

## **Multiple Virtual Storage (MVS)**

Lesson 7: MVS Tools  
Overview

## Lesson Objectives

■ In this lesson, you will learn the following topics:

■ Subsystems

- JES
- Channels
- TSO/ISPF
- CICS
- DB2
- IMS
- RACF

■ Working with TSO/ISPF



## Subsystems & other facilities

- Some of the facilities available under MVS are also considered to be subsystems.
- SUBSYSTEM
  - A software product that operates in its own address space under the control of MVS.
  - May provide services that duplicate services provided by the operating system.

## Subsystems

- JES

- Job Entry System, controls the processing of the JOB.

- Channel

- controls the path between the CPU and the I/O device.

- TSO & ISPF

- TSO (Time-Sharing Option), lets terminal users invoke MVS facilities interactively.
- Each TSO user is given a unique address space and can allocate data sets and invoke programs just as a batch job can.
- ISPF (Interactive System Productivity Facility), runs as a part of TSO.
- Takes the advantage of full screen capabilities of 3270 terminals.



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### SMF:

- SMF stands for System Management Facility.
- It monitors jobs as they execute and record information such as the amount of CPU time used, the amount of DASD I/O that was performed, the number of print records that were created, and so on. This information is recorded in special datasets so that it can be used as the basis for billing.

### VTAM:

- Any system supporting terminal devices, be it local or remote, should include Telecommunications Access Method.
- VTAM, that is Virtual Terminal Access Method, is one of the powerful Telecommunication (TC) Access Method.
- It is part of **System Network Architecture (SNA)**, which is a comprehensive telecommunication product.
- It is a subsystem that runs in its own address space which allows VTAM to provide centralized control over all terminals attached to the system.
- Each VTAM terminal device is allocated to VTAM address space.

## Subsystems (Contd.)

- CICS
  - Customer Information Control System
  - Supports large network of terminals to run interactive application programs
- IMS
  - Information Management System.
  - Consists of two components: DB (DL/I) and DC
- DB2
  - DataBase 2.
  - Relational database management system
- RACF
  - Resource Allocation Control Facility
  - Provides the security feature on the mainframe



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### **CICS:**

- CICS stands for Customer Information Control System.
- CICS works with VTAM applications to support large networks of terminals that can run interactive application programs.
- CICS implements multi-programming within itself. In CICS, multiple programs which are a part of the same application are executed within CICS own address space. CICS then selects one program at a time for execution. CICS itself is multi-programmed by MVS along with other programs.

### **DB2:**

- DB2 – Database 2 – is a database management system.
- DB2 access and manages relational databases using the SQL (structured query language).
- DB2 does not provide any online environment, but online DB2 programs are written to run under CICS.

### **RACF:**

- RACF stands for Resource Access Control Facility.
- RACF is a comprehensive security package. It provides security to restrict unauthorized users to access data in MVS.
- Both users and resources, like datasets, are identified by RACF. Whenever user tries to access a resource, the security is checked by RACF, thus restricting unauthorized user access.
- RACF is not a subsystem. Rather it is a set of routines that is stored in the PLPA, which are invoked by users address space as and when required.

## Use of TSO

- Time Sharing Option (TSO) is an interactive processing tool.
- It is used by the terminal user to interactively invoke MVS facilities.
- TSO internally treats each terminal user as a Job.
- Various TSO commands are available, thus providing a variety of functions.



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### **Time Sharing Option (TSO):**

TSO is a subsystem, in which terminal users invoke MVS facilities interactively. Time Sharing option, release first in 1969. MVS handles each TSO user as it handles batch jobs. Each TSO user has an unique address space for running programs When TSO user logs on, TSO MVS initiates a terminal session, which is unique to the user, and keeps running till the TSO user logs off. The user specific batch job that starts up handles

What datasets are available

What terminal monitor program is to be used

What procedure to auto execute at logon

TSO internally treats each terminal user as a Job. A **Job Stream** is created when a terminal user logs in, and each terminal user is given a separate address space in which datasets can be allocated and programs can be invoked.

