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TSO/ISPF

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1. Introduction to TSO/ISPF

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1.1 What is TSO?

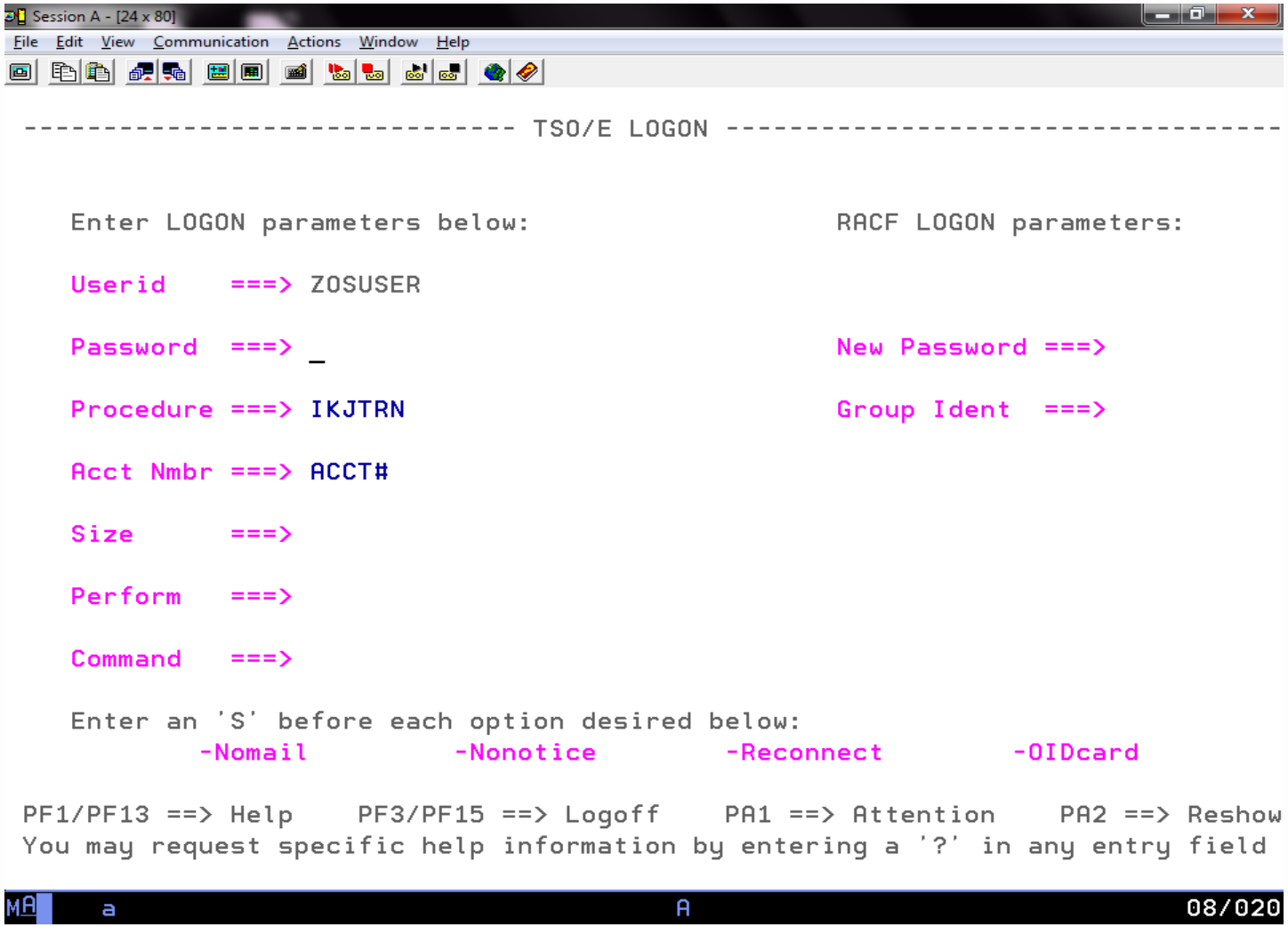
- TSO allows users to create an interactive session with the z/OS system.
- TSO provides a single-user logon capability and a basic command prompt interface to z/OS.
- Most users work with TSO through its menu-driven interface, Interactive System Productivity Facility (ISPF).
- This collection of menus 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



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

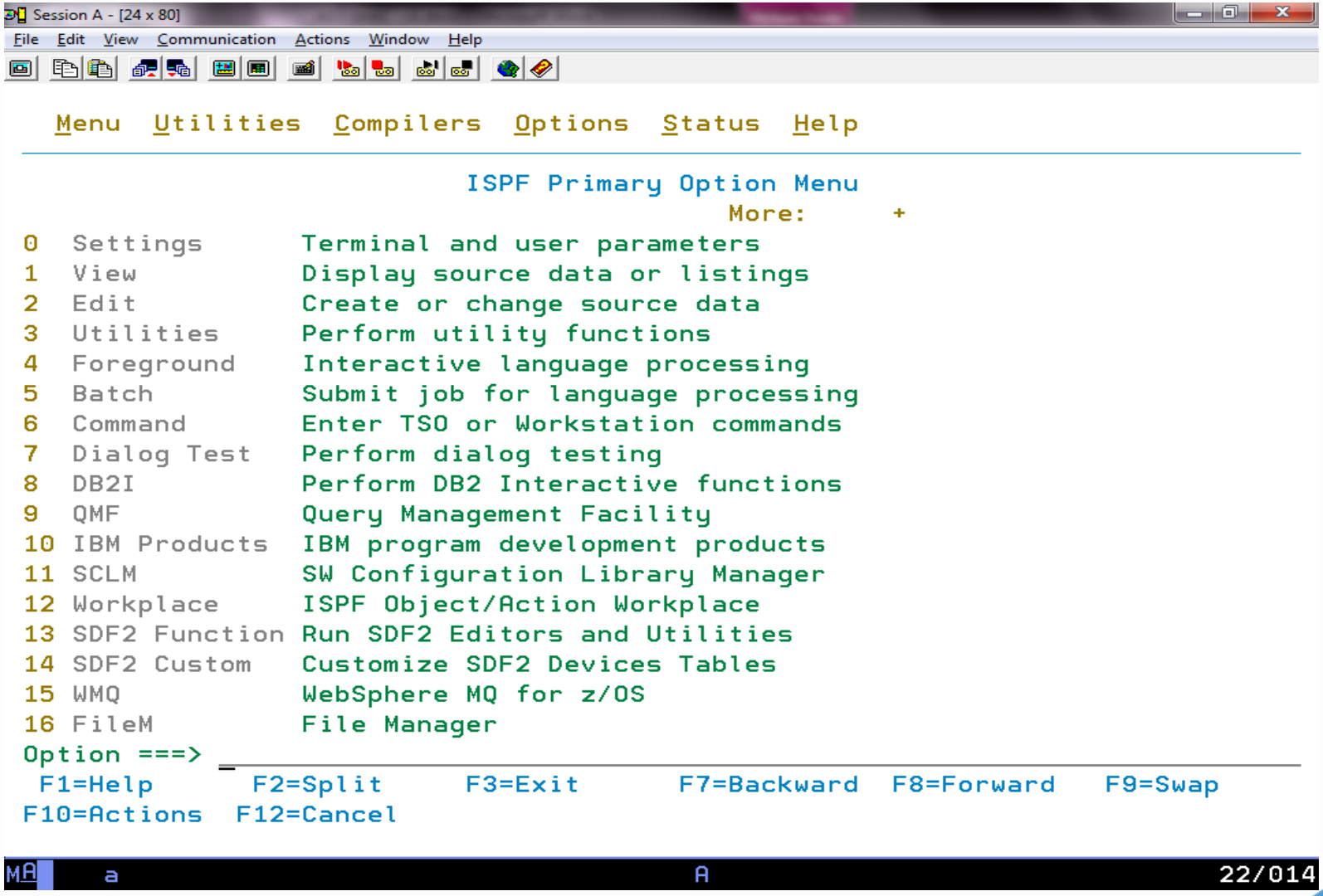
```
 READY
TIME
 IKJ56650I TIME-03:16:59 PM. CPU-00:00:00 SERVICE-8001 SESSION-00:01:11 MAY 7,20
20
 READY
LISTDS
 IKJ56700A ENTER DATA SET NAME -
'ZOSUSER.TRAINING.JCL'
 ZOSUSER.TRAINING.JCL
 --RECFM-LRECL-BLKSIZE-DSORG
   FB    80    32000   PO
 --VOLUMES--
   DSRC06
 READY
LOGOFF
```

