ISPF Users Boot Camp - Part 2 of 2

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Introduction

- **Our jobs require us to work with data**
  - ↓ Program code, Job Control Language (JCL) . . .

- **ISPF provides users with facilities to process data sets . . .**
  - ↓ Create, rename, and delete data sets
  - ↓ List data sets in the catalog or on a volume
  - ↓ List the members in a partitioned data set

- **. . . and process the data in these data sets**
  - ↓ The ISPF editor

Agenda

- **Data Sets**
  - ↓ Supported data set types
  - ↓ Naming conventions
  - ↓ ISPF Libraries
- **Creating and Copying Data Sets**
  - ↓ Utility Selection Panel
  - ↓ Creating data sets with the Data Set Utility
  - ↓ Copying data sets with the Move/Copy Utility
- **Using The ISPF Editor**
  - ↓ Invocation
  - ↓ Line Commands
  - ↓ Primary commands
  - ↓ Sample edit task
  - ↓ Edit Highlighting

Agenda…

- **The Data Set List Utility**
  - ↓ Invocation
  - ↓ List Views
  - ↓ Line Commands
  - ↓ Edit/View Interface
  - ↓ Move/Copy Interface
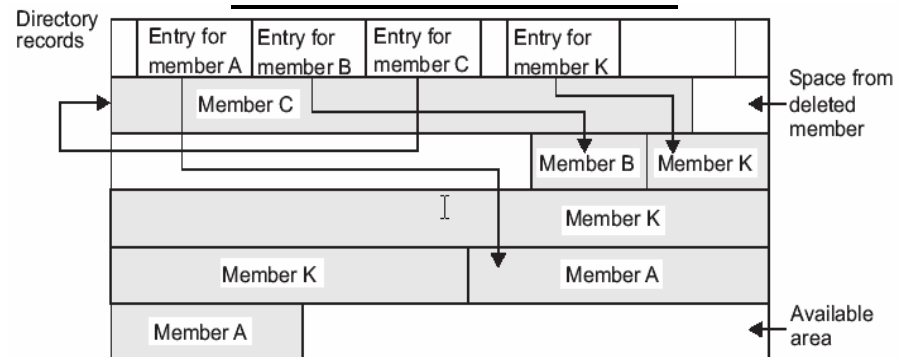 - ↓ Enhanced Member List
- **How to Learn More**

Supported Data Set Types

- **Data sets on DASD**
  - ↓ Tape data sets not supported
- **Sequential**
  - ↓ Contains records, retrieved in sequential order

Sequential Data Set

Record 1
Record 2
Record 3
.
.
.
Record n

- **Partitioned**
  - ↓ Collection of members
  - ↓ Directory index to locate members

Partitioned Data Set

A data set is an area that is reserved on either a tape or a Direct Access Storage Device (DASD) such as a disk and is used to hold a collection of logically related data. It may contain a source program, a library of macros, or a set of *data records* used by a processing program. *Data records* are the basic unit of information used by a processing program. ISPF provides many functions for processing data sets, such as Edit, Browse, and Delete. The data set types supported by ISPF are:

- Sequential
- Partitioned

ISPF only supports data sets that reside on DASD. There is no support for the processing of tape data sets.

In a *sequential data set*, records are stored and retrieved in a sequential order.

A *partitioned data set* is like a collection of sequential data sets, called members, each one having a name. A directory index is used to locate members in the partitioned data set. The directory consists of 256-byte records, each one containing directory entries. There is one directory entry for each member.

Data Set and Member Naming Conventions

- **Data Set Name**
  - ↓ Maximum 44 characters
  - ↓ Maximum of 22 name segments (level qualifiers)
    - First – High Level Qualifier (HLQ)
    - Last – Low Level Qualifier (LLQ)
    - Level qualifiers separated by a period character (.)
  - ↓ Each level qualifier:
    - From 1 to 8 characters
    - First must be alphabetic (A-Z) or national (@ # $)
    - Remainder – alphabetic, national, numeric (0-9) or hyphen (-)
  - ↓ e.g. `MYID.JCL.FILE1`   HLQ: `MYID`   3 qualifiers
- **Member Name of Partitioned Data Set**
  - ↓ 8 characters
  - ↓ First must be alphabetic (A-Z) or national (@ # $)
  - ↓ Remainder – alphabetic, national, numeric (0-9)

ISPF allows you to create data sets and member names that follow the naming conventions described above. All data sets and member names created within ISPF are converted to uppercase.