TSO is used for the following tasks:

1. Time Sharing
2. Resource sharing
3. Handling each TSO user as batch jobs would be handled
4. The user specific batch job that starts up, handles the following:
  - a. The datasets that are available
  - b. The terminal monitor program that is to be used
  - c. The procedure that has to auto execute at logon

**Different TSO Commands:**

There are about 26 commands providing a variety of functions that can be used.

TSO provides function such as given below:

1. Dataset Management functions
2. Program Development functions
3. Batch job functions
4. Other functions like Help, Broadcast, CList, and REXX

These commands are issued at the READY prompt or TSO command prompt.

Some Dataset Management functions are used for the following tasks:

1. Allocate Datasets dynamically
2. List Datasets
3. Print Datasets
4. Copy Datasets
5. Delete Datasets
6. Rename Datasets
7. List Catalog Entries
8. List VTOC Entries
9. Use AMS Services

Program Development functions are used for the following tasks:

1. Create program
2. Edit program
3. Compile program
4. Link edit a program
5. View output
6. Route output to a printer

Batch Job functions include the following functions:

1. Submit jobs
2. Monitor job
3. View output
4. Route output

**Help Functions** on TSO commands can be obtained by typing, "HELP" at the "READY" prompt.

7.1: TSO

## Time Saring Option (TSO)

- TSO User-id
  - Not longer than 7 characters
  - Can contain A-Z and 0-9
  - First character must be alphabet
- Password
  - Maximum 8 characters
  - Combination of letters and numerical
  - First character must be alphabet



7.1: TSO

## Time Sharing Option (TSO) Contd...

### ■ TSO FUNCTIONS

- Commands that provides a variety of functions can be used.
- Allow Dataset Management functions
- Program Development functions.
- Batch job functions.
- Other functions like Help, Broadcast, CLIST and REXX.
- You can issue these at the READY prompt or TSO command.

## Demo


- Logon to Mainframe
- Usage of demo READY prompt on TSO region
- Logoff from Mainframe



7.2: ISPF

## Use of ISPF

- ISPF stands for Interactive System Productivity Facility.
- ISPF runs as part of TSO.
- Following key functions are implemented using ISPF:
  - **Editor:** Program Sources, Job Commands
  - **Data Management:** PDS and Physical Sequential Data Set Management
  - **Job Processing:** Initiate Job, Check job log
  - Miscellaneous
  - **PDF:** Program Development Facility is part of ISPF.


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### ISPF:

ISPF takes advantage of full screen (24 x 80) capability of 3270 terminals as it runs part of TSO.

Panels are provided for terminal users for issuing commands.

PDF, which is part of ISPF, is used by the user/programmer to create, develop and submit new jobs.

Access to ISPF is gained by Keying ISPF at the READY prompt

This is done as default in the auto executed CLIST at startup.

Menu driven, full screen interface.

Scrollable Display

Panels

Split Screen capabilities

Capability to execute TSO commands

Submit facility

Spool / System Display Search Facility (SDSF)

Online tutorial

When this is entered you get the Primary Options Menu.

