

# TSO/ISPF



# 1. Introduction to TSO/ISPF



# 1.1 What is TSO?

- TSO allows users to create an interactive session with the z/OS system.
- TSO provides a single-user logon capability and a basic command prompt interface to z/OS.
- Most users work with TSO through its menu-driven interface, Interactive System Productivity Facility (ISPF).
- This collection of menus and panels offers a wide range of functions to assist users in working with data files on the system. ISPF users include system programmers, application programmers, administrators, and others who access z/OS.

## 1.2 TSO Logon

- In a z/OS system, each user is granted a user ID and a password authorized for TSO logon.
- Logging on to TSO requires a 3270 display device or, more commonly, a TN3270 emulator running on a PC.
- During TSO logon, the system displays the TSO logon screen on the user's 3270 display device or TN3270 emulator.

## 1.2 TSO Logon (contd.)

### TSO Login Screen

----- TSO/E LOGON -----

Enter LOGON parameters below:

Userid ==> ZOSUSER

Password ==> \_

Procedure ==> IKJTRN

Acct Nmbr ==> ACCT#

Size ==>

Perform ==>

Command ==>

RACF LOGON parameters:

New Password ==>

Group Ident ==>

Enter an 'S' before each option desired below:

-Nomail -Nonotice -Reconnect -OIDcard

PF1/PF13 ==> Help PF3/PF15 ==> Logoff PA1 ==> Attention PA2 ==> Reshow

You may request specific help information by entering a '?' in any entry field

MA a A 08/020

## 1.3 TSO Native Mode

- TSO provides a limited set of basic line commands through which users can do some operations.
- This is referred as using TSO in native mode.
- When a user logs on to TSO, the z/OS system responds by displaying the READY prompt, and waits for input.
  - LOGOFF command will logout from the TSO session

## 1.3 TSO Native Mode (contd.)

- The READY prompt

```
READY
TIME
IKJ56650I TIME-03:16:59 PM. CPU-00:00:00 SERVICE-8001 SESSION-00:01:11 MAY 7,20
20
READY
LISTDS
IKJ56700A ENTER DATA SET NAME -
'ZOSUSER.TRAINING.JCL'
ZOSUSER.TRAINING.JCL
--RECFM-LRECL-BLKSIZE-DSORG
FB      80      32000    PO
--VOLUMES--
DSRC06
READY
LOGOFF
```

## 1.4 ISPF Overview

- ISPF is a menu driven interface that provides user interaction with MVS.
- ISPF includes a text editor and browser, and functions for locating and listing files and performing other utility functions.
- Apart from an editor, ISPF provides a set of menu driven utility options that can be used to perform basic operations required to execute the programs and applications.
- ISPF menu can be invoked by typing ISPF in the TSO native mode READY prompt.
- After logging on to TSO, users typically access the ISPF menu.



# 1.4 ISPF Overview (contd.)

## ISPF Menu Screen

```
Session A - [24 x 80]
File Edit View Communication Actions Window Help

Menu Utilities Compilers Options Status Help

ISPF Primary Option Menu
More: +

0 Settings      Terminal and user parameters
1 View         Display source data or listings
2 Edit         Create or change source data
3 Utilities     Perform utility functions
4 Foreground   Interactive language processing
5 Batch        Submit job for language processing
6 Command      Enter TSO or Workstation commands
7 Dialog Test  Perform dialog testing
8 DB2I         Perform DB2 Interactive functions
9 QMF          Query Management Facility
10 IBM Products IBM program development products
11 SCLM        SW Configuration Library Manager
12 Workplace   ISPF Object/Action Workplace
13 SDF2 Function Run SDF2 Editors and Utilities
14 SDF2 Custom  Customize SDF2 Devices Tables
15 WMQ         WebSphere MQ for z/OS
16 FileM       File Manager

Option ==>
F1=Help      F2=Split      F3=Exit      F7=Backward  F8=Forward  F9=Swap
F10=Actions  F12=Cancel
```

## 1.4 ISPF Overview (contd.)

### Program Function Keys

KEY	DESCRIPTION
PF1	Gives help for the panel where it is requested.
PF2	Pressing this key maintains two sessions in ISPF. The screen is divided at the point where the cursor is placed.
PF3	(END)Go back to previous menu.
PF4	(RETURN)Go back to main menu.
PF5	(FIND)In edit or browse mode, finds a character string.
PF6	In edit mode, changes two strings.PF7 (UP)Moves the window up.
PF7	Moves the window up
PF8	Moves the window down.
PF9	When there are two sessions open it is used to change session.
PF10	(LEFT)Moves the window left.
PF11	(RIGHT)Moves the window right.
PF12	(RETRIEVE)Writes the previous command used.

# 1.4 ISPF Overview (contd.)

## Option 0 - ISPF Settings

```
Session A - [24 x 80]
File Edit View Communication Actions Window Help

Log/List Function keys Colors Environ Workstation Identifier Help

ISPf Settings

Command ==> _____

Options
Enter "/" to select option
- Command line at bottom
/ Panel display CUA mode
/ Long message in pop-up
- Tab to action bar choices
- Tab to point-and-shoot fields
/ Restore TEST/TRACE options
- Session Manager mode
/ Jump from leader dots
- Edit PRINTDS Command
/ Always show split line
- Enable EURO sign

Print Graphics
Family printer type 2
Device name . . . . _____
Aspect ratio . . . . 0

General
Input field pad . . B
Command delimiter . ;

Terminal Characteristics
Screen format 2 1. Data 2. Std 3. Max 4. Part

F1=Help F2=Split F3=Exit F4=Return F7=Backward F8=Forward
F9=Swap F10=Actions F12=Cancel
```

## 1.4 ISPF Overview (contd.)

- **FKA**
  - Controls the display of the function key area at the bottom of the screen.
  - Parameters are ON, SHORT, and OFF.
- **KEYS**
  - Invokes the appropriate utility (the Keylist Utility or PF Key Definitions and Labels) to modify function keys for the panel from which the command was invoked.
- **PFSHOW**
  - Almost synonymous with the FKA command, PFSHOW controls the display of the function key area at the bottom of the screen.
- **START**
  - Open New screen
- **SWAPBAR**
  - Display the open screens in the bottom

## 1.4 ISPF Overview (contd.)

### ▪ ISPF Features

- Data set and catalog utilities
- View, browse, and edit functions
- TSO command interfaces
- Data set search and compare functions
- Programming library access services that include adding, finding, and deleting members, and displaying member lists

## 2. Mainframe Data Sets



## 2.1 Datasets

- In the z/OS environment, files are known as data sets. TSO supports several types of data sets.
- The two most common types are
  - **Sequential**
  - **Partitioned**
- JCL and program source code are maintained as files of 80-byte records.
  - Every statement is a full 80 bytes long even if it is completely blank.
  - This is for compatibility with older MVS systems from the era of 80-column punched cards.
- Data files can be of a different fixed length or variable length.

