both entire data sets and members of a PDS.

Sending and Receiving Short Messages in Line Mode TSO/E

To send a simple one line message to someone on your system node, you can use the line mode SEND command. Type the message within single quotes and the user ID at the end preceded by the keyword USER. Thus to send a message to a user with the user ID of MIKE, you can enter after the READY message:

```
SEND 'Meeting today at 1:00.'  USER(mike)
```

Whatever is within the single quotes is sent. If MIKE is logged on when you send the message, he sees it immediately on his screen. If MIKE is not logged on, the system notifies you and deletes the message.

To ensure that MIKE receives your message whether or not he is logged on, add the LOGON operand at the end.

```
SEND 'Meeting today at 1:00.'  USER(mike) LOGON
```

If MIKE is logged on, he sees the message on his screen. If he is not logged on, the message appears the next time he logs on.

To send the same message to MIKE, SUSAN, and BILL, separate the user IDs by commas within the parentheses.

```
SEND 'Meeting today at 1:00.' USER(MIKE,SUSAN,BILL)
```

Two syntax rules you might need are:

1. The message text cannot exceed 115 characters including blanks.

2. When you want to display a single quote within a message, type it as two consecutive single quotes. For example, type don''t to display don't.

Your installation may use various security features that affect the way the SEND command works. If so, the results of sending a message may differ from those described here. *TSO/E User's Guide*, SC28-1968, explains the differences you can expect.

Exercise

Send the following message to yourself by substituting * for a user ID.

```
SEND 'This is how it looks.' USER(*)
```

Now send a message of your choice to another user on your same system node. If you are notified that the user is not logged on, resend the message with the LOGON operand.

Sending Longer Messages in Line Mode TSO/E

If you need to use more than 115 characters in a message or you need to send a message to a user on a different system node, you can use the line mode TRANSMIT command. However, with the TRANSMIT command, you need to specify the receiver's system node in addition to a user ID.

To use the TRANSMIT command to send a message to user ANN at system node NETNY, enter after the READY message:

```
TRANSMIT netny.ann
```

An empty edit screen, similar to the following, appears on which you can type a message.

```
                    DATA FOR NETNY.ANN
00001 Ann,
00002    The meeting scheduled for tomorrow at 1:00 was cancelled.
00003 We're rescheduling it for next Tuesday, same time, same place.
00004    See you there.
00005

   ⋮

00020
00021
00022
PF3 = FINISHED|   PF7 = BACKWARD   |   PF8 = FORWARD   |   PA1 = ABORT
```

When you press PF3, the message goes to the user and you see:

```
0 message and 4 data records sent as 5 records to NETNY.ANN
Transmission occurred on 10/14/1987 at 11:30:48.
```

To send a message to more than one user, separate 'system nodes.user IDs' with commas and enclose them in parentheses.

```
TRANSMIT (netny.mike,netny.ann,netma.bob)
```

The message you type on the edit screen then goes to all three users.

Your installation may use various security features that affect the way the TRANSMIT command works. If so, the results of transmitting a message may differ from those described here. *TSO/E User's Guide*, SC28-1968, explains the differences you can expect.

Exercise

With the TRANSMIT command, send a message of your choice to another user. Then send it to more than one user.

A quicker way to specify a receiver is to set up a NAMES data set with nickname equivalents for commonly used 'system nodes.user IDs'. To find out how to set up and use a NAMES data set, see *TSO/E User's Guide*, SC28-1968.

Receiving Longer Messages in Line Mode TSO/E

You can receive transmitted messages several ways depending upon the procedure used at your installation. Some possibilities are:

1. An informational message appears on your screen when someone transmits a message to you. The informational message is installation dependent and could be something like:

   ```
   October 14,1987 11:30:48 - Mail from user SHH
   ```

   When you see the informational message, enter the RECEIVE command to display the message from the other user. You might then see something like the following:

   ```
    READY
    RECEIVE
    --------------------------------------------------------------------------
    Dataset  ** MESSAGE ** from SHH    on NETGB
                                                        February 26, 1987
      Have you some time to spare?  We have just been involved in a most
    extraordinary case, one with beguiling consequences.
      I am reluctant to convey more than my urgent request for your
    immediate presence.

    Yours faithfully,
        S.H.
    --------------------------------------------------------------------------
    No more files remain for the receive command to process.
    READY
   ```

2. When you log on to TSO/E, you see all messages transmitted to you since you last logged on, and might see something similar to the following:

   ```
    *NOTE* 1st shift Sunday, 10/17, nodeQ will be up and unattended. All
    other systems will be down.
    --------------------------------------------------------------------------
    Dataset  ** MESSAGE ** from SHH    on NETGB
                                                        February 26, 1987
      Have you some time to spare?  We have just been involved in a most
    extraordinary case, one with beguiling consequences.
      I am reluctant to convey more than my urgent request for your
    immediate presence.

    Yours faithfully,
        S.H.
    --------------------------------------------------------------------------
    No more files remain for the receive command to process.
    READY
   ```

3. No messages appear at logon or during your TSO/E session. To receive messages, periodically enter the RECEIVE command.

Your installation may use various security features that affect the way the RECEIVE command works. If so, the results of receiving transmitted messages may differ from those described here. *TSO/E User's Guide*, SC28-1968, explains the differences you can expect.

Exercise

To find out the procedure for receiving messages at your installation, send a message to yourself using the TRANSMIT command. Observe whether an informational message appears when you press the Enter key. If no informational message appears, log off and log on again to see if your message appears at log on. If it doesn't, enter RECEIVE after the READY message.

Sending Data Sets in Line Mode TSO/E

In addition to sending messages with the TRANSMIT command, you can use the TRANSMIT command to send data sets to another user. In this section we discuss sending entire data sets, sending a partitioned data set member, and sending a data set together with a message.

Sending an Entire Data Set

Using the TRANSMIT command to send an entire data set to another user is similar to transmitting a message. The syntax is the same as when you send a message except you add the name of the data set. To send the sequential data set PREFIX.TEST.DATA to MIKE on system node NETNY, enter after the READY message:

```
TRANSMIT netny.mike DATASET(test.data)
```

You then see a message that might look something like:

```
0 message and 106 data records sent as 112 records to NETNY.MIKE
Transmission occurred on 10/30/1987 at 14:21:07.
  READY
```

Sending a PDS Member

To send one or more members of a PDS to another user, add the MEMBERS operand to the command. Thus to send member FEB27 of data set PREFIX.MEMO.TEXT to MIKE on system node NETNY, enter:

```
TRANSMIT netny.mike DATASET(memo.text) MEMBERS(feb27)
```

Several line mode messages appear that might look like the following:

```
                               IEBCOPY MESSAGES AND CONTROL STATEMENTS
                 COPY OUTDD=SYS00017, INDD=((SYS00010,R))
                 SELECT MEMBER=(FEB27)
IEB167I  FOLLOWING MEMBER(S) UNLOADED FROM INPUT DATA SET REFERENCED BY SYS00010 -
IEB154I  FEB27    HAS BEEN SUCCESSFULLY UNLOADED
IEB147I  END OF JOB -00 WAS HIGHEST SEVERITY CODE
0 message and 5 data records sent as 57 records to NETNY.MIKE
Transmission occurred on 11/02/1987 at 09:12:22.
READY
```

Sending a Data Set and a Message

There may be times when you want to add a message to a data set that you send to another user. To do that, add the MESSAGE operand to the TRANSMIT command. To send data set PREFIX.TEST.DATA plus a message to MIKE on system node NETNY, enter:

```
TRANSMIT netny.mike DATASET(test.data) MESSAGE
```

As soon as you press the Enter key, you see the edit panel that is used for messages. After you type your message and press PF3, you see an informational message:

```
 1 message and 106 data records sent as 112 records to NETNY.MIKE
  READY
```

Your installation may use various security features that affect the way the TRANSMIT command works. If so, the results of transmitting a data set, a member of a partitioned data set, or a data set and message may differ from those described here. *TSO/E User's Guide*, SC28-1968, explains the differences you can expect.