7.2: ISPF

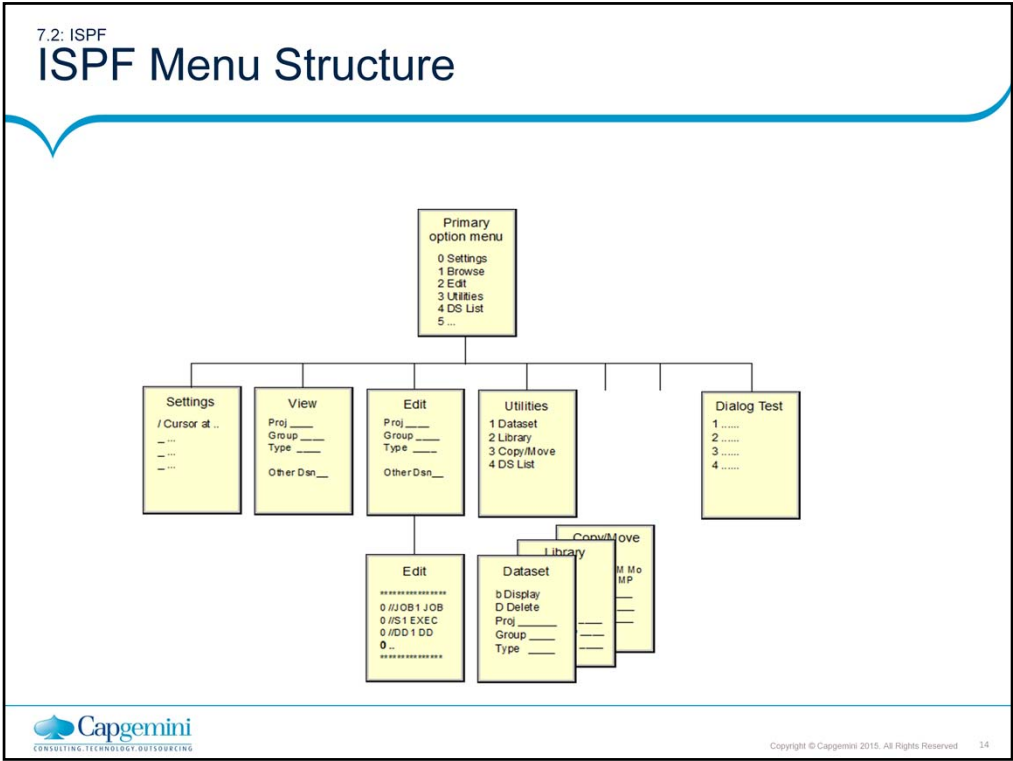
## Data Management Functions

- Dataset Management functions
  - Allocate Datasets dynamically
  - List Datasets
  - Print Datasets
  - Copy Datasets
  - Delete Datasets
  - Rename Datasets
  - List Catalog Entries
  - List VTOC Entries
  - Use AMS Services

7.2: ISPF

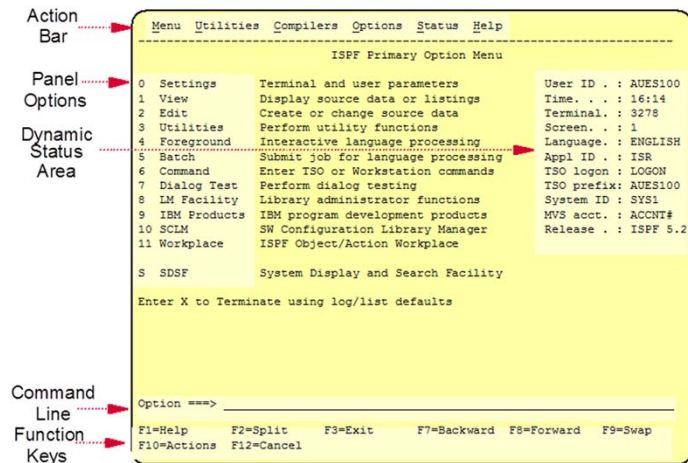
## PDF & Batch Functions

- Program Development functions
  - Create program
  - Edit program
  - Compile program
  - Linkedit a program
  - View output
  - Route output to a printer
- Batch job functions
  - Submit Jobs for background processing
  - Monitor the progress of a background job
  - View output
  - Route output



## 7.2: ISPF

## General Structure of ISPF Panels



7.2: ISPF

## List of Function Keys & Identifier Keys

### ■ PA/PF Key Map

PF1 ==> HELP	Enter the Tutorial
PF2 ==> SPLIT	Enter Split Screen Mode
PF3 ==> END	Terminate the current operation
PF4 ==> RETURN	Return to primary options menu
PF5 ==> RFIND	Repeat find
PF6 ==> RCHANGE	Repeat Change
PF7 ==> UP	Move screen window up
PF8 ==> DOWN	Move screen window down
PF9 ==> SWAP	Activate the other logical screen in split screen mode
PF10 ==> LEFT	Scroll screen left
PF11 ==> RIGHT	Scroll screen right
PF12 ==> RETRIEVE	Retrieve last command
PA1 ==> ATTENTION	Interrupt Current operation
PA2 ==> RESHOW	Redisplay the current screen

PF1 - PF12 Keys may be duplicated from PF13 to PF24 in 24 key mode.