## 2.1 Datasets (contd.)

### ▪ Sequential Dataset

- In a sequential data set such as a log file, transaction file, or a data file records are stored in physical order.
- New records are appended to the end of the data set.
- The records in a sequential data set can be retrieved only in the same order they were written.
- To process a record somewhere within the file, the system must scan past all of the preceding records.
- Also called as PS (Physical Sequential) files
- Datasets are stored on DASD or tape



## 2.1 Datasets (contd.)

### ▪ Partitioned Datasets

- Every file processed by ISPF is stored either on a host as a sequential data set or a member of a partitioned data set
- A partitioned data set (PDS) consists of a directory and one or more members.
- A PDS is also called a library.
- Each member is functionally the same as a sequential data set
- There are some operations—such as print, delete, rename, and compress—that can be performed on the entire PDS as if it were a single file.

## 2.2 Dataset Naming

- Standard TSO data set naming calls for three qualifiers within the name of the data set:
  - High-level Qualifier
  - User Determined Qualifier
  - Type of Data
- Qualifiers can be up to eight characters long.
- When you specify a data set name, you separate the qualifiers by periods.
- A data set name can be up to 44 characters long, including periods.
- Special characters @, \$ and # are allowed apart from alphabets and numbers

## 2.3 Dataset Terminologies

- **Cylinder**

- A cylinder is a unit of storage on a DAD device with a fixed number of tracks

- **Track**

- Cylinders contain tracks, which are circular paths on the surface of a disk on which information is magnetically recorded and from which recorded information is read

- **Record**

- Tracks contain records.
- A record is some number of bytes containing data.
- Records have a logical record length (abbreviated as LRECL)
- Records are either fixed length or variable length in a given data set.

## 2.3 Dataset Terminologies (contd.)

- **Block**
  - Records can be grouped into data blocks, which are the units of recording on disk.
  - Blocking makes processing more efficient because z/OS can access an entire block at once instead of reading or writing records individually.
  - Block size (abbreviated as BLKSIZE) is the physical block size written on the disk for fixed (F) and fixed block (FB) records.
  - For variable and undefined (V, VB, and U) records, block size is the maximum physical block size that can be used for the data set.
- **Extents**
  - Space for a disk data set is assigned in primary and secondary extents.
  - An extent is a contiguous number of disk drive tracks, cylinders, or blocks.
  - Data sets can increase in extents as they grow. As with blocking, the use of extents is more efficient because reading or writing contiguous tracks is faster than reading or writing data that is scattered over the disk.

## 2.3 Dataset Terminologies (contd.)

- **Volume**
  - The term volume is often used to refer to a disk.
- **Volume Serial**
  - The six-character name of a disk or tape volume
- **Device Type**
  - Model or type of disk device, such as 3390
- **Organization**
  - The method of processing a data set, such as sequential.

## 2.3 Dataset Terminologies (contd.)

- VTOC
  - The VTOC lists the data sets that reside on its volume, along with information about the location and size of each data set, and other data set attributes.
  - The VTOC also has entries for all the free space on the volume.
  - Allocating space for a data set causes system routines to examine the free space records, update them, and create a new VTOC entry.
  - Data sets are always an integral number of tracks (or cylinders) and start at the beginning of a track (or cylinder).

## 2.3 Dataset Terminologies (contd.)

### ▪ Catalog

- A catalog describes data set attributes and indicates the volumes on which a data set is located.
- When a data set is cataloged, it can be referred to by name without the user needing to specify where the data set is stored.
- Data sets can be cataloged, uncataloged, or recataloged.
- All system-managed DASD data sets are cataloged automatically in a catalog.
- In z/OS, the master catalog and user catalogs store the locations of data sets.
- Both disk and tape data sets can be cataloged.

## 2.3 Dataset Terminologies (contd.)

### ▪ User Catalog

- Contains entries about application specific datasets
- Any number of user catalogs can be there
- Information defining user catalog is stored into a catalog entry in the master catalog

### ▪ Master Catalog

- Contains entries about system datasets
- Several user catalogs can be cataloged into a master catalog
- The master catalog usually stores only a data set HLQ with the name of the user catalog, which contains the location of all data sets prefixed by this HLQ.
- The HLQ is called an alias



## 2.4 Access Method

- **Access Method**

- An access method defines the technique that is used to store and retrieve data.
- Access methods have their own data set structures to organize data, system-provided programs (or macros) to define data sets, and utility programs to process data sets.
- Access methods are identified primarily by the data set organization.

- **QSAM**

- QSAM (Queued Sequential Access Method) arranges records sequentially in the order that they are entered to form sequential data sets, and anticipates the need for records based on their order.
- To improve performance, QSAM reads these records into storage before they are requested, a technique known as queued access.

## 2.4 Access Method (contd.)

- **BSAM**

- BSAM (Basic Sequential Access Method) arranges records sequentially in the order in which they are entered.

- **BDAM**

- BDAM (Basic Direct Access Method), arranges records in any sequence your program indicates, and retrieves records by actual or relative address.

- **BPAM**

- BPAM (Basic Partitioned Access Method) arranges records as members of a partitioned data set (PDS) or a partitioned data set extended (PDSE) on DASD.

- **VSAM**

- VSAM (Virtual Sequential Access Method) arranges records by an index key, relative record number, or relative byte addressing.
- VSAM is used for direct or sequential processing of fixed-length and variable-length records on DASD.

## 2.4 Access Method (contd.)

### ▪ VSAM

- The term Virtual Storage Access Method (VSAM) applies to both a data set type and the access method used to manage various user data types.
- As an access method, VSAM provides much more complex functions than other disk access methods.
- VSAM is used primarily for application data.

### ▪ VSAM Types

- ESDS
- KSDS
- RRDS
- LDS

## 3. Dataset Allocation



# 3.1 Dataset Allocation

## ▪ Allocation

- To use a data set, you first allocate it
- The allocation of a data set means either or both of two things:
  - To set aside (create) space for a new data set on a disk.
  - To establish a logical link between a job step and any data set.