Exercise

Following the examples beginning at "Sending Data Sets in Line Mode TSO/E" on page 8-20, send a data set to someone at your installation. Then send a member of a data set to someone at your installation. Notice the different types of messages that appear. You can also send a data set to two people by enclosing their 'system nodes.user IDs' in parentheses. The following example uses accepted abbreviations:

```
XMIT (netny.mike,netny.ann) DA(test.data)
```

Receiving Data Sets in Line Mode TSO/E

Receiving data sets is similar to receiving transmitted messages, in that you issue the RECEIVE command. However, it differs because the data set is usually not displayed on your screen. Instead, you see an informational message identifying the name of the data set, and who sent it, and you see a prompting message that asks what you want to do with the data set.

For example, if BOB sends you a data set named BOB.NEW.DATA, and you issue the RECEIVE command, you see:

```
  READY
 RECEIVE
  Dataset A.NEW.DATA from BOB on NETMA
  Enter restore parameters or 'DELETE' or 'END'  +
```

The message after the data set name means that you can do one of the following:

- **Receive the data set as named** – Press the Enter key to receive the data set PREFIX.NEW.DATA. When you receive BOB's data set, your prefix replaces A as the first qualifier.

- **Rename the data set before receiving it** – To rename the data set to PREFIX.BOB.DATA, enter under the message:

  `DATASET(bob.data)`

- **Delete the data set** – To delete the received data set, enter the word `delete` under the message.

- **End the receive process temporarily** – To end the receive process for now, type the word `end` after the message. You can use the RECEIVE command again later to receive the data set.

After you successfully receive a data set, for instance one from BOB named A.NEW.DATA, you see:

```
Restore successful to dataset 'PREFIX.NEW.DATA'
Sender notified of receipt.
```

Receiving a Like-Named Data Set

If you receive a data set with the same name as one you already have, you see the message:

```
Dataset 'PREFIX.NEW.DATA' already exists.  Reply 'R' to replace it.
```

If you want the incoming data set to replace your existing one, enter `R` under the message. If you don't want the incoming data set to replace your existing one, press the Enter key to terminate the RECEIVE command. Then reissue the RECEIVE command and rename the data set.

Procedures for Receiving Data Sets

Depending upon the procedure used at your installation, you might or might not be notified that a data set was transmitted to you. Some possibilities are:

1. An informational message appears on your screen when someone transmits a data set to you. The informational message is installation dependent and could be something like the following:

   `October 16,1987 09:22:14 - Mail from local user ANN`

   When you see the informational message, enter the RECEIVE command to display information about the data set from ANN.

2. When you log on to TSO/E, you see all messages and data sets transmitted to you since you last logged on.

```
  *NOTE* 1st shift Sunday, 10/17, nodeQ will be up and
  unattended.   All other systems will be down.
 ------------------------------------------------------------
  Dataset A.NEW.DATA from ANN on NETNY
  Enter restore parameters or 'DELETE' or 'END'  +
```

3. No messages appear at log on or during your TSO/E session. To receive data sets, periodically enter the RECEIVE command.

Your installation may use various security features that affect the way the RECEIVE command works. If so, the results of receiving data sets may differ from those described here. *TSO/E User's Guide*, SC28-1968, explains the differences you can expect.

Exercise

Transmit one of your data sets, such as TEST.DATA, to yourself. After issuing the RECEIVE command, you see messages similar to:

```
  Dataset A.TEST.DATA from YOURID on NODEID
  Enter restore parameters or 'DELETE' or 'END'  +
```

You can rename the received data set to SAMETEST.DATA by entering:

DATASET(sametest.data)

You then see messages similar to:

```
  Restore successful to dataset 'PREFIX.SAMETEST.DATA'
  Sender notified of receipt.
  ----------------------------------------------------------
  Acknowledgment from YOURID on NODEID
   Dataset 'PREFIX.TEST.DATA' sent 14 OCT 1987 10:24:59.
   STORED
  ----------------------------------------------------------
  No more files remain for the receive command to process.
  READY
```

Now have someone send you a data set. When you issue the RECEIVE command and see the prompting message about restoring parameters, press the Enter key to receive the data set with its default name.

Chapter 9. Tips and Techniques

When you finish reading this chapter, you will be able to:

- Manipulate panels more efficiently:

  - Use fastpath
  - Use =*option number*
  - Locate an item in a list
  - Work in split screen mode
  - Change display terminal characteristics
  - Change PF key defaults.

- Use advanced editing techniques:

  - Find a string
  - Change a string
  - Repeat a command
  - Create and copy a PDS member
  - Mark columns
  - Change the edit profile.

- Fix common problems:

  - Allot more space for a data set
  - Fix text shifts.

- Use new techniques in line mode TSO/E

  - Abbreviate commands and keywords
  - Repeat a command
  - Display a user profile.

For more information, see:

- *OS/390 ISPF User's Guide*, SC28-1239
- *TSO/E Command Reference*, SC28-1969
- *TSO/E User's Guide*, SC28-1968.

Tips for Panels

Sometimes manipulating panels can be time consuming. In the following section we discuss ways to manipulate panels more efficiently by going directly to an option several menus deep (fastpath), going directly to one option from another (using =), using the LOCATE command, and working in split screen mode. We also discuss how to change your terminal characteristics and your PF key defaults.

Using Fastpath

When you know your way around in panels, you might find it slow to select options on one menu panel after another to get to a panel several layers deep.

For example to reach the LIBRARY option under the UTILITIES option in ISPF/PDF, you first select option 3, then select option 1 on the next panel.

```
------------------------ ISPF/PDF PRIMARY OPTION MENU  ----------------------
OPTION ===> 3
                                                       USERID   - MYID
    0  ISPF PARMS  - Specify terminal and user parameters    TIME      - 12:47
    1  BROWSE      - Display source data or output listings  TERMINAL - 3277
    2  EDIT        - Create or change source data            PF KEYS  - 12
    3  UTILITIES   - Perform utility functions
  ⋮
```

```
------------------------- UTILITY SELECTION MENU  ---------------------------
OPTION ===> 1

    1  LIBRARY    - Compress or print data set.  Print index listing.
                      Print, rename, delete, or browse members
    2  DATASET    - Allocate, rename, delete, catalog, uncatalog, or
                      display information of an entire data set
    3  MOVE/COPY  - Move, copy, or promote members or data sets
  ⋮
```

```
------------------------------- LIBRARY UTILITY ------------------------------
OPTION ===>

    blank - Display member list              B - Browse member
    C - Compress data set                    P - Print member
    X - Print index listing                  R - Rename member
    L - Print entire data set                D - Delete member
    I - Data set information                 S - Data set information (short)
  ⋮
```