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



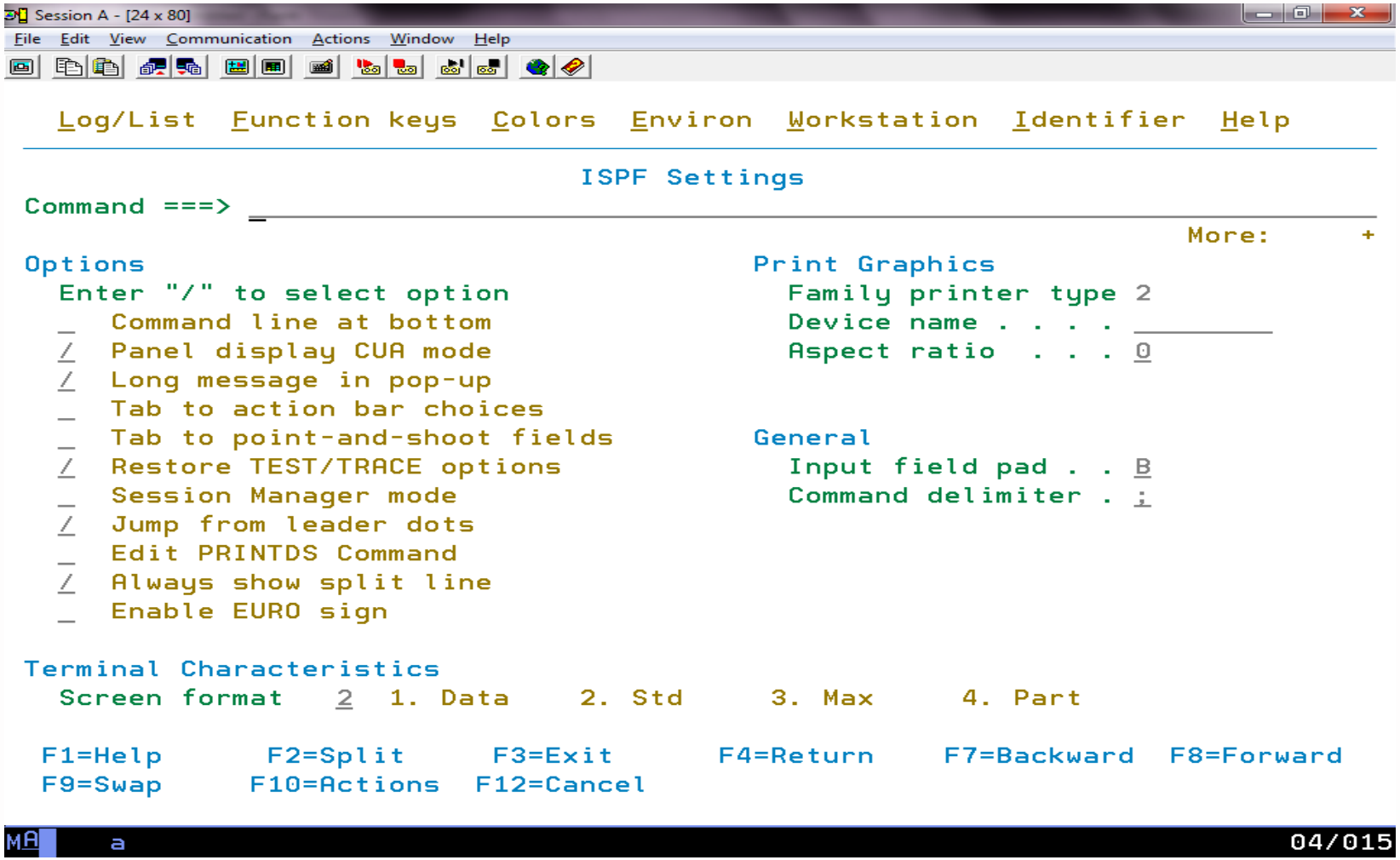
1.4 ISPF Overview (contd.)

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



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

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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

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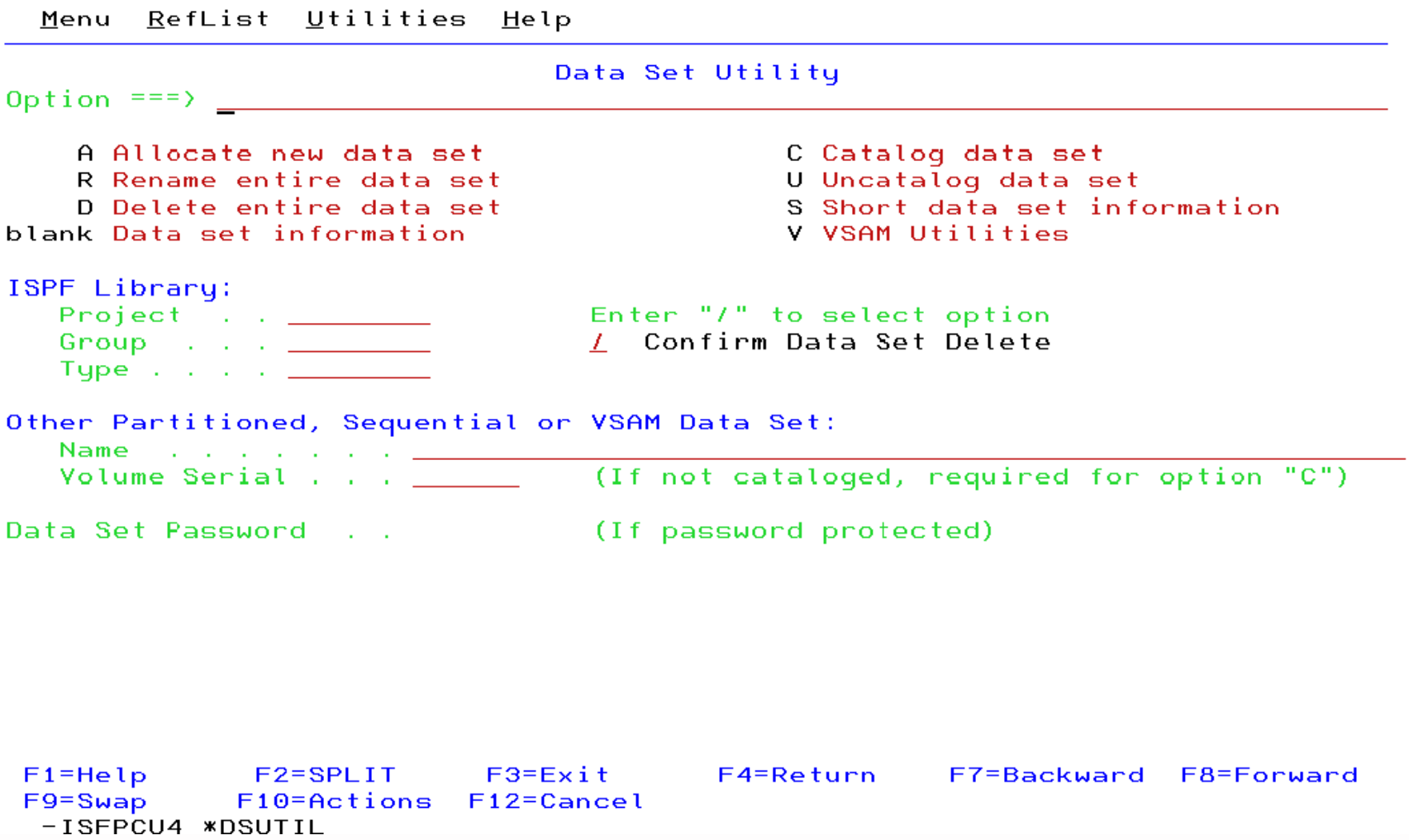
3. Dataset Allocation