## ▪ Allocation attributes

- Name
- Management Class, Storage Class, Data Class
- Volume Serial
- Space Units, Primary , Secondary, Directory Blocks
- Record Format, Record Length, Block Size
- Dataset name type
- Expiration Date

## 3.1 Dataset Allocation (contd.)

### Data Set Utility

<u>M</u> enu	<u>R</u> efList	<u>U</u> tilities	<u>H</u> elp
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---

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 Short data set information
blank Data set information	V VSAM Utilities

ISPF Library:

Project . . . _____	Enter "/" to select option
Group . . . _____	/ Confirm Data Set Delete
Type . . . . . _____	

Other Partitioned, Sequential or VSAM Data Set:

Name . . . . . _____	
Volume Serial . . . _____	(If not cataloged, required for option "C")
Data Set Password . . . _____	(If password protected)

F1=Help      F2=SPLIT      F3=Exit      F4=Return      F7=Backward      F8=Forward  
F9=Swap      F10=Actions      F12=Cancel  
- ISFPCU4 \*DSUTIL

## 3.1 Dataset Allocation (contd.)

### Allocate new data set

```
Menu  RefList  Utilities  Help

Allocate New Data Set

Command ==> _____ More: +

Data Set Name . . . : ZOSUSER.TRAINING.JCL

Management class . . . _____ (Blank for default management class)
Storage class . . . _____ (Blank for default storage class)
Volume serial . . . _____ (Blank for system default volume) **
Device type . . . _____ (Generic unit or device address) **
Data class . . . _____ (Blank for default data class)
Space units . . . _____ TRKS (BLKS, TRKS, CYLS, KB, MB, BYTES
or RECORDS)

Average record unit _____ (M, K, or U)
Primary quantity . . 1 _____ (In above units)
Secondary quantity 2 _____ (In above units)
Directory blocks . . 3 _____ (Zero for sequential data set) *
Record format . . . FB _____
Record length . . . 80 _____
Block size . . . 8000 _____
Data set name type PDS _____ (LIBRARY, HFS, PDS, LARGE, BASIC, *
EXTREQ, EXTPREF or blank)

Extended Attributes _____ (NO, OPT or blank)
Expiration date . . . _____ (YY/MM/DD, YYYY/MM/DD
YY.DDD, YYYY.DDD in Julian form
DDDD for retention period in days
or blank)

Enter "/" to select option
_ Allocate Multiple Volumes

F1=Help      F2=SPLIT    F3=Exit      F4=Return    F7=Backward  F8=Forward
F9=Swap      F10=Actions  F12=Cancel
-ISFPCU4 *DSUTIL
```

## 3.1 Dataset Allocation (contd.)

- **Management Class**

- The management class that should be used to obtain the data management related information (migration, backup, and retention criteria) for the allocation of the data set.

- **Storage Class**

- The storage class that should be used to obtain the storage related information for the allocation of the data set.

- **Data Class**

- The data class that should be used to obtain the data related information (SPACE, LRECL, etc.) for the allocation of the data set



## 3.1 Dataset Allocation (contd.)

- **Volume Serial**

- The volume serial of the direct access volume you wish to contain the data set

- **Device Type**

- The generic unit address for the direct access volume you wish to contain the data set (e.g. 3390)

- **Space Units**

- Must be one of TRKS, CYLS, BLKS, BYTES, KB, MB, RECORDS

- **Average Record Unit**

- If the data set space units are records, this field specifies the unit to be used.
  - U specifies single-record units,
  - K specifies thousand-record units
  - M specifies million-record units

## 3.1 Dataset Allocation (contd.)

- **Primary quantity**

- The primary allocation quantity in tracks, cylinders, blocks, kilobytes, megabytes, bytes, or records as indicated in the SPACE UNITS field.

- **Secondary quantity**

- The secondary allocation quantity in tracks, cylinders, blocks, kilobytes, megabytes, bytes, or records as indicated in the SPACE UNITS field.

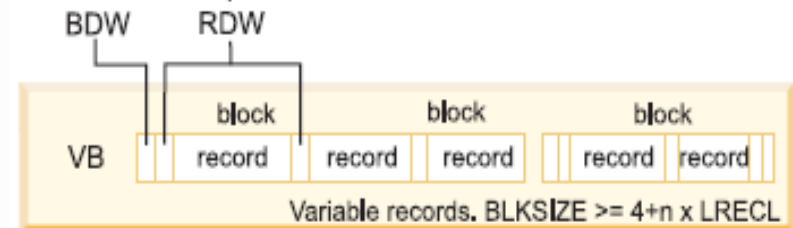
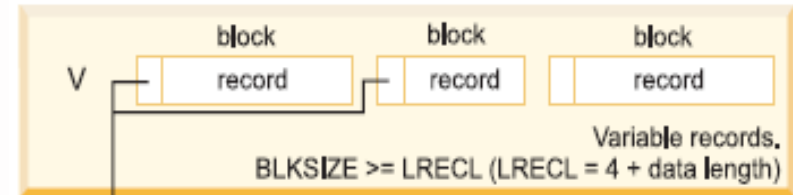
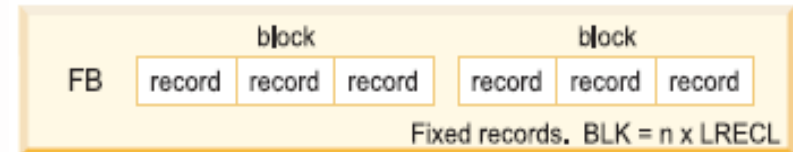
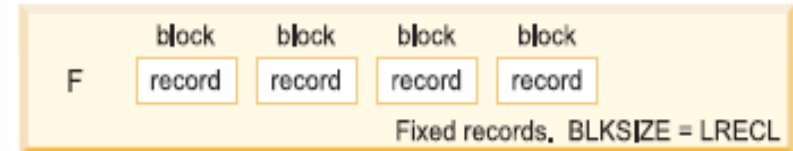
- **Directory Blocks**

- For a partitioned data set, this field specifies the number of directory blocks to be provided.
- For a data set with ISPF statistics: 6 entries per block
- Not applicable for Libraries
- To allocate a sequential data set or a multiple volume data set, set this field to zero.

## 3.1 Dataset Allocation (contd.)

### Record Formats

- **F (Fixed)**
  - This means that one physical block on disk is one logical record and all the blocks/records are the same size.
- **FB (Fixed Block)**
  - This means that several logical records are combined into one physical block.
- **V (Variable)**
  - A variable-length logical record consists of a record descriptor word (RDW) followed by the data.
- **VB (Variable Block)**
  - This format places several variable-length logical records (each with an RDW) in one physical block.
- **U(Undefined)**
  - This format consists of variable-length physical records/blocks with no predefined structure



## 3.1 Dataset Allocation (contd.)

- **Record Length**

- The logical record length, in bytes, of the records to be stored in the data set

- **Block Size**

- The block size (physical record length), in bytes, of the blocks to be stored in the data set.

- **Dataset name Type**

- **PDS** - allocates a partitioned data set
- **LIBRARY** - allocates a partitioned data set extended

- **Expiration Date**

- The expiration date specifies the date when the data set may be deleted.

- **Allocate Multiple Volumes**

- Leave this field blank for single volume allocation.
- Enter a "/" in the Allocate Multiple Volumes field to enter more than one volume for the data set.