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7.2: ISPF

## Interactive System Productivity Facility (ISPF)

2 Menu Utilities Compilers Options Status Help

ISPF Primary Option Menu

0 Settings	Terminal and user parameters	3 User ID . : USERID
1 View	Display source data or listings	Time . . : 13:54
2 Edit	Create or change source data	Terminal . : 3270
3 Utilities	Perform utility functions	Screen . : 1
4 Foreground	Interactive language processing	Language . : ENGLISH
5 Batch	Submit job for language processing	Appl ID . : ISR
6 Command	Enter TSO or Workstation commands	TSO logon : ISPF
7 Dialog Test	Perform dialog testing	TSO prefix: USERID
9 IBM Products	IBM program development products	System ID : IS01
10 SCLM	SW Configuration Library Manager	MVS acct. : IBMGSA
11 Workplace	ISPF Object/Action Workplace	Release . : ISPF 5.5

Enter X to Terminate using Log/List defaults

Option ==>

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

7.2: ISPF

## Interactive System Productivity Facility (ISPF) Contd...

- Exiting from ISPF
  - To terminate ISPF you can
  - type =x at the command line
  - or use the PF3 key to exit
  - If you haven't specified default dispositions for your List and log datasets then the termination panel is displayed

7.2: ISPF

## Interactive System Productivity Facility (ISPF) Contd...

### ■ Editing Datasets (Option 2)

- The Primary Editor entry is similar to that for Browse as regards concatenating datasets and dataset selection.
- Labels can be defined as in browse but may be entered as line commands.
- Error messages may be removed by typing RESET on the command line.

### ■ Scroll Amounts

- HALF Move the screen windows half a page ( 11 lines or 40 columns)
- PAGE Move the screen windows one page ( 22 lines or 80 columns)
- N Move the screen windows n lines or columns
- CSR Move the screen windows at the cursor position to  
top, bottom, left, right
- DATA Move the screen windows one line or one column less than a full  
page

7.2: ISPF

## Line Commands

### ■ Standard Line editing commands

- C     copy this line
- Cn   Copy n lines starting with this line
- CC   Copy a block of lines
- A             Place the copied lines after this line
- An   Repeat the copied lines n times after this line
- B             Place the copied lines before this line
- Bn   Repeat the copied lines n times before this line
  
- D     Delete line
- Dn   Deletes n lines starting with this line
- DD   Deletes the block of lines beginning with the first DD commands and ending with the second DD command

7.2: ISPF

## Line Commands

- X Exclude this line
- Xn Exclude n lines starting with this line
- XX Exclude a block of lines
  
- S Show one line of the excluded text
- Sn Show n lines
  
- F Show the first line of the excluded text
- Fn Show the first n lines
  
- L Show the last line of the excluded text
- Ln Show the last n lines

7.2: Tools

## Line Commands

- I                    Insert a single line following this line
- In                Insert n lines following this line
  
- M                Move this line
- Mn             Move n lines starting with this line
- MM            Move a block of lines
- A                Place the moved lines after this line
- An             Repeat the moved lines n times after this line
  
- B                Place the moved lines before this line
- Bn             Repeat the moved lines n times before this line.