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



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
Enter "/" to select option             YY.DDD, YYYY.DDD in Julian form
_  Allocate Multiple Volumes           DDDD for retention period in days
                                       or blank)

 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

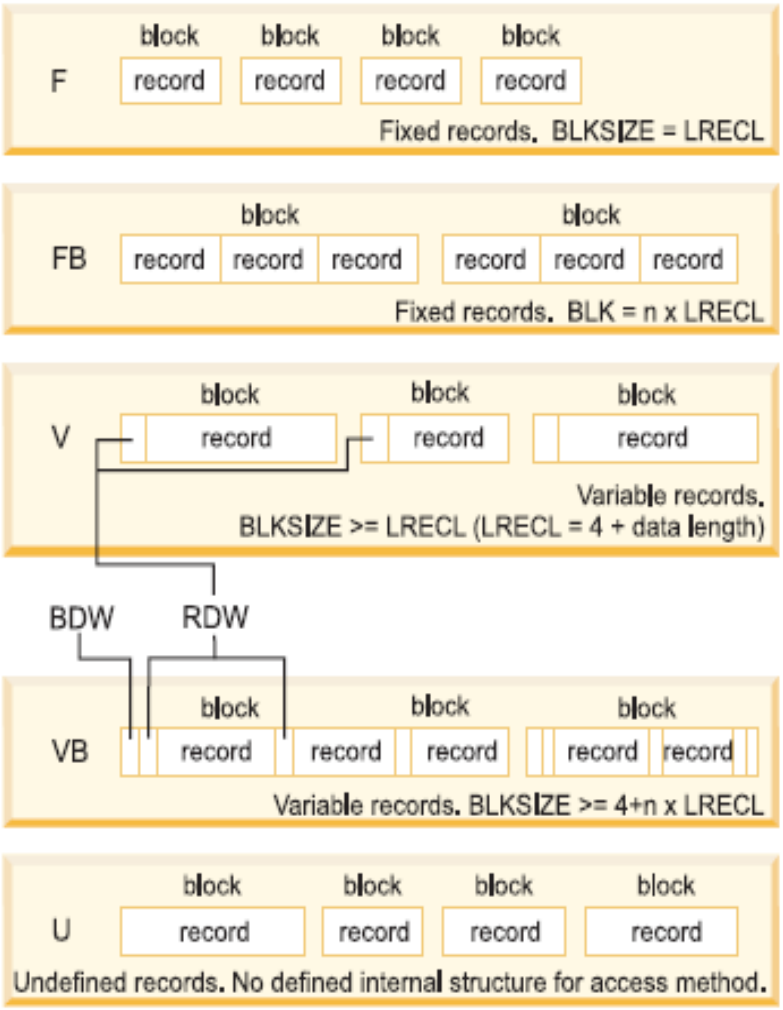
3.1 Dataset Allocation (contd.)

- **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.

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4. View/Edit Dataset

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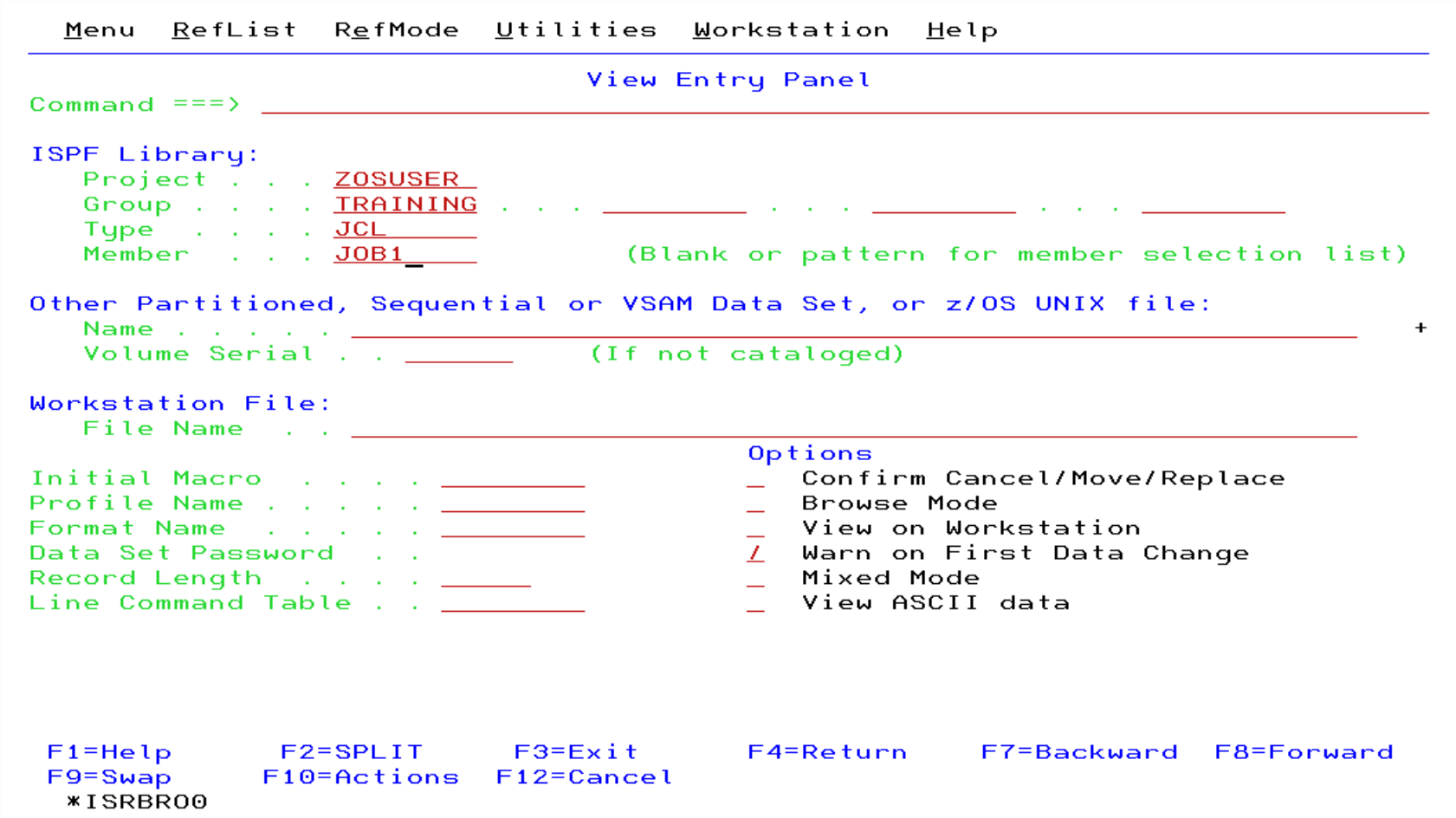
4.1 View/Browse Dataset

- ISPF Menu option 1 (VIEW)
  - Data set information cane 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



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.