## 4. View/Edit Dataset



## 4.1 View/Browse Dataset

- **ISPF Menu option 1 (VIEW)**

- Data set information can be entered either the ISPF Library section or the Other Partitioned or Sequential data set section
- Data set can be opened in either View or Browse mode.
- Browse data sets are in read-only mode.
  - No editing or save function allowed
- Browse can handle larger data sets, because it can load them a chunk at a time, whereas View and Edit have to load the entire member or data set into memory.
- Also, Browse can handle data sets whose record format is U (undefined).

## 4.1 View/Browse Dataset (contd.)

### View entry panel

Menu	RefList	RefMode	Utilities	Workstation	Help
View Entry Panel					
Command ==> _____					
ISPF Library:					
Project	. . .	ZOSUSER	_____		
Group	. . .	TRAINING	. . .	_____	_____
Type	. . .	JCL	_____		
Member	. . .	JOB1	(Blank or pattern for member selection list)		
Other Partitioned, Sequential or VSAM Data Set, or z/OS UNIX file:					
Name	. . . . .	_____ +			
Volume Serial	. .	_____	(If not cataloged)		
Workstation File:					
File Name	. .	_____			
Options					
Initial Macro	. . . . .	_____	- Confirm Cancel/Move/Replace		
Profile Name	. . . . .	_____	- Browse Mode		
Format Name	. . . . .	_____	- View on Workstation		
Data Set Password	. .	_____	/ Warn on First Data Change		
Record Length	. . . . .	_____	- Mixed Mode		
Line Command Table	. .	_____	- View ASCII data		

F1=Help  
F9=Swap  
\*ISRBR00

F2=SPLIT  
F10=Actions  
F3=Exit  
F12=Cancel

F4=Return  
F7=Backward  
F8=Forward

## 4.2 Edit Data Set

- **ISPF Menu option 2(EDIT)**

- This panel looks almost identical to the View Entry Panel and operates in much the same way.
- Member selection list appears when the member name is not entered or a pattern is entered
- One can also use the Other Partitioned, Sequential or VSAM Data Set section to specify a data set name that is different than the default.
- A new member can be created in an existing data set by specifying a new member name on the Edit Entry Panel.



## 4.2 Edit Data Set (contd.)

### Edit entry panel

Menu	RefList	RefMode	Utilities	Workstation	Help
Edit Entry Panel					
Command ==> _____					
ISPF Library:					
Project	. . .	ZOSUSER	_____		
Group	. . .	TRAINING	. . .	_____	_____
Type	. . .	JCL	_____		
Member	. . .	JOB2	(Blank or pattern for member selection list)		
Other Partitioned, Sequential or VSAM Data Set, or z/OS UNIX file:					
Name	. . . . .	_____ +			
Volume Serial	. .	_____	(If not cataloged)		
Workstation File:					
File Name	. .	_____			
Initial Macro . . . . .			Options		
Profile Name . . . . .			- Confirm Cancel/Move/Replace		
Format Name . . . . .			- Mixed Mode		
Data Set Password . .			- Edit on Workstation		
Record Length . . . . .			- Preserve VB record length		
Line Command Table . .			- Edit ASCII data		

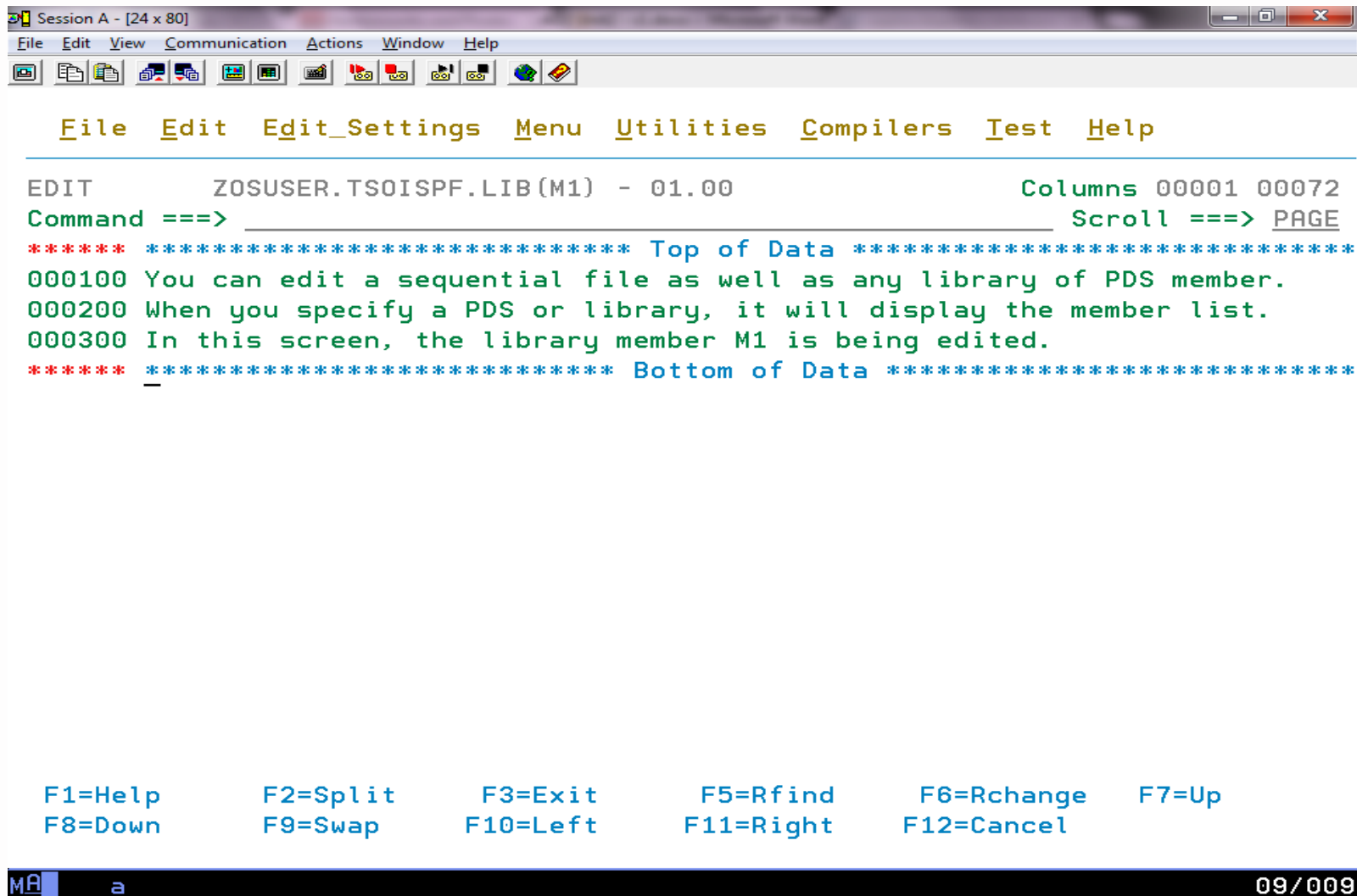
F1=Help  
F9=Swap  
\*ISREDM0

F2=SPLIT  
F10=Actions  
F3=Exit  
F12=Cancel

F4=Return  
F7=Backward  
F8=Forward

## 4.2 Edit Data Set (contd.)

### Editor panel



Session A - [24 x 80]