A quicker way to select options from menu panels is by using a **fastpath** in which you specify on the first menu panel, all the menu panel options separated by periods. Thus entering 3.1 takes you directly to the third options' first option.

```
------------------------ ISPF/PDF PRIMARY OPTION MENU ----------------------
OPTION ===> 3.1
                                                    USERID   - MYID
    0  ISPF PARMS   - Specify terminal and user parameters   TIME     - 12:47
    1  BROWSE       - Display source data or output listings  TERMINAL - 3277
    2  EDIT         - Create or change source data            PF KEYS  - 12
    3  UTILITIES    - Perform utility functions
  ⋮
```

```
------------------------------- LIBRARY UTILITY ------------------------------
OPTION ===>

    blank - Display member list              B - Browse member
    C - Compress data set                    P - Print member
    X - Print index listing                  R - Rename member
    L - Print entire data set                D - Delete member
    I - Data set information                 S - Data set information (short)
  ⋮
```

Exercise

Display the ISPF/PDF Primary Option Menu. Previously, to print a data set, you entered 3 (UTILITIES option), then you entered 1 (LIBRARY option). Now enter 3.1 to see the Library Utility panel. Notice when you press the END PF key (PF 3), that you return directly to the ISPF/PDF Primary Option Menu.

Using =

We mentioned in "Panel Hierarchies" on page 3-5 that options are linked to a main menu panel. If you are in one option of a main menu panel and want to go directly to another option on the same main menu panel, you can enter an equal sign and the other option number on any data entry field. You then see the other option without having to choose it from the main menu panel. Thus if you were in the UTILITIES option of the ISPF/PDF Primary Option Menu (option 3) and wanted to edit a data set (option 2), enter in any field on the Data Set Utility panel =2.

Tips for Panels

```
------------------------------ DATA SET UTILITY ----------------------------
OPTION ===>

    A - Allocate new data set             C - Catalog data set
    R - Rename entire data set            U - Uncatalog data set
    D - Delete entire data set            S - Data set information (short)
    blank - Data set information

ISPF LIBRARY:
    PROJECT ===>
    GROUP   ===> =2
    TYPE    ===>

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME ===>
    VOLUME SERIAL ===>           (If not cataloged, required for option "C")

DATA SET PASSWORD ===>           (If password protected)
```

You then see the first edit panel on which you can specify the name of the data set you want to edit.

```
------------------------------ EDIT - ENTRY PANEL ----------------------------
COMMAND ===>

ISPF LIBRARY:
    PROJECT ===>
    GROUP   ===>            ===>            ===>            ===>
    TYPE    ===>
    MEMBER  ===>                      (Blank for member selection list)

OTHER PARTITIONED OR SEQUENTIAL DATA SET:
    DATA SET NAME    ===>
    VOLUME SERIAL    ===>             (If not cataloged)

    DATA SET PASSWORD ===>            (If password protected)

    PROFILE NAME     ===>             (Blank defaults to data set type)

    INITIAL MACRO    ===>             LOCK       ===> YES    (YES, NO or NEVER)

    FORMAT NAME      ===>             MIXED MODE ===> NO     (YES or NO)
```

Exercise

Display any ISPF/PDF panel other than the Primary Option Menu. Enter =2 in any field to see the edit panel. Then enter =3.2 to go directly to the Data Set Utilities panel. Notice when you press the END PF key (PF 3) that you go to the ISPF/PDF Primary Option Menu.

Now select any option on the menu panel and when that option's panel is displayed, enter =x to exit ISPF/PDF.

Note: Using = might not work on all options, particularly ones your installation has added or modified.

Locating an Item in a List

Sometimes lists of items such as members of a PDS extend over several screens. Rather than use the DOWN PF key (PF 8) to scroll through the list to find a single item, you can use the LOCATE command followed by the complete or partial name of the item. LOCATE can be abbreviated to LOC or L. When you use LOCATE, the screen automatically scrolls to the item and displays it at the top of the screen.

In the following example, to scroll to member SEPT04, enter L sept04.

```
 LIBRARY - PREFIX.MEMO.TEXT --------------------------------- ROW 00001 OF 00020
 COMMAND ===> L sept04                                           SCROLL ===> PAGE
   NAME     RENAME    VV.MM   CREATED         CHANGED     SIZE   INIT   MOD  ID
   APR13              01.02  87/04/13   87/05/21 09.55     44     39     4   YOURID
   AUG01              01.00  87/08/01   87/08/01 10.01     24     24     0   YOURID
   FEB27              01.01  87/02/27   87/03/07 14.52     12     11     2   YOURID
   JAN10              01.00  87/01/10   87/01/10 17:07     21     21     0   YOURID
   JUL01              01.01  87/07/01   87/07/07 12.52     10     10     1   YOURID
   JUL03              01.01  87/07/03   87/07/21 17.22     08     09     1   YOURID
   JUL07              01.06  87/07/07   87/10/01 09.33     33     24     5   YOURID
   JUL14              01.00  87/07/14   87/07/14 16.15     20     20     0   YOURID
   JUL24              01.00  87/07/24   87/07/24 17.02     10     10     0   YOURID
   JUN04              01.00  87/06/04   87/06/04 11.23     85     85     0   YOURID
   JUN18              01.04  87/06/18   87/06/27 08.43     34     36     6   YOURID
   MAR30              01.02  87/03/30   87/04/01 11:07     15     15     2   YOURID
   NOV10              01.01  87/11/10   87/11/21 14.02     10     12     0   YOURID
   NOV14              01.00  87/11/14   87/11/14 10.23     20     20     0   YOURID
   OCT14              01.00  87/10/14   87/10/14 08.10     20     20     0   YOURID
   OCT24              01.02  87/10/24   87/11/02 15.59     10     21     2   YOURID
   SEPT05             01.00  87/09/05   87/09/05 09.17     85     85     0   YOURID
   SEPT08             01.01  87/09/08   87/10/21 13.44     34     36     1   YOURID
   SEPT12             01.00  87/09/12   87/09/12 14:02     21     21     0   YOURID
   SEPT30             01.01  87/09/30   87/11/07 10.31     10     10     0   YOURID
   **END**
```

Because SEPT04 does not exist and the list is sorted by member name, you scroll to the member closest to that name.

```
 LIBRARY - PREFIX.MEMO.TEXT --------------------------------- ROW 00016 OF 00020
 COMMAND ===>                                                    SCROLL ===> PAGE
   NAME     RENAME    VV.MM   CREATED         CHANGED     SIZE   INIT   MOD  ID
   OCT24              01.02  87/10/24   87/11/02 15.59     10     21     2   YOURID
   SEPT05             01.00  87/09/05   87/09/05 09.17     85     85     0   YOURID
   SEPT08             01.01  87/09/08   87/10/21 13.44     34     36     1   YOURID
   SEPT12             01.00  87/09/12   87/09/12 14:02     21     21     0   YOURID
   SEPT30             01.01  87/09/30   87/11/07 10.31     10     10     0   YOURID
   **END**
```

Exercise

Display a list of data set members. If you don't have a PDS with members, see
"Allocating a Data Set" on page 7-3 and "Using ISPF/PDF Edit" on page 7-9 to
create a PDS with several members.

To position the screen to display a specific member second from the top line,
enter L *member_name*.