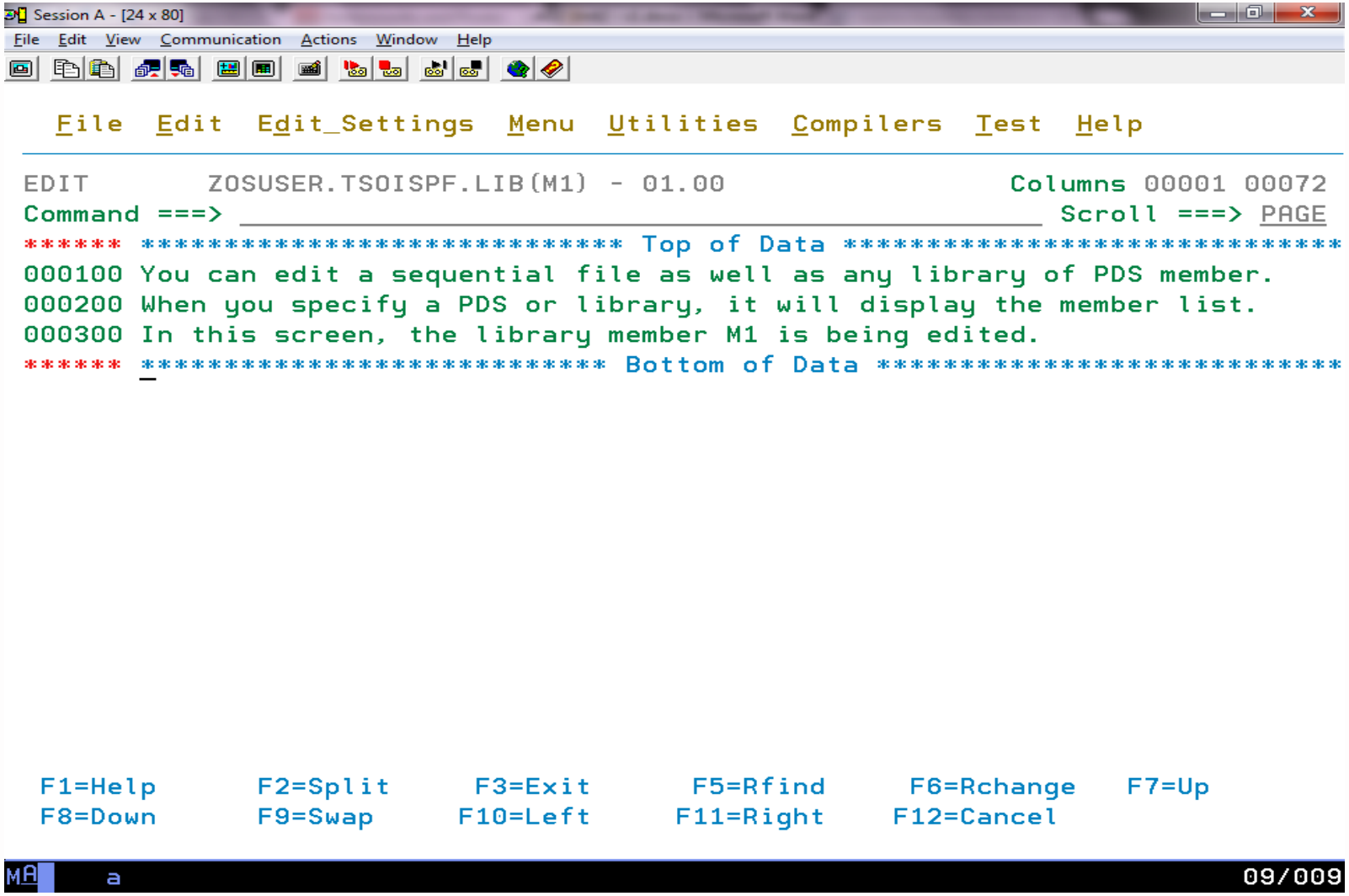
4.2 Edit Data Set (contd.)

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  . . _____________________________________________________________

                                        Options
Initial Macro  . . . . _________         _  Confirm Cancel/Move/Replace
Profile Name . . . . . _________         _  Mixed Mode
Format Name  . . . . . _________         _  Edit on Workstation
Data Set Password  . .                   _  Preserve VB record length
Record Length  . . . . ______            _  Edit ASCII data
Line Command Table . . _________