File Edit View Communication Actions Window Help

File Edit Edit\_Settings Menu Utilities Compilers Test Help

EDIT ZOSUSER.TSOISPF.LIB(M1) - 01.00 Columns 00001 00072

Command ==> Scroll ==> PAGE

\*\*\*\*\* Top of Data \*\*\*\*\*

000100 You can edit a sequential file as well as any library of PDS member.

000200 When you specify a PDS or library, it will display the member list.

000300 In this screen, the library member M1 is being edited.

\*\*\*\*\* Bottom of Data \*\*\*\*\*

F1=Help F2=Split F3=Exit F5=Rfind F6=Rchange F7=Up  
F8=Down F9=Swap F10=Left F11=Right F12=Cancel

MA a 09/009

## 4.3 Data Set Scrolling

### ▪ Scrolling a data set

- Scrolling functions specifies both the direction and amount to move while browsing/editing the data set.
- F7 and F8 move the window up and down respectively.
- F10 and F11 move it left and right.
- Amount of the scroll is specified by entering a value in the SCROLL field to the right of the command line.

Command	Description
CSR	Scroll from cursor position
PAGE	Scroll One page
HALF	Scroll half page
N	'n' lines for up/down, 'n' columns for left/right
DATA	To scroll by a page minus one line when scrolling up or down or by a page minus one column when scrolling left or right

## 5. ISPF Editor



## 5.1 ISPF Editor

- In the ISPF editor, there you can enter commands in 2 places
- **Line command fields**
  - You enter line commands by typing over the numbers in the line command area.
  - Line commands affect the data on the corresponding individual line or block of lines.
- **The command line**
  - On the command line, you can enter primary edit commands and TSO commands.
  - You can enter multiple commands separated by semicolons on the command line.
  - Edit primary commands apply to the entire source member.

## 5.2 Editor Line Commands

### Line commands

COPY	C, CC, Cn	EXCLUDE	X, Xn, XX
MOVE	M, MM, Mn	SHOW	S, Sn
INSERT	I, In	FIRST	F, Fn
DELETE	D, DD, Dn	LAST	L, Ln
REPEAT	R, RR, Rn, RRn	SCALE	COLS
AFTER	A	CASE	UC, UCC, LC, LCC
BEFORE	B	SHIFT	), (, <, >
OVER	O		

## 5.3 Editor Commands

### Command Line

SAVE	FIND
RESET	LOCATE
RECOVER	RENUM
UNDO	UNNUM
CUT	PROFILE
COPY	
MOVE	
PASTE	
CREATE	

## 5.4 Edit PROFILE

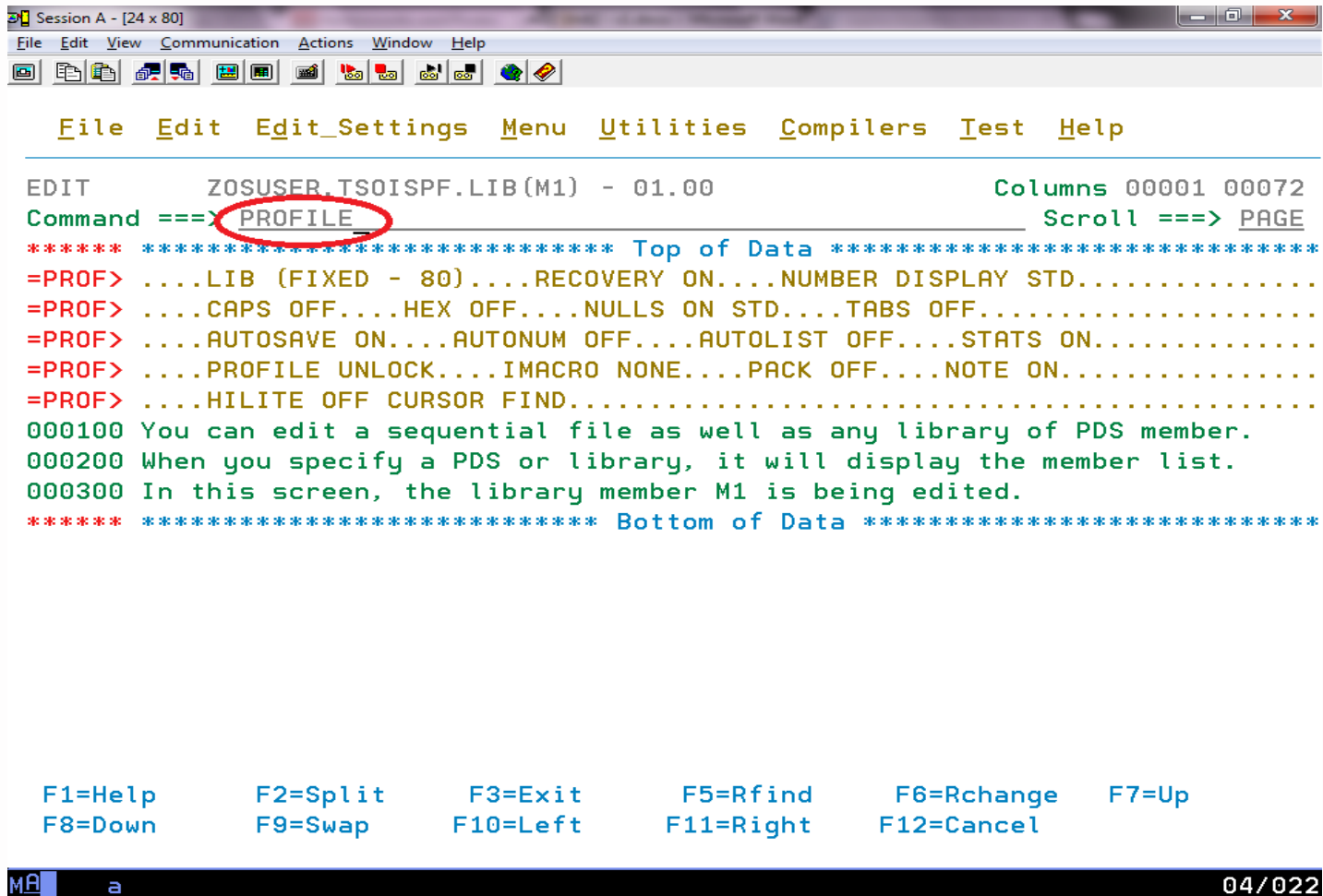
### ▪ PROFILE

- The edit profile controls the editing environment, defining column boundaries, tab settings, line numbering, uppercase mode, and other items.
- Different edit profiles for different types of data can be there.
- To select a profile for an edit session, enter it in the Profile Name field on the Edit Entry Panel.
- Edit profiles are created and maintained automatically, but additional profiles can be created as required.
- To display the current edit profile, type PROFILE at the command line in the Editor Panel