Now enter the LOCATE command with the first three letters of another member
name and observe what happens.

You might also try to locate a non-existent member.

Using Split Screen

The SPLIT PF key (PF 2) divides the display screen into two panels, each of which
can be used independently. The SWAP PF key (PF 9) moves the cursor in split
screen mode back and forth from one part of the screen to the other.

Some benefits of using a split screen are:

- You can obtain further information about a task without exiting the task. For
  example, if you are using the news service in the Information Center Facility
  and you do not know how to specify a news item, you can press the SPLIT PF
  key (PF 2), swap to the other side of the split, and select the news tutorial to
  read about specifying news items.

- You can jump to a second task without exiting the first task. This is especially
  helpful if the two tasks are interdependent. For example, if you try to edit a
  data set that has not yet been allocated, you can press the SPLIT PF key (PF
  2), swap to the other side of the split, and allocate the data set.

To use split screen, follow these steps:

1. Move the cursor to the spot where you want the screen to split.

2. Press the SPLIT PF key (PF 2). A dotted line indicates the split. After the
   screen is split, the cursor indicates which part of the screen is active. You can
   work only in the active part of the screen.
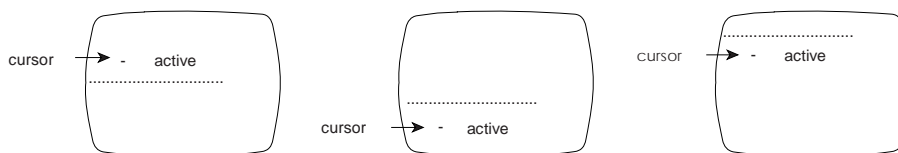
Figure   9-1. Determining which part of a split screen is active

3. Use the SWAP PF key (PF 9) to move the cursor to the opposite side of the
   split.

4. To return to a single screen, press the END PF key (PF 3) repeatedly in the
   side you want to exit until the other side appears as a single screen.

```
┌─ Exercise ────────────────────────────────────────────────────────────┐
│                                                                        │
│  Display the ISPF/PDF Primary Option Menu.  Move the cursor to the top of the │
│  screen and press the SPLIT PF key (PF 2).  You see the same menu panel │
│  except a dotted line is added at the top of the screen.  Now press the SWAP │
│  PF key (PF 9).  You again see the same menu panel with a dotted line at the │
│  bottom of the screen.                                                 │
│                                                                        │
│  Select the EDIT option (option 2) from the menu panel that is displayed.  You │
│  see the data set identification panel.  Press the SWAP PF key (PF 9) to return │
│  to the other primary option menu panel.  Select the UTILITIES option (option 3) │
│  from that menu panel.  You see the Utility Selection Menu.            │
│                                                                        │
│  You can continue to do two tasks simultaneously or you can exit one.  To exit │
│  the edit task, press the SWAP PF key (PF 9) to re-display the edit panel with │
│  data set identification.  Then press the END PF key (PF 3).  You see the │
│  ISPF/PDF Primary Option Menu.  Press the END PF key (PF 3) again.  You │
│  see the Utility Selection Menu and the screen is no longer split.    │
│                                                                        │
└────────────────────────────────────────────────────────────────────────┘
```

Changing Display Terminal Characteristics

The way you interact with panels depends upon your display terminal and the
ISPF/PDF defaults set for your terminal session. Before you logged on to TSO/E,
your administrator probably defined these characteristics for you. Some terminal
characteristics are:

- Terminal type
- LOG and LIST defaults
- Number of PF keys
- Default values for PF keys
- Whether the COMMAND/OPTION line is at the top or the bottom of a display
  screen.

We cover this topic briefly; however, you can see *OS/390 ISPF User's Guide*,
SC28-1239, for details.

To view or change your terminal characteristics, select the ISPF PARMS option
(option 0) from the ISPF/PDF Primary Option Menu.

```
------------------------ ISPF/PDF PRIMARY OPTION MENU ------------------------
OPTION ===> 0
                                                      USERID   - YOURID
   0  ISPF PARMS  - Specify terminal and user parameters   TIME     - 12:47
   1  BROWSE      - Display source data or output listings  TERMINAL - 3277
   2  EDIT        - Create or change source data            PF KEYS  - 12
   3  UTILITIES   - Perform utility functions
   4  FOREGROUND  - Invoke language processors in foreground
   5  BATCH       - Submit job for language processing
   6  COMMAND     - Enter TSO command or CLIST
   7  DIALOG TEST - Perform dialog testing
   8  LM UTILITIES- Perform library administrator utility functions
   9  IBM PRODUCTS- Additional IBM program development products
   C  CHANGES     - Display summary of changes for this release
   T  TUTORIAL    - Display information about ISPF/PDF
   X  EXIT        - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
```

The next panel you see allows you to select a specific characteristic.

```
-------------------------- ISPF PARAMETER OPTIONS --------------------------
OPTION ===>

    1  TERMINAL      - Specify terminal characteristics
    2  LOG/LIST      - Specify ISPF log and list defaults
    3  PF KEYS       - Specify PF keys for 3278 terminal with 24 PF keys
    4  DISPLAY       - Specify screen display characteristics
    5  LIST          - Specify list data set characteristics
    6  GRAPHIC       - Specify GDDM graphic print parameters
    7  ENVIRON       - Specify ENVIRON command settings
```

The two options you are most likely to use are LOG/LIST (option 2) and PF KEYS
(option 3).

Changing LOG/LIST Defaults and Your Job Statement
ISPF/PDF maintains two data sets for you during your terminal session:

1. A LOG data set that keeps a record of your transactions while using ISPF/PDF.

2. A LIST data set that holds information you want to send to the system printer.

When you select the LOG/LIST option (option 2), you see a panel on which you
can set defaults for processing these two data sets. In addition, you see the job
statement, if any, that defines jobs you submit to the system.

```
------------------------ LOG and LIST DEFAULTS ------------------------------
COMMAND ===>

LOG DATA SET DEFAULT OPTIONS              LIST DATA SET DEFAULT OPTIONS
--------------------------                -----------------------------
Process option    ===> D                  Process option    ===> PD
SYSOUT class      ===> A                  SYSOUT class      ===> A
Local printer ID  ===>                    Local printer ID  ===>
Lines per page    ===> 60                 Lines per page    ===> 60
Primary pages     ===> 10                 Primary pages     ===> 100
Secondary pages   ===> 10                 Secondary pages   ===> 200

VALID PROCESS OPTIONS:
 PD - Print data set and delete        D - Delete data set (without printing)
 K  - Keep data set (append subsequent information to same data set)
 KN - Keep data set and allocate new data set

JOB STATEMENT INFORMATION:          (Required for system printer)
  ===>//YOURIDA  JOB  (ACCOUNT4),'YOUR NAME',
  ===>// CLASS=5,MSGCLASS=W,NOTIFY=YOURID
  ===>//* COMMENT
  ===>//* COMMENT
```

The defaults determine what happens to the two data sets when you exit
ISPF/PDF. If you want to temporarily override the defaults, press the END PF key
(PF 3) until the Specify Disposition of Log and List Data Sets panel appears. You
can then change the defaults for that session. To permanently change the defaults,
select the LOG/LIST option (option 2).

Your job statement defines you when you submit a job to a printer. See your TSO/E administrator for information about job statements used at your installation.