 F1=Help      F2=SPLIT     F3=Exit      F4=Return    F7=Backward  F8=Forward
 F9=Swap      F10=Actions  F12=Cancel
  *ISREDM0
```

4.2 Edit Data Set (contd.)

Editor panel



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

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5. ISPF Editor

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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

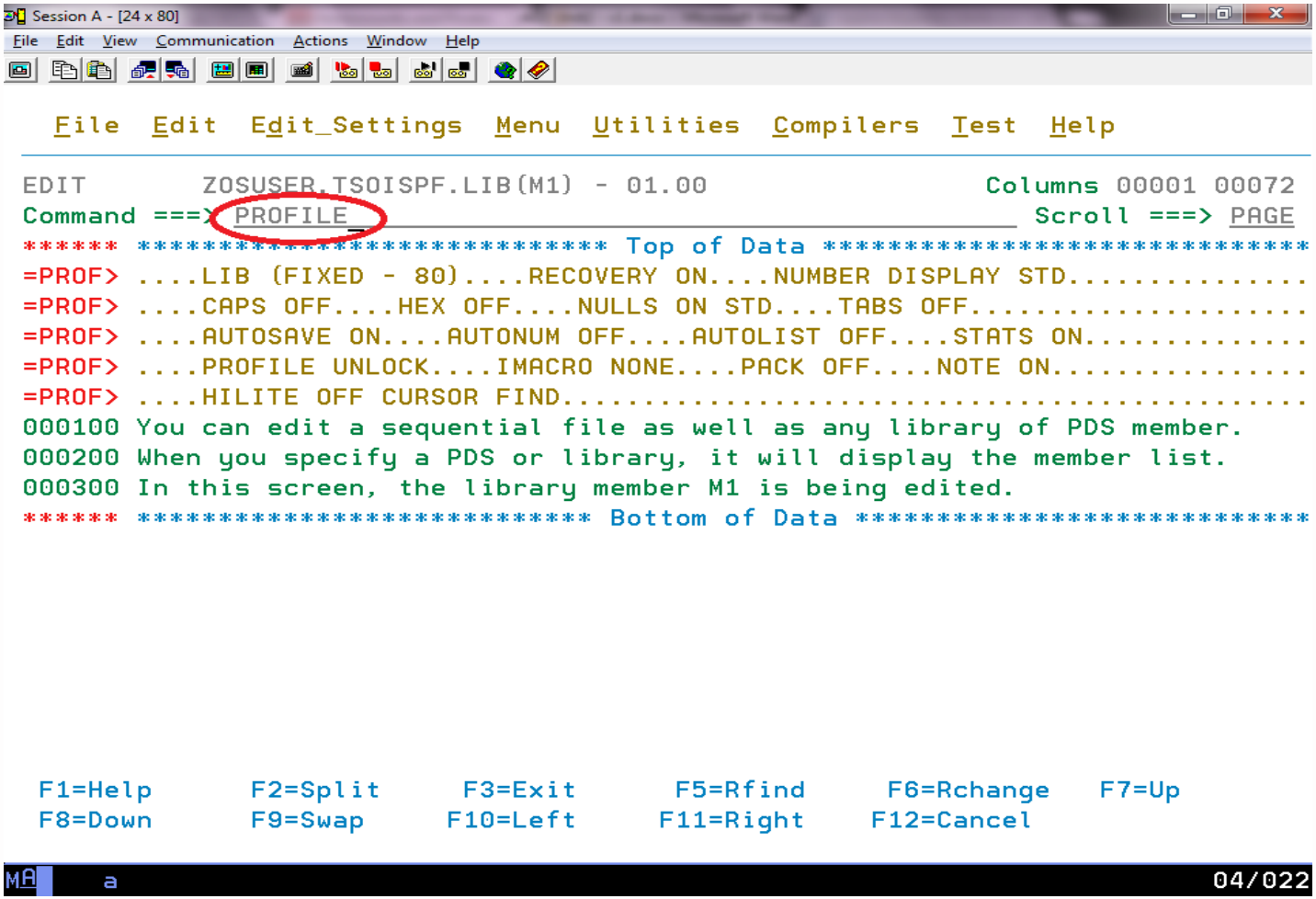
SAVE	FIND
RESET	LOCATE
RECOVER	RENUM
UNDO	UNNUM
CUT	PROFILE
COPY	
MOVE	
PASTE	
CREATE	

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



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

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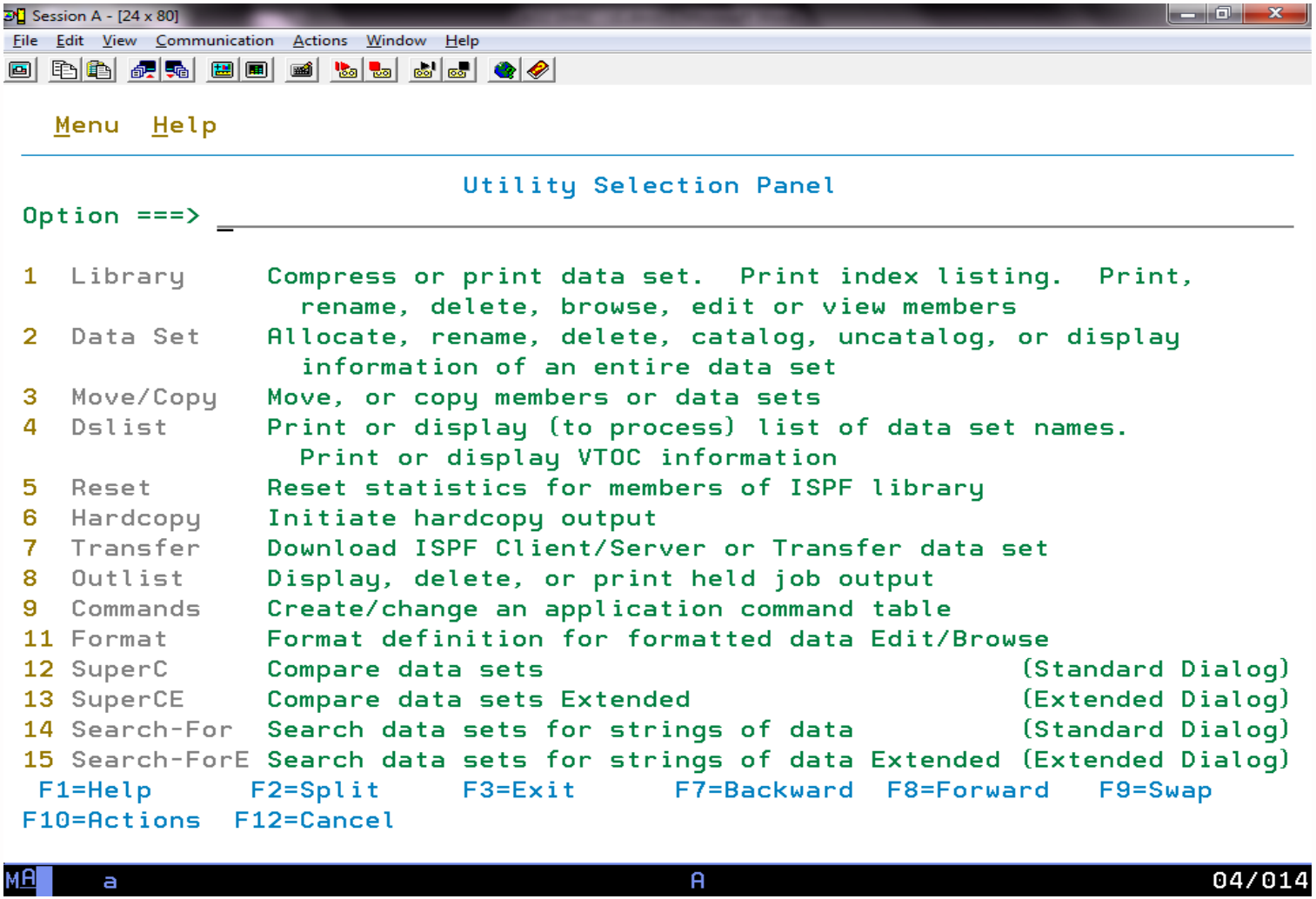
6. Working with datasets

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



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

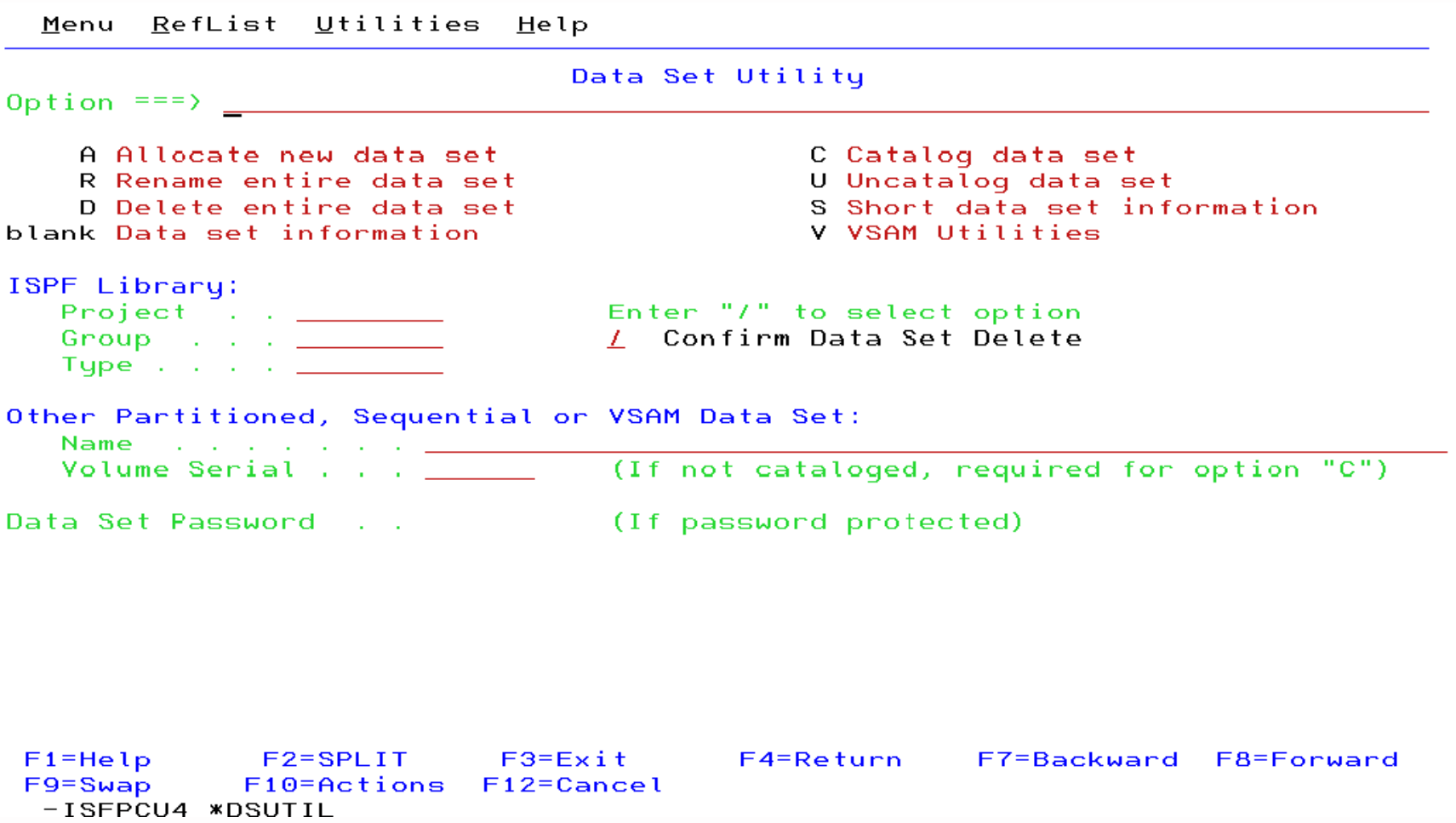
```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help