7.2: ISPF

## Line Commands

- R Repeat this line
- Rn Repeat this line n times
- RR Repeat a block of lines
- RRn Repeat a block of lines n times

### Shifting text source

Data shift	Column shift	Meaning
▪ <	(	Shift this line left 2 position
▪ <n	(n	Shift this line n position left
▪ <<	((	Shift a block of lines left
▪ < <n	((n	Shift a block of lines left
▪ >	)	Shift this line right 2 position
▪ >n	)n	Shift this line n position right
▪ >>	))	Shift a block of lines right
▪ >>n	))n	Shift a block of lines right

7.2: ISPF

## Line Commands

- TE Text Edit
- TF Text Flow
- TS Text Split
- LC Lower Case
- UC Upper Case

### Other Line Commands

- COLS Display column line
- TABS Setting up a tab positions
- MASKS Display a mask line. Used for repetitive insertion of information
- BOUNDS Display boundary line



7.2: ISPF

## Primary Commands

### ■ Primary Commands/Command line commands

- CANCEL
- CAPS ON / OFF
- LOCATE                      To locate a dataset
- TSO SUBMIT                To execute
- SORT                        Sorts the dataset list based on the fields shown on the next transparency
- FIND                        Finds occurrence of a string with the list of datasets
- SAVE DSN                 Saves the current dataset
- COPY                       COPY member [AFTER / BEFORE]
- CREATE                    CREATE [member]
- DELETE                    DELETE ALL
- EDIT                        EDIT [member Name]
- CHANGE                    CHANGE str1 str2 [range] ALL

7.2: ISPF

## Primary Commands

### ■ Primary Commands

- FIND            FIND str1
- HEX            HEX ON / OFF
- LOCATE        LOCATE [NUMBER]
- SAVE
- UNDO
- UNNUM
- RENUM
- RESET
- REPLACE       REPLACE [memembr Name]

7.2: ISPF

## DSLIST Commands

### ■ DSLIST Commands

- M Member list
- C Catalog a dataset
- D Delete a dataset
- E Edit a dataset
- F Free unused space in a dataset
- I Display information for a dataset
- M Display a member list
- P Print a dataset
- R Rename a dataset
- S Display a shortened version of dataset information

7.2: ISPF

## DLIST Commands

### ■ DSLIST Commands

- U           Uncatalog a dataset
- X           Print a dataset indexed listing
- Z           Compress a dataset
- =           Repeat the last command

### ■ MEMBER SELECTION LIST Commands

- S           Select Member
- D           Delete Member
- B           Browse Member
- E           Edit Member

7.2: ISPF

## ISPF Main Menu

### ■ TSO / ISPF MAIN Menu

```

----- ISPF/PDF PRIMARY OPTION MENU -----
OPTION ==> pfshow

0 ISPF PARMS      - Specify terminal and user parameters      USERID - iGTRN01
1 BROWSE          - Display source data or output listings    TIME   - 06:58
2 EDIT            - Create or change source data              TERMINAL - 3278
3 UTILITIES       - Perform utility functions                  PF KEYS - 12
4 FOREGROUND      - Invoke language processors in foreground
5 BATCH           - Submit job for language processing
6 COMMAND          - Enter TSO Command, CLIST, or REXX exec
7 DIALOG TEST     - Perform dialog testing
8 LM UTILITIES    - Perform library administrator utility functions
9 IBM PRODUCTS    - Additional IBM program development products
10 SCLM           - Software Configuration and Library Manager
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
D DATACENTER      - Perform Datacenter Defined Functions
S SDSF            - Spool Display and Search Facility
U USER           - Perform User Defined Functions
F1=HELP   F2=SPLIT F3=END   F4=RETURN F5=RFIND F6=RCHANGE
F7=UP     F8=DOWN  F9=SWAP  F10=LEFT  F11=RIGHT F12=RETRIEVE

```

7.2: ISPF

## ISPF Utilities Menu

### ■ ISPF Option 3

UTILITY SELECTION MENU	
OPTION ==>	
1 LIBRARY	- Compress or print data set. Print index listing. Print, rename, delete, browse, or edit 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 menus/messages to new format
11 FORMAT	- Format definition for formatted data Edit/Browse
12 SUPERC	- Compare data sets (Standard Dialog)
13 SUPERCE	- Compare data sets and Search-for strings (Extended Dialog)
14 SEARCH-FOR	- Search data sets for strings of data (Standard Dialog)