## 5.4 Edit PROFILE (contd.)

- Display PROFILE



```
Session A - [24 x 80]
File Edit View Communication Actions Window Help

File Edit Edit_Settings Menu Utilities Compilers Test Help

EDIT      ZOSUSER.TSOISPF.LIB(M1) - 01.00      Columns 00001 00072
Command ==> PROFILE      Scroll ==> PAGE

***** ***** Top of Data *****
=PROF> ....LIB (FIXED - 80)....RECOVERY ON....NUMBER DISPLAY STD.....
=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.....
=PROF> ....HILITE OFF CURSOR FIND.....
000100 You can edit a sequential file as well as any library of PDS member.
000200 When you specify a PDS or library, it will display the member list.
000300 In this screen, the library member M1 is being edited.
***** ***** Bottom of Data *****

F1=Help      F2=Split      F3=Exit      F5=Rfind      F6=Rchange      F7=Up
F8=Down      F9=Swap      F10=Left     F11=Right     F12=Cancel

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```

## 5.4 Edit PROFILE (contd.)

### ■ PROFILE

PROFILE	DESCRIPTION
NUMBER	UNNUM, RENUM, NUMBER STD, NUMBER COBOL, or NUMBER STD COBOL can be used to set the numbering format
AUTOSAVE	Controls whether your changes to the data are saved automatically when you enter END to end an editing session
HEX	When ON, display characters in HEX mode
CAPS	When ON, forces all characters typed to automatically appear in uppercase.
NULLS	When ON , all trailing blanks and any all-blank fields are written as nulls.
PACK	When ON, ISPF compresses data while saving
RECOVER	When ON, permits UNDO
STATS	When ON, maintains the statistics for each member
HILITE	When ON, highlights the language keywords in different color

## 6. Working with datasets



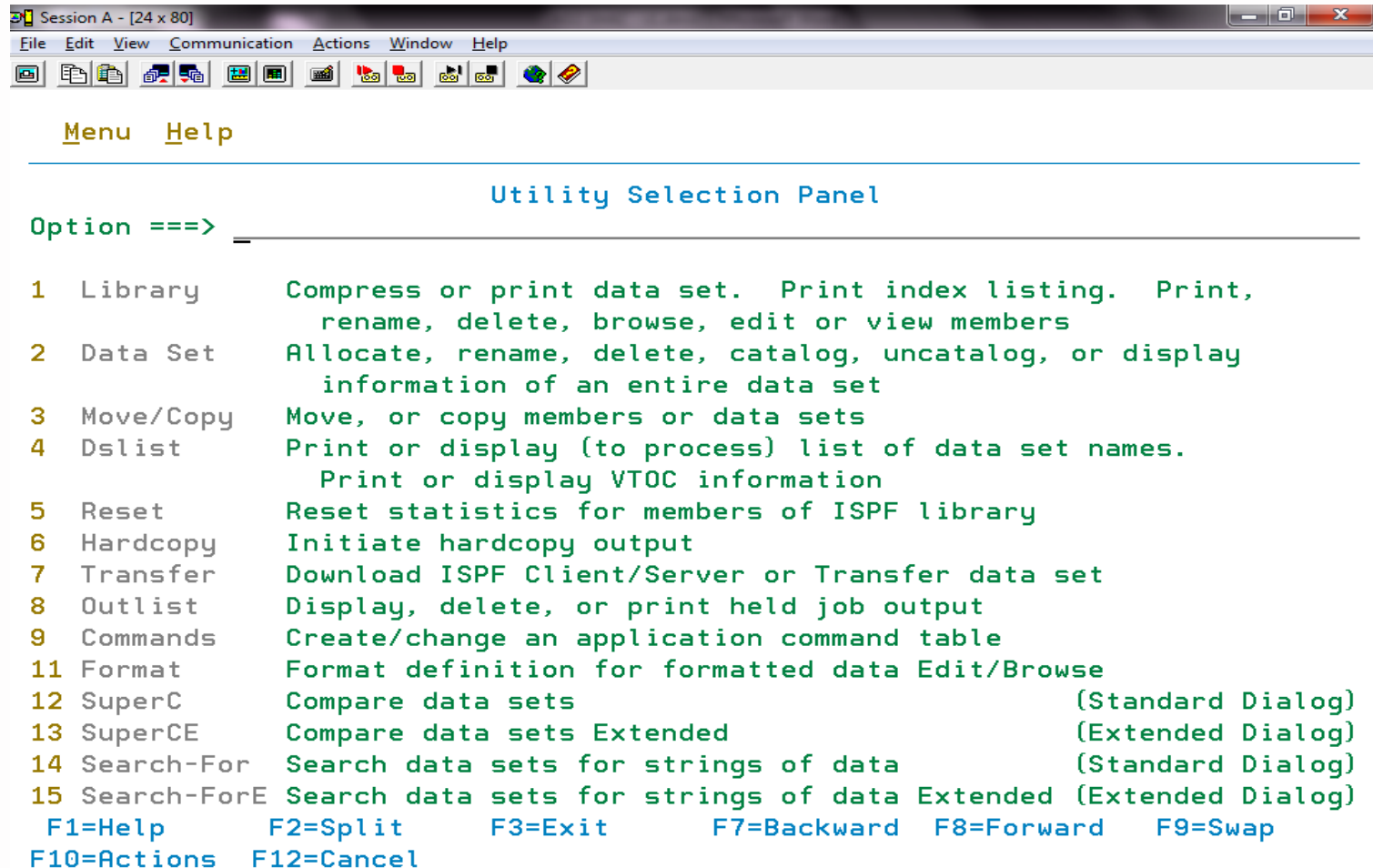
## 6.1 Utility Selection

- **ISPF Menu option 3 (Utility Selection)**

- When you select option 3 on the Primary Options Menu, the Utility Selection Panel appears.
- This panel typically gives you access to many different utility options.
  - The library utilities
  - The data set utilities
  - The move/copy utility
  - The DS List utility
  - The compare and search utilities

## 6.1 Utility Selection (contd.)

### Utility Selection Panel



```
Session A - [24 x 80]
File Edit View Communication Actions Window Help
[Icons]