Changing PF Key Defaults

When you choose the PF KEY option (option 3), you see the PF key defaults for your terminal. If you have 24 PF keys, you see the defaults for PF keys 13 to 24 first. Often the defaults for PF keys 1 to 12 are the same as 13 to 24. If you have 12 PF keys, you see the values for PF keys 1-12.

```
------------------------  PF KEY DEFINITIONS AND LABELS  ----------------------
COMMAND ===>

NUMBER OF PF KEYS  ===> 12                 TERMINAL TYPE ===> 3278

PF1  ===> HELP
PF2  ===> SPLIT
PF3  ===> END
PF4  ===> RETURN
PF5  ===> RFIND
PF6  ===> RCHANGE
PF7  ===> UP
PF8  ===> DOWN
PF9  ===> SWAP
PF10 ===> LEFT
PF11 ===> RIGHT
PF12 ===> RETRIEVE

PF1  LABEL ===>           PF2  LABEL ===>           PF3  LABEL ===>
PF4  LABEL ===>           PF5  LABEL ===>           PF6  LABEL ===>
PF7  LABEL ===>           PF8  LABEL ===>           PF9  LABEL ===>
PF10 LABEL ===>           PF11 LABEL ===>           PF12 LABEL ===>

Press ENTER key to save changes.  Enter END command to save changes and exit.
```

To change the PF key values, type a valid command over the default command and press the Enter key. To add a PRINT PF key, type the word 'print' over one of the default values.

For explanations of PF key values, see Appendix B, "PF Keys Summary".

Advanced Editing Techniques

In addition to the line commands discussed in "Using Line Commands" on page 7-13, there are other edit commands that can help you work more efficiently. The commands we discuss in the following section help you find information, change information, repeat a command, create and copy a PDS member from another PDS member, mark columns, and display your edit profile.

Finding Information

Often when editing a data set, you need to find a particular word or phrase, such as an inventory number, or a reference to a product. Scrolling through the data set looking for the information can be time consuming and inaccurate.

To have the computer do the searching for you, use the FIND command followed by a **string**. A string is a word or group of words; in this case, the word or words you want to find. FIND can be abbreviated to F.

Thus to find the string that is the part number JTE1410, enter:

```
f jte1410
```

The cursor moves to the first instance of the part number, scrolling if necessary.

If a string contains more than one word, enclose the words in single quotes. Thus to find the phrase "generally speaking" enter:

```
f 'generally speaking'
```

FIND is often used with the RFIND PF key (PF 5). For more information about the RFIND PF key, see Appendix B, "PF Keys Summary".

Exercise

Display the contents of a data set in an edit session. Enter on the COMMAND line:

```
f the
```

The cursor moves to the first occurrence of the word "the" or a word containing the letters "the", such as then, there, or another.

Now search for a word that is not likely to exist in the data set, such as "obstreperous". You then see the message:

```
NO CHARS 'OBSTREPEROUS'
```

Changing Information

What if you wrote a report about a product called Whiz and after the report was completed, you were informed that the product name had been changed to Speedo. You can use the FIND command and find each instance of the old name and change it, or you can use the CHANGE command that automatically changes the old name to the new.

The CHANGE command requires two strings. The first is the word(s) you want to change, and the second is the changed word(s). CHANGE can be abbreviated to CHG or C. Thus to change Whiz to Speedo, enter on the COMMAND line:

```
c Whiz Speedo
```

The cursor moves to the first instance of Whiz and changes it to Speedo.

If you want to change all occurrences of a string to another string, you can add the word `all` to the command. To change Whiz every time it occurs in your report to the new name Speedo, enter:

```
c Whiz Speedo all
```

==CHG> appears on every line number where a change was made.

To change a phrase to another phrase, enclose the words in single quotes. For example, to change the phrase "generally speaking" to "in general", enter:

```
c 'generally speaking' 'in general'
```

CHANGE is often used with the RCHANGE PF key (PF 6). For more information about the RCHANGE PF key, see Appendix B, "PF Keys Summary".

Exercise

Display the contents of a data set in an edit session. Be sure the data set does not contain important information.

First enter on the COMMAND line:

`c a ea`

The cursor moves to the first occurrence of **a** and changes it to **ea** and you see the message:

```
CHARS 'a' CHANGED
```

Now enter:

`c 'in' 'in most cases were in' all`

You see **==CHG>** on every line number where a change was made.

If you don't want to make the changes permanent, enter `cancel` on the COMMAND line when you finish this exercise. To save changes, enter `save` on the COMMAND line or press the END PF key (PF 3).

Repeating a Command

You might have noticed that as soon as you press the Enter key after typing a command on a panel, the command disappears. A way to keep the command displayed on an edit panel is to precede it with **&**. When you press the Enter key, the command is issued. With the &, you can issue the command repeatedly without retyping it, or modify the command without having to retype it.

Exercise

Display the contents of a data set in an edit session and enter on the COMMAND line:

`30570dh the`

Notice that the command remains after the cursor moves to the first instance of "the". Press the Enter key again. The cursor moves to the second instance of "the".

Now change the string to another word such as "in", and press the Enter key.

Entering Scroll Amounts on a COMMAND Line

The SCROLL field is not the only field in which you can specify the number of lines to be scrolled. You can also type a number on the COMMAND line, press the UP or DOWN PF key (PF 7 or PF 8), and the screen moves up or down the specified number of lines.

For example, to scroll down three lines on the following panel, type `3` on the COMMAND line and press the DOWN PF key (PF 8).

Advanced Editing Techniques

```
┌────────────────────────────────────────────────────────────────────────┐
│ EDIT ---- PREFIX.PARTS.DATA  ------------------------------- COLUMNS 001 072 │
│ COMMAND ===> 3                                              SCROLL ===> HALF │
│ ****** ********************** TOP OF DATA ********************************* │
│ 000001  PART NUMBER   CURRENT INVENTORY    COST PER PART                 │
│ 000002      BPE238           4                26.19                      │
│ 000003      BPE459          12                 5.19                      │
│ 000004                                                                    │
│ 000005      JTE115          36                 6.14                      │
│ 000006                                                                    │
│ 000007      STP005          61                34.50                      │
│ 000008      STP010          20                68.25                      │
│ 000009      STP015          99                14.32                      │
│ 000010                                                                    │
│ 000011      RDE666          12                22.49                      │
│ 000012      RDE777         131                 2.40                      │
│ 000013      RDE888           6                 1.98                      │
│ 000014      RDE999          92                 6.94                      │
│ 000011      RRE222         112                 5.50                      │
│ 000012      RRE333          21                13.00                      │
│ 000013      RRE444          45                11.08                      │
│ 000014      RRE555          20                 2.74                      │
│ 000011      RRE666          32                 4.90                      │
│ 000012      RRE777          47                 8.05                      │
│ 000013      RRE888         123                25.98                      │
└────────────────────────────────────────────────────────────────────────┘
```