7.2: ISPF

## ISPF Utilities Menu

### ■ ISPF Library Utility ( Option 3.1)

```
----- 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        E - Edit member
                               S - Data set information (short)

ISPF LIBRARY:
PROJECT ==> DA0034T
GROUP  ==> TRG   ==>   ==>   ==>
TYPE   ==> JCL
MEMBER ==>      (If "P", "R", "D", "B", "E" or blank selected)
NEWNAME ==>     (If "R" selected)

OTHER PARTITIONED OR SEQUENTIAL DATA SET:

DATA SET NAME ==>
VOLUME SERIAL ==>   (If not cataloged)
DATA SET PASSWORD ==> (If password protected)
```

7.2: ISPF

## ISPF Utilities Menu

### ■ ISPF Dataset Utility ( Option 3.2 )

```
----- 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  M - Enhanced data set allocation

ISPF LIBRARY:
PROJECT ==> DA0034T
GROUP  ==> TRG
TYPE   ==> JCL

OTHER PARTITIONED OR SEQUENTIAL DATA SET:

DATA SET NAME ==>
VOLUME SERIAL ==> (If not cataloged, required for option "C")
DATA SET PASSWORD ==> (If password protected)
```



7.2: ISPF

## ISPF Utilities Menu

- New dataset allocation ( option 3.2.A )

```
----- ALLOCATE NEW DATA SET -----  
COMMAND ==>  
DATA SET NAME: DA0034T.TRG.JCLS  
VOLUME SERIAL      ==> BS3008      (Blank for authorized default volume)  
GENERIC UNIT        ==>              (Generic group name or unit address)  
SPACE UNITS         ==> BLOCK      (BLKS, TRKS, or CYLS)  
PRIMARY QUANTITY    ==> 26         (In above units)  
SECONDARY QUANTITY  ==> 12         (In above units)  
DIRECTORY BLOCKS    ==> 0          (Zero for sequential data set)  
RECORD FORMAT       ==> FB  
RECORD LENGTH       ==> 150  
BLOCK SIZE          ==> 1500  
EXPIRATION DATE     ==>              (YY/MM/DD, YYYY/MM/DD  
                                YY.DDD, YYYY.DDD in Julian form DDDD for retention period in days or blank)  
                                ( * Only one of these fields may be specified)
```

7.2: ISPF

## ISPF Utilities Menu

### ■ Renaming Dataset ( Option 3.2.R )

```
----- RENAME DATA SET -----  
COMMAND ==>  
  
DATA SET NAME: DA0034T.TRG.JCL  
VOLUME:      BS3008  
ENTER NEW NAME BELOW:  (The data set will be recataloged.)  
  
ISPF LIBRARY:  
PROJECT ==> DA0034T  
GROUP  ==> TRG  
TYPE   ==> JCL  
  
OTHER PARTITIONED OR SEQUENTIAL DATA SET:  
DATA SET NAME ==>
```

7.2: ISPF

## ISPF Utilities Menu

### ■ Dataset information ( Option 3.2.s )

```
----- DATA SET INFORMATION -----  
COMMAND ==>  
DATA SET NAME: DA0034T.TRG.JCL  
GENERAL DATA:                                CURRENT ALLOCATION:  
Management class:                               Allocated blocks:      26  
Storage class:                                   Allocated extents:         1  
Volume: BS3008                               Maximum dir. blocks:       1  
Device type: 3390  
Data class:  
Organization: PO                                CURRENT UTILIZATION:  
Record format: FB                               Used blocks:               11  
Record length: 150                             Used extents:              1  
Block size: 1500                               Used dir. blocks:         1  
1st extent blocks: 26                           Number of members:        5  
Secondary blocks: 12  
Data set name type: PDS  
Creation date: 1996/08/08  
Expiration date: ***NONE***
```