Menu Help

Utility Selection Panel

Option ==>

1 Library      Compress or print data set.  Print index listing.  Print,
                rename, delete, browse, edit or view members
2 Data Set     Allocate, rename, delete, catalog, uncatalog, or display
                information of an entire data set
3 Move/Copy    Move, or copy 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
7 Transfer     Download ISPF Client/Server or Transfer data set
8 Outlist      Display, delete, or print held job output
9 Commands     Create/change an application command table
11 Format      Format definition for formatted data Edit/Browse
12 SuperC      Compare data sets (Standard Dialog)
13 SuperCE     Compare data sets Extended (Extended Dialog)
14 Search-For  Search data sets for strings of data (Standard Dialog)
15 Search-ForE Search data sets for strings of data Extended (Extended Dialog)
F1=Help       F2=Split      F3=Exit      F7=Backward  F8=Forward  F9=Swap
F10=Actions   F12=Cancel
```

## 6.2 Library Utility

### ▪ Menu option 3.1

- Data set options function on an entire library or data set.
- Member options act on data set members.
  - E –edit the member
  - V –view the member
  - B –browse the member
  - D –delete the member
  - R –rename the member
  - P –print the member

## 6.2 Library Utility (contd.)

### Menu option 3.1

Session A - [24 x 80]

File Edit View Communication Actions Window Help

Menu RefList Utilities Help

---

Library Utility

Option ==> \_\_\_\_\_

More: +

blank	Display member list	I	Data set information	B	Browse member
C	Compress data set	S	Short data set information	D	Delete member
X	Print index listing	E	Edit member	R	Rename member
L	Print entire data set	V	View member	P	Print member

Enter "/" to select option

ISPF Library:

Project . . . ZOSUSER

Group . . . PDS

Type . . . DATASET1

Member . . . \_\_\_\_\_ (If B, D, E, P, R, V, or blank selected)

New name \_ . . \_\_\_\_\_ (If R selected)

Other Partitioned or Sequential Data Set:

Data Set Name . . . \_\_\_\_\_

Volume Serial . . . \_\_\_\_\_ (If not cataloged)

F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap

F10=Actions F12=Cancel

## 6.3 Data Set Utility

- **Menu option 3.2 - Dataset Utility Options**
  - A –allocate a new data set
  - R –rename a data set
  - D –delete a data set
  - blank –display information about the data set
  - C –catalog a data set
  - U –uncatalog a data set
  - S –display the short form of data set information
  - V –use VSAM utilities



## 6.3 Data Set Utility (contd.)

### Data Set Utility

```
Menu  RefList  Utilities  Help
-----
                                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 Short data set information
blank Data set information          V VSAM Utilities

ISPF Library:
Project . . . _____
Group . . . _____
Type . . . . _____

Enter "/" to select option
/ Confirm Data Set Delete

Other Partitioned, Sequential or VSAM Data Set:
Name . . . . . _____
Volume Serial . . . _____ (If not cataloged, required for option "C")

Data Set Password . . . (If password protected)
```

F1=Help      F2=SPLIT      F3=Exit      F4=Return      F7=Backward      F8=Forward  
F9=Swap      F10=Actions      F12=Cancel  
- ISFPCU4 \*DSUTIL

## 6.4 Move/Copy Utility

- Following options can be used on an entire data set or member:
  - **C** –copy a data set or members
  - **M** –move a data set or members
  - **CP** –copy and print
  - **MP** –move and print
- Use the C or M options to either copy or move a data set, respectively.
- While searching for a specific member to copy, up to four library name scan be entered. ISPF concatenates the search for each of the libraries until it finds the specified member. Concatenated search works only for copy options.
- To copy a sequential data set, enter the name of the sequential data set in the Other Data Set Name field.

## 6.4 Move/Copy Utility (contd.)

Session A - [24 x 80]

File Edit View Communication Actions Window Help

Menu RefList Utilities Help

---

Move/Copy Utility

Option ==> \_\_\_\_\_

C Copy data set or member(s) CP Copy and print  
M Move data set or member(s) MP Move and print

Specify "From" Data Set below, then press Enter key

From ISPF Library:

Project . . . ZOSUSER (--- Options C and CP only ---)  
Group . . . PDS . . . \_\_\_\_\_  
Type . . . DATASET1  
Member . . . \_\_\_\_\_ (Blank or pattern for member list,  
"\*" for all members)

From Other Partitioned or Sequential Data Set:

Data Set Name . . . \_\_\_\_\_  
Volume Serial . . . \_\_\_\_\_ (If not cataloged)

Data Set Password . . . (If password protected)

F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap  
F10=Actions F12=Cancel

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## 6.4 Move/Copy Utility (contd.)

Session A - [24 x 80]

File Edit View Communication Actions Window Help

Menu RefList Utilities Help

---

COPY From ZOSUSER.PDS.DATASET1(\*)

Command ==> \_\_\_\_\_

More: +

Specify "To" Data Set Below

To ISPF Library:

Project . . .	ZOSUSER	Replace option:	
Group . . .	PDS	Enter "/" to select option	
Type . . .	DATASET1	Replace like-named members	

To Other Partitioned or Sequential Data Set:

Data Set Name . . . \_\_\_\_\_

Volume Serial . . . \_\_\_\_\_ (If not cataloged)

Data Set Password . . . (If password protected)

To Data Set Options:

Sequential Disposition	Pack Option	SCLM Setting
1. Mod	3 1. Yes	3 1. SCLM
2. Old	2. No	2. Non-SCLM

F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap

F10=Actions F12=Cancel

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## 6.5 Data Set List Utility

- To filter a list of data sets, use the following wildcard symbols as part of a Dsname Level qualifier:
  - An asterisk (the symbol \*) -one asterisk by itself indicates that at least one qualifier needs to occupy the position. One asterisk within a qualifier indicates that zero or more characters can occupy that position.
  - A percent sign (the symbol %) –one percent sign indicates that any one single alphanumeric or national character can occupy the space.
- Line commands

CMD	DESCRIPTION	CMD	DESCRIPTION	CMD	DESCRIPTION
I	Information	R	Rename	CO	Copy
S	Short Information	C	Catalog	MO	Move
D	Delete	M	Member List		

## 6.5 Data Set List Utility (contd.)

```
Session A - [24 x 80]
File Edit View Communication Actions Window Help

Menu RefList RefMode Utilities Help

Data Set List Utility

Option ==>

blank Display data set list          P Print data set list
V Display VTOC information            PV Print VTOC information

Enter one or both of the parameters below:
Dsname Level . . . ZOSUSER.*
Volume serial . . .

Data set list options
Initial View . . . 1  1. Volume      Enter "/" to select option
                    2. Space        / Confirm Data Set Delete
                    3. Attrib       / Confirm Member Delete
                    4. Total        / Include Additional Qualifiers

When the data set list is displayed, enter either:
"/" on the data set list command field for the command prompt pop-up,
an ISPF line command, the name of a TSO command, CLIST, or REXX exec, or
"=" to execute the previous command.
F1=Help      F2=Split    F3=Exit      F7=Backward F8=Forward F9=Swap
F10=Actions  F12=Cancel
```

## 6.5 Data Set List Utility (contd.)