Similarly, you can enter the UP or DOWN commands followed by a number. For
example to scroll down 21 lines on the following panel, enter `down 21` on the
COMMAND line.

```
┌────────────────────────────────────────────────────────────────────────┐
│ EDIT ---- PREFIX.PARTS.DATA  ------------------------------- COLUMNS 001 072 │
│ COMMAND ===> down 21                                        SCROLL ===> HALF │
│ ****** ********************** TOP OF DATA ********************************* │
│ 000001  PART NUMBER   CURRENT INVENTORY    COST PER PART                 │
│ 000002      BPE238           4                26.19                      │
│ 000003      BPE459          12                 5.19                      │
│ 000004                                                                    │
│ 000005      JTE115          36                 6.14                      │
│ 000006                                                                    │
│ 000007      STP005          61                34.50                      │
│ 000008      STP010          20                68.25                      │
│ 000009      STP015          99                14.32                      │
│ 000010                                                                    │
│ 000011      RDE666          12                22.49                      │
│ 000012      RDE777         131                 2.40                      │
│ 000013      RDE888           6                 1.98                      │
│ 000014      RDE999          92                 6.94                      │
│ 000011      RRE222         112                 5.50                      │
│ 000012      RRE333          21                13.00                      │
│ 000013      RRE444          45                11.08                      │
│ 000014      RRE555          20                 2.74                      │
│ 000011      RRE666          32                 4.90                      │
│ 000012      RRE777          47                 8.05                      │
│ 000013      RRE888         123                25.98                      │
└────────────────────────────────────────────────────────────────────────┘
```

Creating a PDS Member by Copying

While you are editing a member of a PDS, you might want to copy part or all of it to form another new member. Copying information is especially useful when creating a program or a memo that duplicates parts of an old program or memo.

To create a new PDS member from an old PDS member, use the CREATE edit command with copy line commands.

For example, if you were editing a standard memo in data set member PREFIX.MEMO.TEXT(MAR30) and wanted to copy it and change only the date and the receiver's name, type the CREATE command on the COMMAND line followed by the name of the new member, and use a pair of cc line commands to mark the lines you want copied.

```
EDIT ---- PREFIX.MEMO.TEXT(MAR30) ----------------------------- COLUMNS 001 072
COMMAND ===> create dec05                                       SCROLL ===> HALF
****** ************************ TOP OF DATA **********************************
cc0001 March 30, 1987
000002
000003 My Dear Sir:
000004   Our latest case was truly a pleasure and worth every
000005 minute of perusal.  My only regret is that our time together
000006 was abruptly brought to an end by the termination of my leave
000007 of absence.
000008   I trust you derived satisfaction from this experience albeit
000009 brief and of the type that contains no proper conclusion.
000010   If you have the desire to continue this extraordinary case
000011 at a future date, call me at once.
000012
000013 Sincerely,
000014
cc0015 Your friend
****** ************************ BOTTOM OF DATA *******************************
```

When you press the Enter key, you see a message in the top right-hand corner that says:

```
MEMBER DEC05 CREATED
```

You can then exit member MAR30 by pressing the END PF key (PF 3) and select the new member DEC05 to edit.

Marking Columns

If you need to know what screen column you are in while you are typing information, you can get a line displayed that marks where the columns are. To see the column identification line, enter the word "cols" in the line number where you want the column identification line to appear.

The line that appears marks each column with a dash and each group of ten columns with a digit. Thus the 1, 2, 3, etc., stand for 10, 20, and 30. The "+" indicates the halfway mark between digits and stands for 5, 15, 25, etc.

```
EDIT ---- PREFIX.PARTS.DATA  ---------------------------------- COLUMNS 001 072
COMMAND ===>                                                    SCROLL ===> HALF
****** ********************** TOP OF DATA *************************************
000001  PART NUMBER    CURRENT INVENTORY    COST PER PART
=COLS> ----+----1----+----2----+----3----+----4----+----5----+----6----+----7--
000002     BPE238            4                26.19
000003     BPE459           12                 5.19
000004
000005     JTE115           36                 6.14
000006
000007     STP005           61                34.50
000008     STP010           20                68.25
000009     STP015           99                14.32
000010
000011     RDE666           12                22.49
000012     RDE777          131                 2.40
000013     RDE888            6                 1.98
000014     RDE999           92                 6.94
****** ********************** BOTTOM OF DATA **********************************
```

When you want the column identification line to disappear, enter a d (delete) on top
of the =COLS> symbol at the left, or enter the RESET command on the
COMMAND line. The RESET command negates an active panel command.

Exercise

Display the contents of a data set in an edit session and enter the COLS line
command. To remove the column identification line, type d on top of **=COLS>**
where the line number is usually displayed.

Changing Your Edit Profile

In "Data Set Naming Conventions" on page 7-3 we said that the TYPE qualifier
describes what type of information is in the data set such as data, text, or the name
of a programming language. The type implies certain characteristics of the
contents. For example, at most installations, DATA implies all capital letters in a
fixed record format with a record length of 80. TEXT implies mixed case letters in
a variable record format with a length of 255.

Your edit session in ISPF/PDF is controlled by a profile that contains a list of
editing characteristics. There is a profile for each type of data set. Generally the
edit profile is a list of defaults commonly associated with that particular type of data.

To see the edit profile for the edit session you are in, enter the PROFILE command
on the COMMAND line. You see four lines of information that define your edit
session. The profile for a TEXT type of data set might look like the following:

```
EDIT ---- PREFIX.MEMO.TEXT(APR13) ----------------------------- COLUMNS 001 072
COMMAND ===>                                                  SCROLL ===> HALF
****** ************************* TOP OF DATA ************************************
000001 April 13
=PROF> ....TEXT  (VARIABLE - 251) ....RECOVERY OFF....NUMBER OFF...............
=PROF> ....CAPS OFF....HEX OFF....NULLS ON STD....TABS OFF.....................
=PROF> ....AUTOSAVE ON....AUTONUM OFF....AUTOLIST OFF....STATS ON..............
=PROF> ....PROFILE UNLOCK....IMACRO NONE....PACK OFF....NOTE ON................
000002
000003 My Dear Sir,
000004     Word reached me this morning of a manner in which we
000005 can continue our former case.  It involves no small study
000006 and will require a good deal of concentration.
000007     Perhaps you have no time to devote to this at the
000008 present, but I thought I would at least bring it to your
000009 attention.  It seems there is an entire library filled with
000010 all manner of detail about this very case.  Each volume within
000011 the library contains a distinct level of information
000012 and is intended for a particular audience.  It appears we
000013 have barely scratched the surface on this matter.
000014     I was not able to gather all the information necessary
000015 to present you with a complete picture of the library, but
000016 I have sent away for more information on the matter.  Perhaps
000017 in a week or two I shall be better able to discuss with you
```

Unless you have a good reason to change the defaults, it is better to leave the edit profile as it was originally set up. The one characteristic you might have a good reason to change is NULLS.

The unused portion of a record can contain nulls or blanks. A null is a moveable unit that doesn't occupy space in the record. A blank is a distinct unit that contains a blank space. NULLS controls whether you can insert characters in a line. When NULLS is ON, the unused portions of records become null characters and you can use the insert key to insert characters within the text as long as the record is not filled. When NULLS is OFF, you cannot use the insert key unless you first create space in the record by deleting blanks.

To change your profile from NULLS OFF to NULLS ON, enter on the COMMAND line:

```
nulls on
```

If your edit profile already contains NULLS ON, there is no change. If your edit profile contains NULLS OFF, it changes to NULLS ON.