7.2: ISPF

## ISPF Utilities Menu

- Allocate datasets managed by SMS

```

----- ALLOCATE NEW DATA SET -----
COMMAND ==>
DATA SET NAME: DA0034T.TRG.JCL
MANAGEMENT CLASS ==> MCSTANDS (Blank for default management class)
STORAGE CLASS ==> SCNORM (Blank for default storage class)
VOLUME SERIAL ==> (Blank for authorized default volume)
DATA CLASS ==> (Blank for default data class)
SPACE UNITS ==> BLOCK (BLKS, TRKS, CYLS, KB, MB or BYTES)
PRIMARY QUANTITY ==> 26 (In above units)
SECONDARY QUANTITY ==> 12 (In above units)
DIRECTORY BLOCKS ==> 1 (Zero for sequential data set) *
RECORD FORMAT ==> FB
RECORD LENGTH ==> 150
BLOCK SIZE ==> 1500
DATA SET NAME TYPE ==> PDS (LIBRARY, PDS, or blank) *
EXPIRATION DATE ==> (YY/MM/DD, YYYY/MM/DD
YY.DDD, YYYY.DDD in Julian form
DDD for retention period in days
or blank)
(* Specifying LIBRARY may override zero directory block)

```

7.2: ISPF

## ISPF Utilities Menu

## ■ Move / Copy ( Option 3.3)

```

----- 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
L - Copy and LMF lock member(s)     LP - Copy, LMF lock, and print
P - LMF Promote data set or member(s) PP - LMF Promote and print

SPECIFY "FROM" DATA SET BELOW, THEN PRESS ENTER KEY

FROM ISPF LIBRARY: ----- Options C, CP, L, and LP only -----
PROJECT ==> DA0034T
GROUP   ==> TRG   ==>      ==>      ==>
TYPE    ==> JCL
MEMBER  ==>      (Blank or pattern for member selection 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)

```

7.2: ISPF

## ISPF Utilities Menu

### ■ Move / Copy ( Option 3.3)

```
COPY --- FROM DA0034T.TRG.JCL -----  
COMMAND ==>  
  
SPECIFY "TO" DATA SET BELOW.  
  
TO ISPF LIBRARY:  
PROJECT ==> DA0034T  
GROUP   ==> TRG  
TYPE    ==> JCL  
  
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:  
IF PARTITIONED, REPLACE LIKE-NAMED MEMBERS ==> YES  (YES or NO)  
IF SEQUENTIAL, "TO" DATA SET DISPOSITION  ==> OLD  (OLD or MOD)  
SPECIFY PACK OPTION FOR "TO" DATA SET      ==>      (YES, NO or blank)
```

7.2: ISPF

## ISPF Utilities Menu

## ■ DSLIST Utility ( Option 3.4)

```

----- 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 ==> DA0034T.TRG.*
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 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 cmd, CLIST or REXX exec

```

7.2: ISPF


ISPF Utilities Menu

■ DSLIST Dataset Selection

DSLIST - DATA SETS BEGINNING WITH DA0034T.TRG.\* ----- ROW 1 OF 23

COMMAND ===>SCROLL ===> PAGE

COMMAND	NAME	MESSAGE	VOLUME
	DA0034T.TRG.ACCOUNT	MIGRAT	
	DA0034T.TRG.BADCOBOL	MIGRAT	
	DA0034T.TRG.COBOL	MIGRAT	
	DA0034T.TRG.COBOL1	MIGRAT	
m	DA0034T.TRG.JC	BS3008	
	DA0034T.TRG.LNK	MIGRAT	

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## Demo

- Working with TSO and ISPF



## Summary

- In this lesson, you have learnt:
  - TSO is a MVS component that lets terminal users access MVS facilities.
  - ISPF runs under the control of TSO, provides program facility to manage background job-processing.
  - RACF is used for security, VTAM is used for telecommunication, and CICS is used for interactive application development.



## Review Question: Match the Following

1. VTAM	a. TSO
2. CICS	b. Security Package
3. RACF	c. Utility program
4. ISPF	d. TC Access Method
5. SORT	e. Interactive Applications