```
Session A - [24 x 80]
File Edit View Communication Actions Window Help
[Icons]

Menu Options View Utilities Compilers Help

DSLIST - Data Sets Matching ZOSUSER.*                      Row 1 of 11
Command ==> _____ Scroll ==> PAGE

Command - Enter "/" to select action                      Message                      Volume
-----
      ZOSUSER.ISPF.ISPPROF                                ZRED02
      ZOSUSER.ISR4176.BACKUP                              ZRED01
      ZOSUSER.PDS.DATASET1                                ZRED07
      ZOSUSER.PDS.DATASET2                                ZRED04
      ZOSUSER.PDS.DATASET3                                ZRED01
      ZOSUSER.PDS.DATASET4                                ZRED03
      ZOSUSER.PS.DATASET1                                  ZRED04
      ZOSUSER.PS.DATASET2                                  ZRED07
      ZOSUSER.PS.DATASET3                                  ZRED03
      ZOSUSER.SPFLOG1.LIST                                 ZRED08
      ZOSUSER.TSOISPF.LIB                                  ZRED03
***** End of Data Set list *****

F1=Help   F2=Split   F3=Exit   F5=Rfind   F7=Up     F8=Down   F9=Swap
F10=Left  F11=Right  F12=Cancel
```

## 6.5 Data Set List Utility (contd.)

```

Menu  Options  View  Utilities  Compilers  Help
-
D
C
C
-
/
*

          Data Set List Actions

Data Set: ZOSUSER.TRAINING.JCL

DSLISLT Action
1.  Edit
2.  View
3.  Browse
4.  Member List
5.  Delete
6.  Rename
7.  Info
8.  Short Info
9.  Print
10. Catalog
11. Uncatalog
12. Compress
13. Free
15. Reset
16. Move
17. Copy
18. Refadd
19. Exclude
20. Unexclude 'NX'
21. Unexclude first 'NXF'
22. Unexclude last 'NXL'
23. SuperC 'SC'
24. SuperCE 'SCE'
25. Search-For 'SF'
26. Search-ForE 'SFE'
27. Allocate

F1=Help      F2=Split      F3=Exit      F7=Backward
F8=Forward    F9=Swap       F12=Cancel

More:      +

Row 1 of 1
==> CSR

Volume
-----
DSRC06
*****

```

F1=Help    F2=Save    F3=Exit    F4=Sub    F5=Rfind    F7=Up    F8=Down  
 \*DSLISLT



## 7. Compare & Search Utilities



## 7 Compare & Search Utilities

- Compare and search utility can be accessed from the Utility Selection Panel using options 12,13,14, and 15.
  - SuperC (option 12) is the standard compare utility. It can perform a straight comparison of two data sets or members.
  - SuperCE (option 13) is the extended compare with additional options possible.
  - Search-For (option 14) is the standard search utility.
  - Search-ForE (option 15) is the extended search utility that also provides additional options.

## 7.1 SuperCE Utility

- SuperCE allows you to compare data sets or members.
  - Additionally, it includes a variety of options that affect the way the data is compared.
  - In the data set parameters section, specify both the new and old data sets.
  - To compare all members of the data set, type an asterisk (the symbol \*) in parenthesis after the data set name.
  - To open a member selection list do not enter the asterisk symbol in parenthesis.
- **Options**
  - In the options section, you can select:
  - Compare type, Listing type, Output display type
  - While SuperC only allows you to run a line by line comparison, SuperCE lets you specify a file, line, word, or byte comparison.

## 7.1 SuperCE Utility (contd.)

<u>M</u> enu <u>U</u> tilities <u>O</u> ptions <u>H</u> elp		
<hr/>		
SuperCE Utility		
Command ==> _____		
<hr/>		
New DS Name	. . .	'ZOSUSER.POLIB1'
Old DS Name	. . .	'ZOSUSER.POLIB2'
PDS Member List	_____	(blank/pattern - member list, * - compare all)
(Leave New/Old DSN "blank" for concatenated-uncataloged-password panel)		
Compare Type		Listing Type
<u>2</u> 1. File		<u>2</u> 1. OVSUM
2. Line		2. Delta
3. Word		3. CHNG
4. Byte		4. Long
		5. Nolist
Listing DSN	. . .	SUPERC.LIST
Process Options	. .	_____
		_____
Statements Dsn	. . .	_____
Update DSN	. . . .	_____
<hr/>		
Enter "/" to select option	Execution Mode	Output Mode
<u>_</u> Bypass selection list	<u>1</u> 1. Foreground	<u>1</u> 1. View
	2. Batch	2. Browse

F1=Help  
F9=Swap

F2=SPLIT  
F10=Actions

F3=Exit  
F12=Cancel

F4=Return

F7=Backward   F8=Forward

## 7.2 SearchFor Utility

- In the Search DS Name field, type the data set name, including quotes for fully qualified names.
- For a PDS enter a single member, an asterisk to search all members, or a blank or pattern to see a member list for selection.
- In order for search to match only uppercase characters, enter the search strings on one or more of the Caps lines.
- On order for search to find only an exact case match, enter the string in one of the Asisfields exactly as needed

## 7.2 SearchFor Utility (contd.)

```
Menu  Utilities  Options  Help
-----
Extended Search-For Utility                               Strings found

Command ==> _____

Search DS Name . . . 'ZOSUSER.TRAINING.JCL'
PDS Member List . . * _____ (blank/pattern - member list, * - search all)

(Leave Search DSN "blank" for concatenated-uncataloged-password panel)

Enter Search Strings and Optional operands (WORD/PREFIX/SUFFIX,C)
Caps . . . JCLLIB
Caps . . .
Caps . . .
Asis . . .
Asis . . .

Listing DSN . . . . SRCHF0R.LIST
Process Options . . .
Statements Dsn . . .

Enter "/" to select option      Execution Mode      Output Mode
_ Bypass selection list        1  1. Foreground      1  1. View
                                2. Batch           2. Browse

F1=Help      F2=SPLIT      F3=Exit      F4=Return      F7=Backward  F8=Forward
F9=Swap      F10=Actions   F12=Cancel
TSERCH04  *SRCHF0R
```

# Quiz



## TSO - Quiz

By default, which PF key will take you straight to the ISPF main menu?

- a) PF2
- b) PF3
- c) PF4
- d) PF9



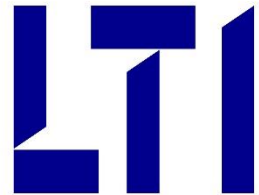
## TSO - Quiz

In the ISPF Editor, which one(s) is/are valid scroll unit?

- a) QTR
- b) FULL
- c) HALF
- d) 200

How to revert the recent change made in ISPF editor?

- a) ROLLBACK
- b) ROLLOFF
- c) ROLLOUT
- d) UNDO
- e) RESET



Let's Solve