Exercise

Display an edit session of a data set of the type TEXT. Enter the PROFILE command to show your edit profile. If your profile shows NULLS ON, enter on the COMMAND line:

`nulls off`

Now move your cursor anywhere in the text and try to use the insert key. You see the input inhibitor. Press the Reset key, then enter on the COMMAND line:

`nulls on`

Move your cursor in the text again and try to use the insert key. Unless you chose a record that was filled, you can insert a space.

To make the edit profile disappear, enter on the COMMAND line:

`reset`

Note: You do not need to display the edit profile to change the NULLS mode. However, when the edit profile is not displayed, you receive no immediate indication that NULLS was changed.

Fixing Common Problems

In the course of working with panels in TSO/E, you might encounter situations such as the ones covered in this section. If you haven't allocated enough space for a data set you are editing, you might receive a system abend. Also, depending on your edit profile, text might move to unexpected places.

When a Data Set Runs Out of Space

When you allocate a data set, you allot a certain amount of space in units of blocks, tracks, or cylinders on a storage disk. If you use up that space, you see a message that says:

```
SYSTEM ABEND '0D37'
```

The abend code in the message could also be B37 or E37.

If you are in an edit session, you are not able to leave the session until you deal with the problem. Some of the things you can do are:

1. Compress the data set, if it is a PDS, by doing the following:

   a. Split (PF 2) the screen and select the UTILITIES option (option 3)

   b. Select the LIBRARIES option (option 1) on the Utility Selection Menu.

   c. Specify the name of the data set and enter `C` on the OPTION line.

   d. When the data set is compressed, you see the message:

   ```
   COMPRESS SUCCESSFUL
   ```

   e. You should then be able to swap (PF 9) to the edit session and save the new material.

2. Allocate a larger data set and copy into it by doing the following:

   a. Split (PF 2) the screen and select UTILITIES (option 3), then DATASET (option 2) from the other side of the split.

   b. Specify the name of the data set that received the abend to display its characteristics.

   c. Allocate another data set with more space.

   d. Select the MOVE/COPY option (option 3) on the Utility Selection Menu to copy members from the old data set to the new larger data set.

   e. Browse (option 1) the new data set to make sure everything was copied correctly.

   f. Swap (PF 9) back to the abending edit session, type `cc` on the top line of input, `cc` on the bottom line of input, `create` on the COMMAND line, and press the Enter key.

   g. Enter the new, larger data set name and a member name to receive the copied information.

   h. You again see the abending edit session. Enter `cancel` on the COMMAND line. Press the RETURN PF key (PF 4) key to exit the edit session.

   i. Select the DATASET option (option 2) from the Utility Selection Menu to delete the old data set.

   j. Rename the new data set to the old name.

3. Cancel the new material entered in the edit session by entering `cancel` on the COMMAND line. You should then be able to exit without abending, however, all information that was not previously saved is lost.

Note: Some installations use Space Manager to increase space for a data set. Simply by issuing a command, they can automatically increase the data set's space.

When Text Doesn't Stay Where You Type It

If you commonly use the cursor keys to move the cursor over large spaces when your edit profile has NULLS on, the spaces are not in place when you press the Enter key. For example, if you have two columns of information and you move the cursor between the columns with the cursor key instead of the space bar, there is no space between the columns when you press the Enter key.

If you type the following with NULLS on and use the cursor key to move between columns, this is what you see before you pressed the Enter key:

```
   ITEM              PRICE
Apples                .35 ea.
Oranges               .45 ea.
```

After you press the ENTER key, you see:

```
 ITEMPRICE
 Apples.35 ea.
 Oranges.45 ea.
```

To avoid having the text shift, you can do one of two things:

- Enter `nulls off` on the COMMAND/OPTION line. Your edit profile changes and all the remaining blanks in a record become spaces instead of nulls. However, the insert key does not work when nulls are off, unless you create space by erasing blanks in a record.

- Use the space bar when moving the cursor from one column to another.

Techniques for Line Mode TSO/E

Some techniques to make line mode TSO/E easier to use are described in this section. We discuss abbreviating commands and keywords, how to repeat a command, and how to display your profile. A profile determines the way a user ID and the terminal associated with it, respond to TSO/E.

Abbreviating Commands and Keywords

It can be time consuming to type a full command and its keywords every time you issue it. To save time, you can abbreviate most commands and keywords.

Commands

Most TSO/E commands have abbreviations. The accepted abbreviation is listed with the command in *TSO/E Command Reference*, SC28-1969. Following are the commands used in this book and their accepted abbreviations:

```
 Command          Abbreviation
ALLOCATE ......... ALLOC
HELP ............. H
LOGOFF ........... LOGOFF
LOGON ............ LOGON
LISTCAT .......... LISTC
LISTDS ........... LISTD
PRINTDS .......... PR
PROFILE .......... PROF
RECEIVE .......... RECEIVE
RENAME ........... REN
SEND ............. SE
TRANSMIT ......... XMIT
```

Keywords

A keyword for a command can be shortened to as little as one character as long as it can be distinguished from other keywords for that command.

For example, the keyword DATASET for the ALLOCATE command, can be shortened to any of the following:

```
DATASE
DATAS
DATA
DAT
DA
```

It cannot be shortened to the single character **D**, however, because another keyword for ALLOCATE, DDNAME, also begins with D and the two could not be distinguished.

Repeating a Command

It can be time consuming to retype commonly issued commands, especially commands with multiple operands. But as long as a line mode TSO/E command is displayed on the screen, you do not need to retype it to reissue it. You need only make the command be on the current line. The current line in TSO/E is the line on which you entered the most recent character or space.

Thus to make a previous line current, move the cursor to the line and retype a character or a space and press the Enter key.

For example, you can reissue the following command, by moving the cursor to the command and pressing the space bar anywhere on the line.

```
ALLOC DA(newtest.data) LIKE(test.data)
```

Displaying a User Profile

The PROFILE command controls the way your terminal communicates with TSO/E and with other users.

To see your profile, enter after the READY message:

```
 READY
PROFILE
```

You then see your profile, which might be similar to the one that follows:

```
 IKJ56688I  CHAR(0)   LINE(0)     PROMPT    INTERCOM  NOPAUSE
NOMSGID   MODE NOWTPMSG  NORECOVER PREFIX(YOURID)
PLANGUAGE(JPN)   SLANGUAGE(ENU)
 IKJ56689I DEFAULT LINE/CHARACTER DELETE CHARACTERS IN EFFECT
FOR THIS TERMINAL
 READY
```

Most likely your profile was preset by a systems programmer at your installation and most of the operands should not be changed. However, two operands might be of interest to you:

- NOMSGID/MSGID

  This operand determines whether you see a message identifier with a line mode TSO/E message. The message identifier appears at the beginning of the message and is a way to reference the message in *TSO/E Messages*, GC28-1978.

If your profile has the NOMSGID operand, a line mode message appears as follows:

```
NO INFORMATION AVAILABLE
```

If your profile has the MSGID operand, a line mode message is preceded with a message identifier as follows:

```
IKJ56760I NO INFORMATION AVAILABLE
```

To change your profile, enter the PROFILE command followed by the changed operand you want in your profile. For example, to change your profile from NOMSGID to MSGID, enter after the READY message:

```
 READY
PROFILE MSGID
```

Then when you re-display your profile with the PROFILE command, you see the changed operand.

- PREFIX

  The PREFIX operand determines the default first qualifier of your data sets. When you do not specify a first qualifier, TSO/E assumes it is your prefix. Most profiles have a person's user ID as the prefix.