  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:                       /  Confirm Member Delete
    Project . . . ZOSUSER            _  Enhanced Member List
    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
MA     a                                                                 17/014
```

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.)

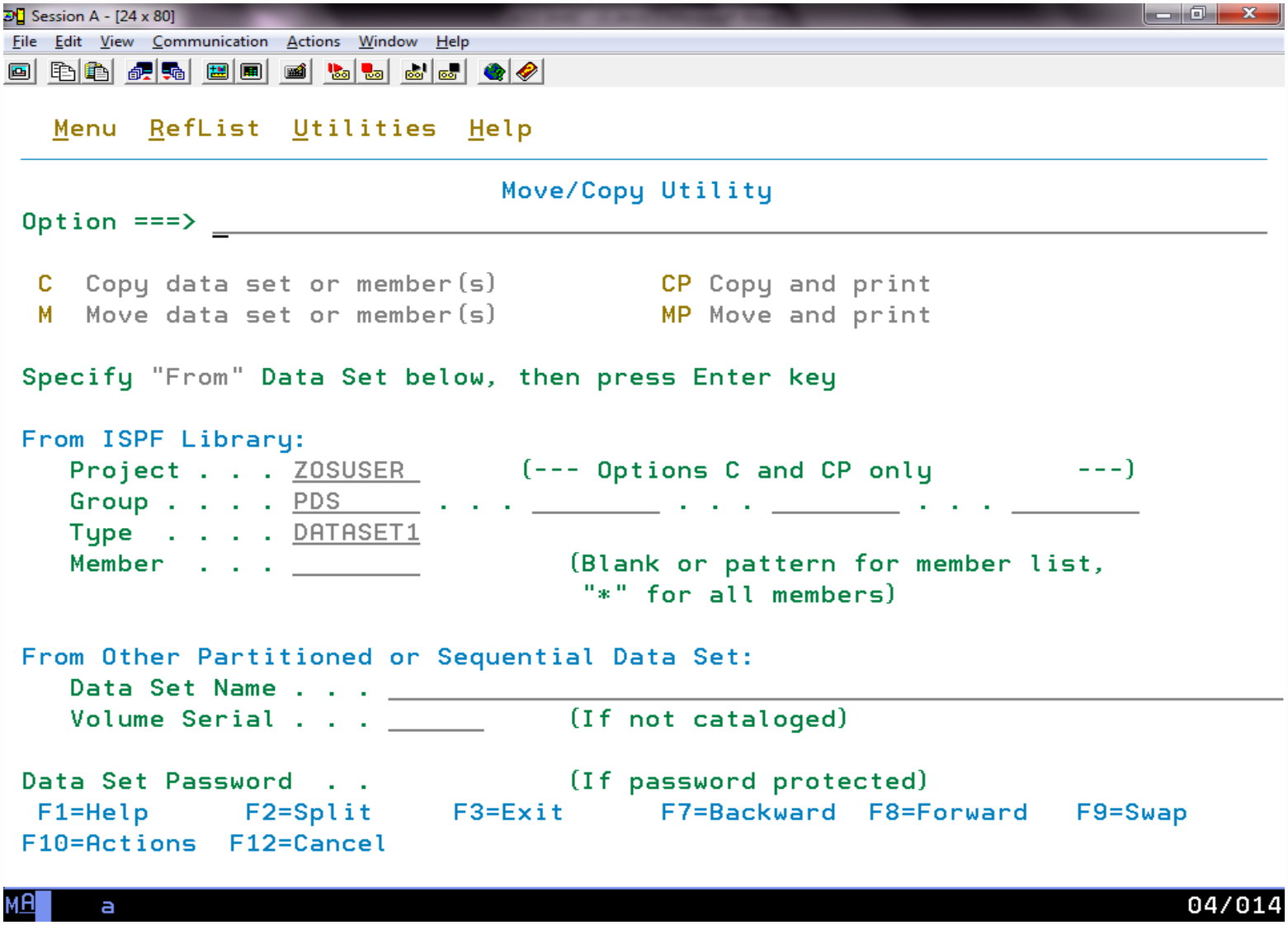
Data Set Utility



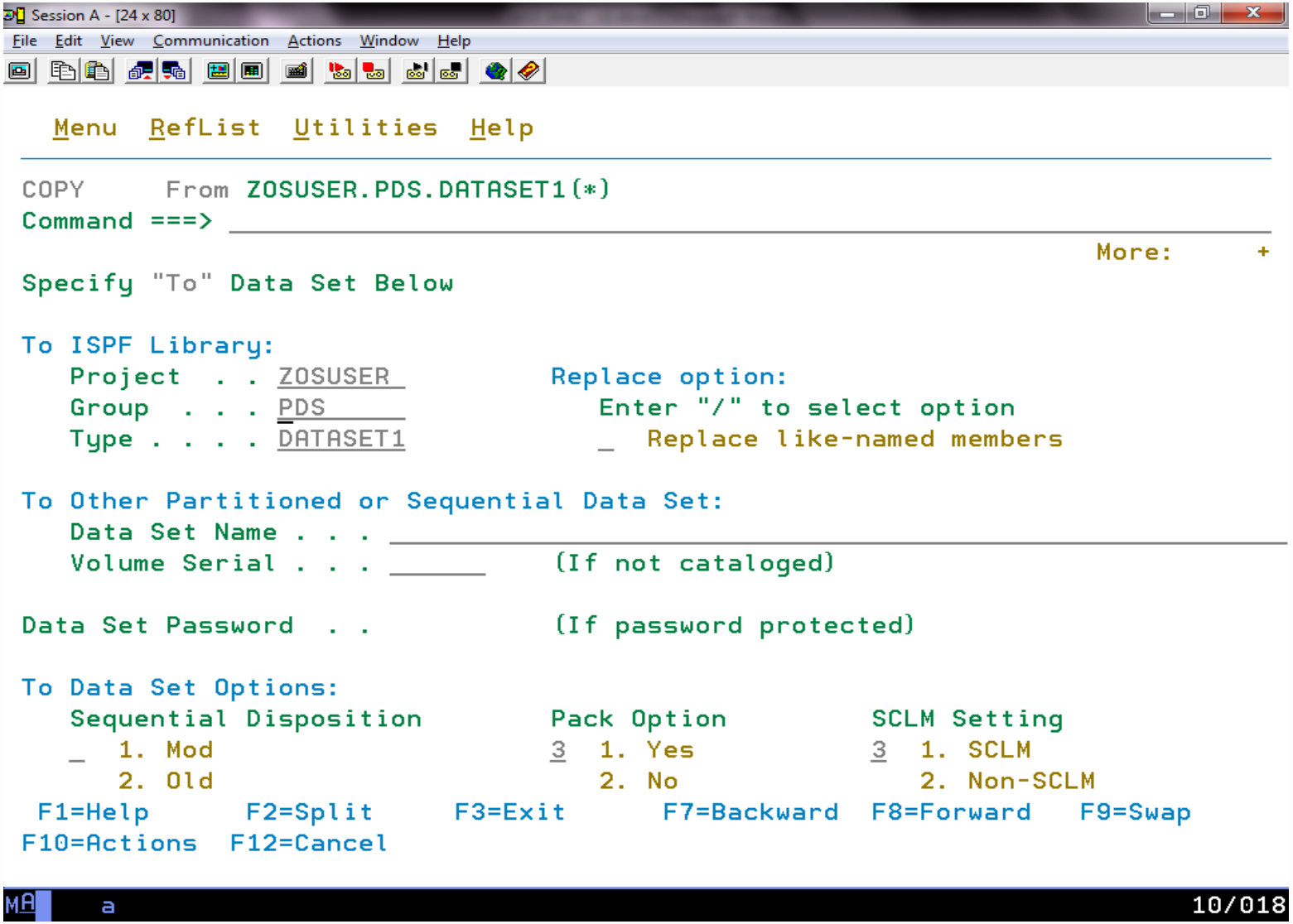
6.4 Move/Copy Utility

- 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.)



6.4 Move/Copy Utility (contd.)

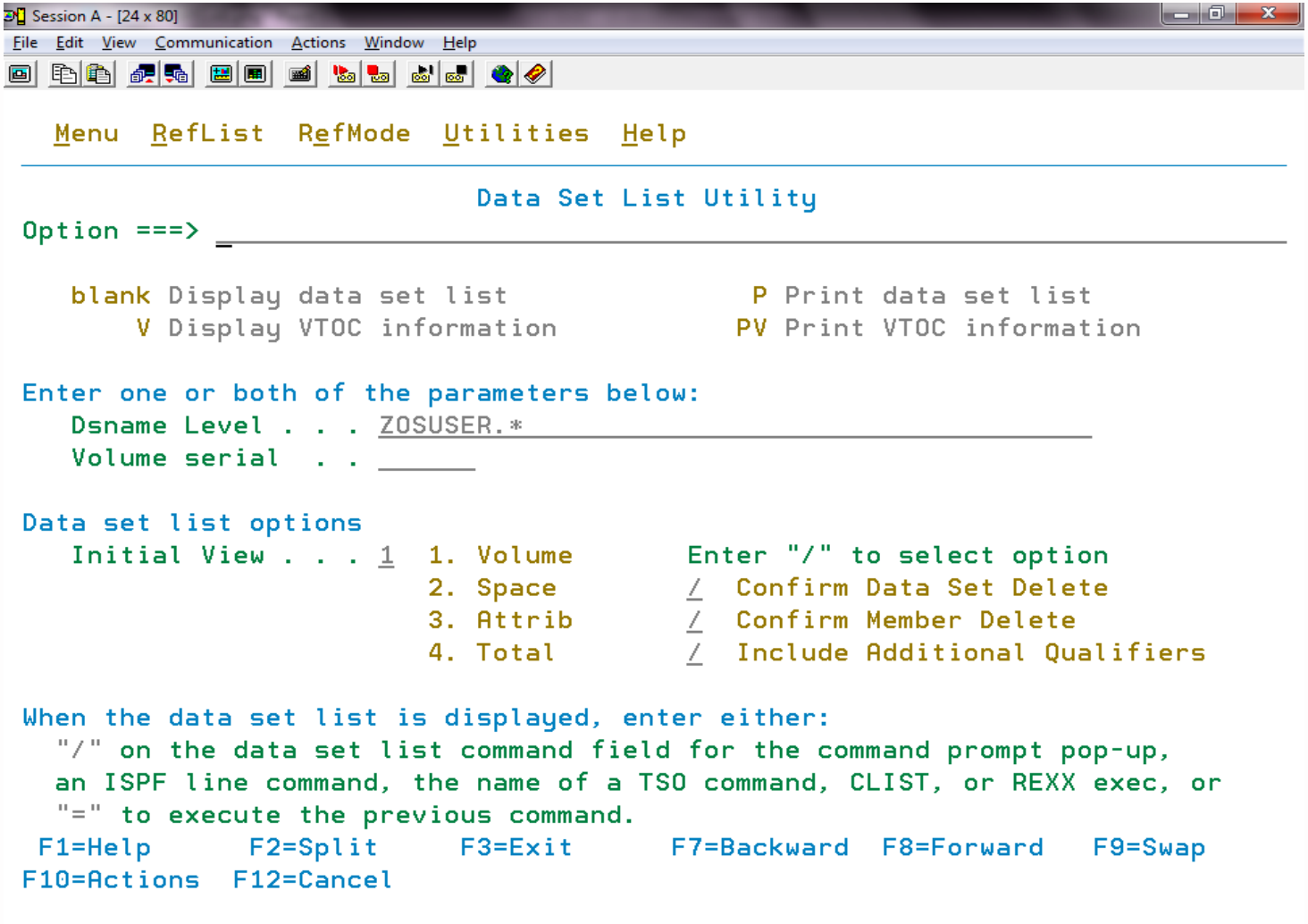


6.5 Data Set List Utility

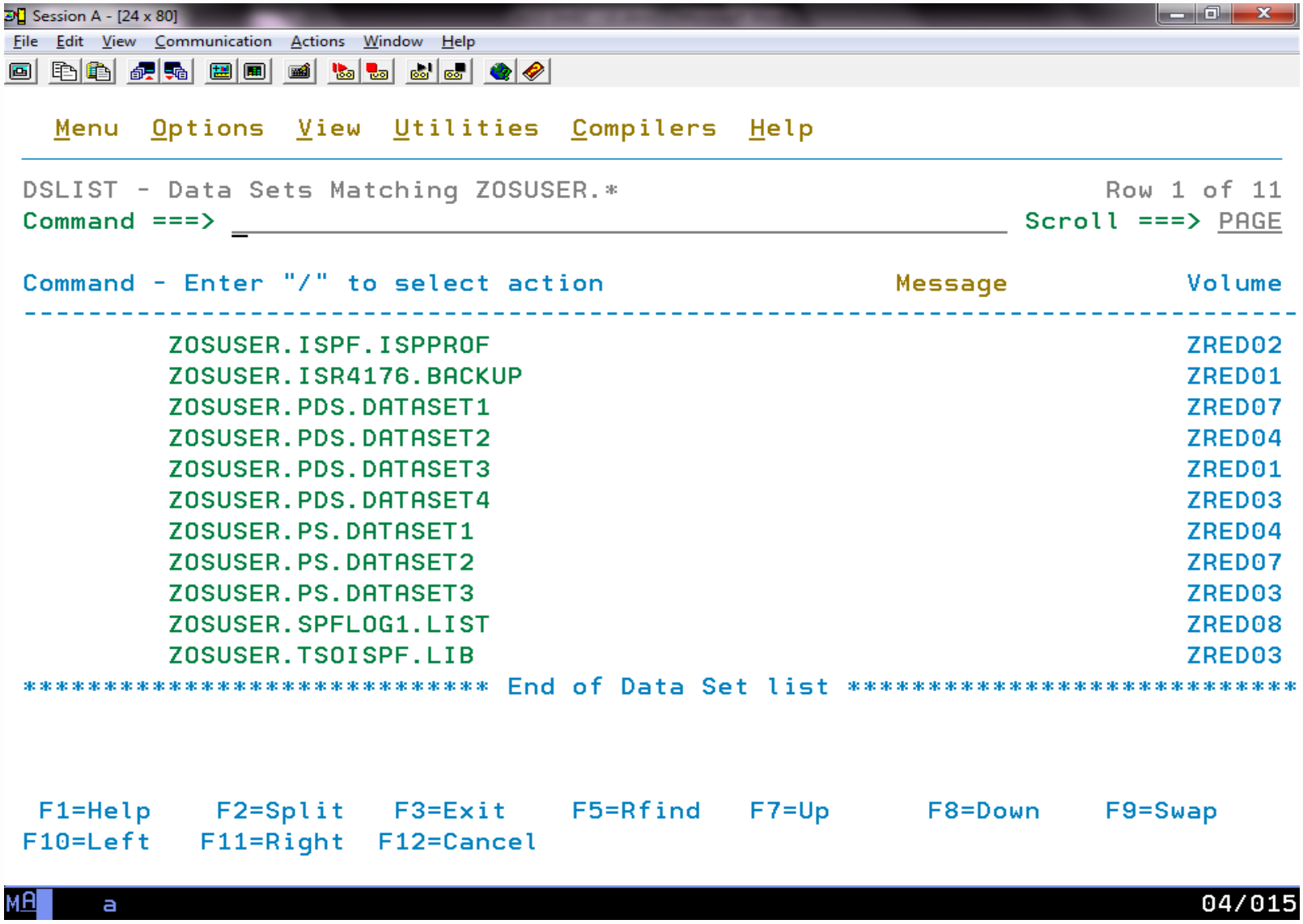
- To filter a list of data sets, use the following wildcard symbols as part of a Dsname Level qualifier:
  - An asterisk (the symbol *) -one asterisk by itself indicates that at least one qualifier needs to occupy the position. One asterisk within a qualifier indicates that zero or more characters can 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		

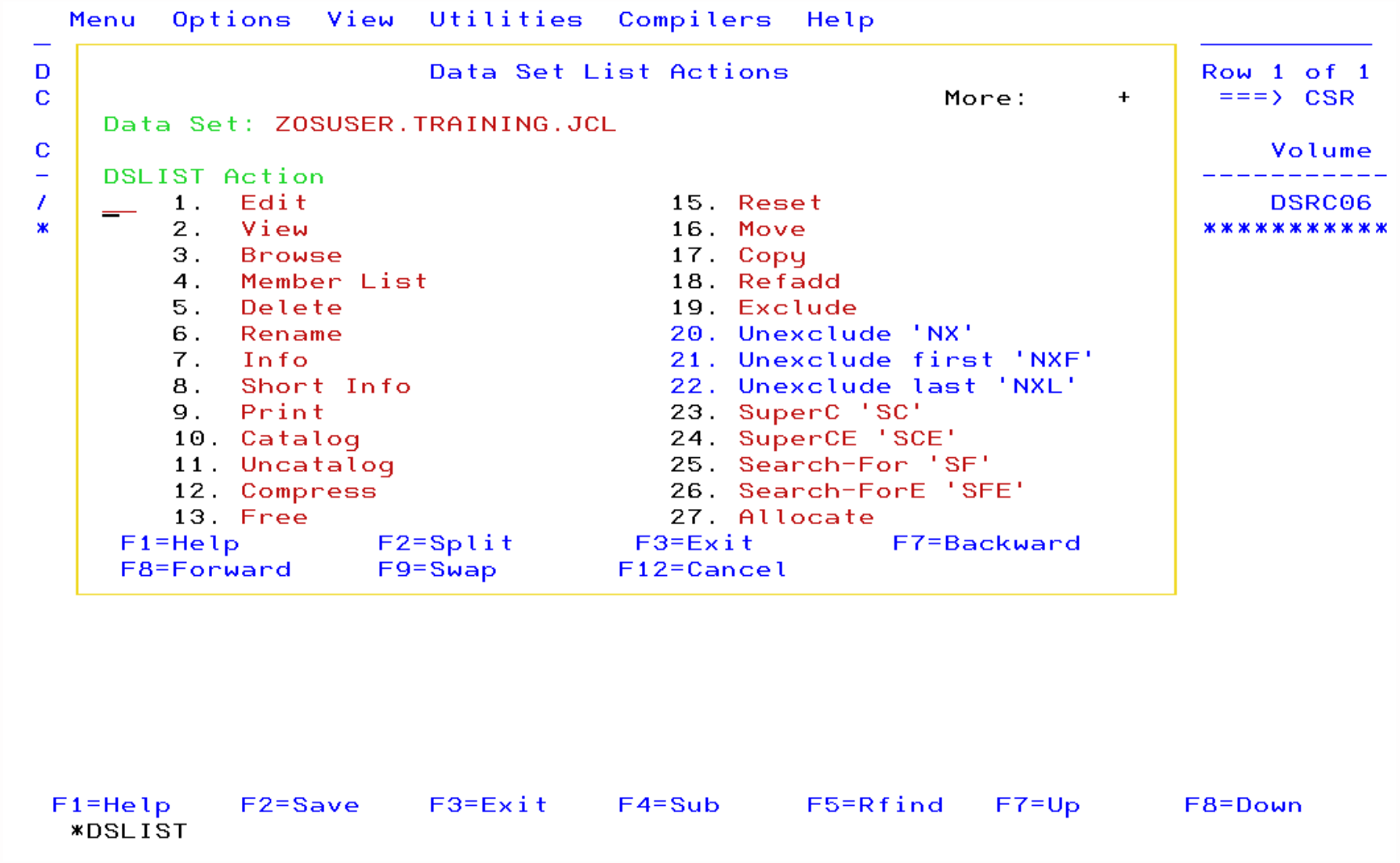
6.5 Data Set List Utility (contd.)



6.5 Data Set List Utility (contd.)



6.5 Data Set List Utility (contd.)



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7. Compare & Search Utilities

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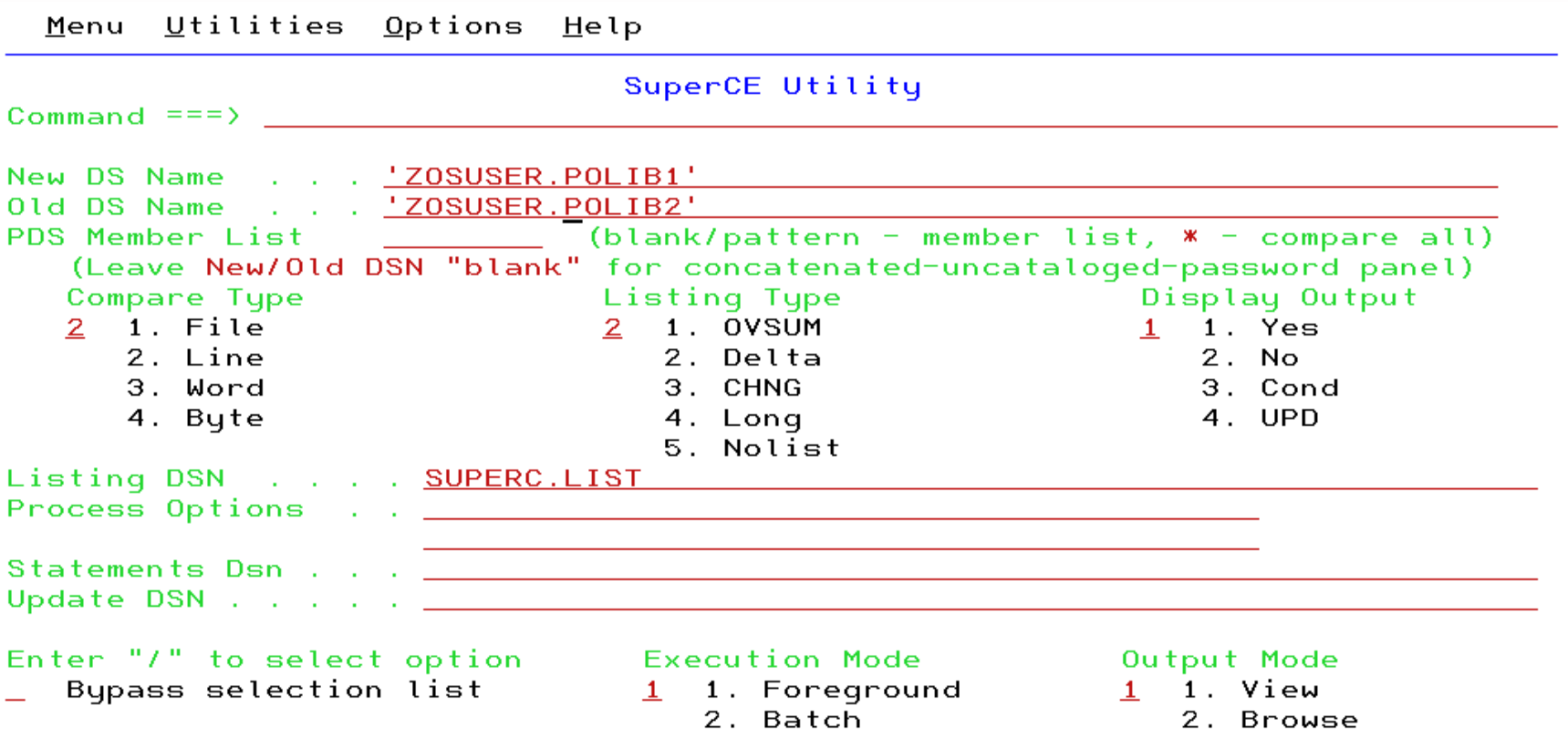
7 Compare & Search Utilities

- 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.)



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 . . . . SRCHFOR.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
```

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Quiz

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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

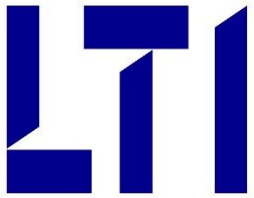
In the ISPF Editor, which one(s) is/are valid scroll unit?

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

TSO - Quiz

How to revert the recent change made in ISPF editor?

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



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