  For more information about the PROFILE command, see *TSO/E User's Guide*, SC28-1968.

Appendix A. Information Center Facility Standard Services

The standard services offered by the Information Center Facility are:

0. Describe The describe option gives you a short description of each option on the menu. If the descriptions extend to more than one panel, you can scroll down and up through the descriptions.

1. News Service The news service lets you view on-line news that an Information Center Facility administrator maintains. For example, you might see news items about the status of the computer, schedules, course information, or people to contact if you have problems. You can choose to see any news items that are available or only the news items that were added since you last viewed a list of news items. You can also print news items.

2. Names Directory The names directory is like an on-line phone book. In addition to names, phone numbers, and addresses, it can contain other information about an individual, such as department name and number, user ID, and system node.

The names directory can also contain frequently used combinations of names related by a group name, for example, DEPT58 to identify all the people in Department 58.

An administrator maintains a master copy of the directory for everyone. You have a private directory in which you can add, modify, and delete entries. You can also request that the administrator copy the changes you make in your private directory into the master directory.

3. Office Products You can use Personal Services/TSO to send and receive mail, documents, and data. For more information about Personal Services/TSO, see *Getting Started with Personal Services/TSO*.

4. Program Creation and Execution Program Products The Information Center Facility lets you use the following program products to create and execute programs in several programming languages. These products, which must be purchased separately, may or may not be installed on your system.

- IBM BASIC/MVS
- A Programming Language 2 (APL2)
- Virtual Storage A Programming Language (VS APL)
- The Information Facility (TIF)
- MVS/Application System (MVS/AS).

5. Data Analysis, Report Creation, and Decision Support Program Products The Information Center Facility lets you use the following program products to build, update, analyze, query, and maintain data, design reports, or create charts and graphs. These products, which must be purchased separately, may or may not be installed on your system.

- APL Data Interface Version II (APLDI-II)
- A Departmental Reporting System Version II (ADRS-II)
- Graphical Data Display Manager Presentation Graphics Feature (GDDM/PGF)
- Query Management Facility (QMF*)
- The Information Facility (TIF)

- Info Center/1
- MVS/Application System (MVS/AS)

6. **Charts and Graphs Program Products** To create charts and graphs in the Information Center Facility, you can use the Graphical Data Display Manager/Presentation Graphics Feature (GDDM/PGF). GDDM/PGF displays text and diagrams on terminal screens and printers.

7. **Education Services** The education services let you access courses or information about courses available at your installation. These courses can be either on- line or taught in a classroom. Using the education services, you can:

  - View or print the description of a course

  - Register for a course

  - Take a course

  - Audit a course (take the course without being registered in it)

  - Produce (write) a course (create a new course or modify an existing one).

  Two products used with the education services are:

  - Interactive Instructional Presentation System (IIPS), 5668-0128
  - Interactive Instructional Authoring System (IIAS), 5668-0111

8. **Interactive System Productivity Facility/Program Development Facility (ISPF/PDF)** ISPF/PDF is not part of TSO/E, but is part of OS/390*. More information about ISPF/PDF is in Chapter 5, "Using ISPF/PDF".

9. **Problem Reporting Service** IBM does not supply program products for this service, but your installation may have installed other products for this option.

10. **Utility Service** The Utility Service provides the HARDCOPY option that you use to print data sets. The option is an end-user interface to the Information Center Facility print services. In addition, your installation may have installed other products for the utility service.

I. **Introductory information** If you are new to the Information Center Facility, you can read an introduction to help you use the services. You can read the entire introduction or select parts of it.

T. **Tutorial and Help Information** When using the Information Center Facility, you can read an on-line tutorial that presents an overview of the standard services and explains how to use each service. You can read the entire tutorial or just the information related to a particular service.

  You can get more detailed information for a panel while you are using a service by typing `help` on the Command or Option line of the panel, or by pressing the HELP PF key.

12. **Exit** The exit option provides a way for you to exit from the Information Center Facility.

Appendix B. PF Keys Summary

Figure B-1 (Page 1 of 2). Using the PF Keys		
To Do This:	**Use PF Key**	**or Command**
Get help: To see more detailed information about a message or to get an explanation of what to do on a functional panel.	**1 or 13**	**HELP**
Scroll: • Up (toward the top or beginning) • Down (toward the bottom or end) • Left • Right Use the scroll UP and DOWN PF keys whenever the information on a panel exceeds the vertical screen size. You can scroll UP to see previous information, or DOWN to see information that follows. Use the LEFT and RIGHT PF keys whenever the information is too wide to fit on a panel. Also use the LEFT and RIGHT PF keys to move from panel to panel in the Information Center Facility on-line tutorial or in a series of help panels. The PF keys you need are displayed at the bottom of Information Center Facility help and tutorial panels.	• **7 or 19** • **8 or 20** • **10 or 22** • **11 or 23**	• **UP** • **DOWN** • **LEFT** • **RIGHT**
End or cancel a task: To exit most panels without processing information, press the END PF key. On some panels such as an edit panel, press the END PF key to save and process information entered on that panel.	**3 or 15**	**END**
Return to the main menu: To return to the main menu, bypassing all intermediate panels, use the RETURN PF key, unless you are on a help panel. If you are on a help panel, pressing the RETURN PF key takes you out of the help function. RETURN generally causes the same action to be performed as repeated use of the END PF key.	**4 or 16**	**RETURN**
Divide the display screen into two panels: To divide the display screen into two panels, each of which can be used independently, use the SPLIT PF key. The SPLIT PF key enables you to use two services simultaneously. For example, you could view a service on the top panel and tutorial information about the service on the bottom panel. To learn more about dividing the screen, refer to "Using Split Screen" on page 9-6.	**2 or 14**	**SPLIT**

Figure B-1 (Page 2 of 2). Using the PF Keys		
To Do This:	**Use PF Key**	**or Command**
Move the cursor from one panel to the other in split screen: To move the cursor from one panel to the other when the display screen is divided into two panels, use the SWAP PF key. You can do work only on the panel that contains the cursor. If the screen is not divided, SWAP does nothing. To learn more about the SWAP command, refer to "Using Split Screen" on page 9-6.	**9 or 21**	**SWAP**
Repeat the previous FIND command: The FIND command locates a string of one or more characters. Pressing the RFIND PF key issues the FIND command again and again to find subsequent occurrences of the string you originally found. You can use the RFIND PF key in the EDIT or BROWSE functions of ISPF/PDF.	**5 or 17**	**RFIND**
Repeat the previous CHANGE command: The CHANGE command changes a string of one or more characters. Pressing the RCHANGE command issues the CHANGE command again and again to change subsequent occurrences of the string you originally changed. You can use the RCHANGE PF key in the EDIT function of ISPF/PDF.	**6 or 18**	**RCHANGE**
Place the cursor on the COMMAND/OPTION line of a panel and retrieve the last command entered: The RETRIEVE PF key moves the cursor to the COMMAND/OPTION line, and re-displays the last command entered. If no commands were previously entered, the COMMAND/OPTION line remains blank.	**12 or 24**	**RETRIEVE**

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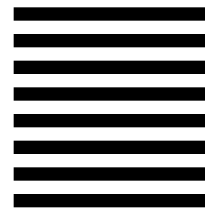
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