ISPF Libraries

- **Partitioned data set**

- **Cataloged**

- **Three level data set name**
  - ↓ Format:
    `'project.group.type'`

- **Supported on many ISPF panels**
  - ↓ Edit, Browse, Utilities

- **Multiple Group fields supports concatenation of libraries**

```
ISPF Library:
  Project . . . PDFTDEV
  Group . . . . VANDYKE  . . . STG     . . . INT     . . . SYT
  Type  . . . . GML
  Member  . . . ISR3U300 _      (Blank or pattern for member selection list)
```

- **Data sets that are not ISPF libraries are entered here**
  - ↓ **Volume** field for uncataloged data sets

```
Other Partitioned, Sequential or VSAM Data Set:
  Data Set Name . . . cobol.source
  Volume Serial . . . _____     (If not cataloged)
```

A number of ISPF data entry panels allow you to specify an ISPF library. An ISPF library is a cataloged partitioned data set with a three-level data set name of the form '**project.group.type**' where:

Project - is a common identifier for all ISPF libraries belonging to the same programming project.

Group - is an identifier for a particular set of ISPF libraries, that is, the level of the libraries within the library hierarchy.

Type - is an identifier for the type of information in the ISPF library, such as PL/I, SCRIPT, or PANELS.

Some panels (e.g. Edit, Browse, the Move/Copy Utility) have 4 Group fields supporting the concatenation of up to 4 libraries with the same Project and Type. In this example above, the search for member "ISR3U300" would proceed through libraries:

"PDFTDEV.VANDYKE.GML"

"PDFTDEV.STG.GML"

"PDFTDEV.INT.GML"

"PDFTDEV.SVT.GML"

After member ISR3U300 is edited it is saved in the first library, in this case "PDFTDEV.VANDYKE.GML". Thus, previously developed members become available for you to update in your own library.

A data set that is not an ISPF library can be entered on the "Other" data set field. You can enter any fully qualified data set name by enclosing it in apostrophes. If you omit the apostrophes, your TSO prefix is left-appended to the data set name. A member name or pattern enclosed in parentheses may follow the data set name. Whenever "other" data set name is entered, it is used even if an ISPF library is also entered.

Utility Selection Panel – ISPF Option 3

- Specifying option 3 on the ISPF Primary Options panel displays the Utility Selection Panel

```
 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)
16  Tables     ISPF Table Utility
```

The ISPF Utility Selection Panel provides a variety of options for processing data sets, such as:

- Compressing or printing data sets
- Creating, renaming, and deleting data sets
- Moving or copying data sets or members
- Searching for strings in data sets
- Comparing data sets

Creating Data Sets – ISPF Option 3.2

- Specifying option 2 on the Utility Selection Panel displays the Data Set Utility panel

Use option A to allocate (create) a new data set

New data set name

```
  Menu  RefList  Utilities  Help

                          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 Short data set information
 blank Data set information              V VSAM Utilities

 ISPF Library:
    Project . . . PDFTDEV          Enter "/" to select option
    Group . . . . INT              /  Confirm Data Set Delete
    Type . . . . . GML

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

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

Before you can edit or store data in a data set, you must instruct the system to allocate some space on disk and provide information to identify the format of this data set. This can be done using ISPF option 3.2 – the Data Set Utility.

The Data Set Utility panel presents a variety of actions you can perform. You can allocate, delete, rename, catalog, uncatalog, or obtain information about a specific data set.

To allocate a new data set, **A** is typed in the Option field and the name of the data set must be specified:

- A name with 3 level qualifiers can be entered in the Project, Group, and Type fields (ISPF Library).
- The data set name can also be entered in the Data Set Name field. If a value is specified here, it takes priority over the values entered in the ISPF Library fields.

Defining a New Data Set

```
   Menu  RefList  Utilities  Help

                        Allocate New Data Set
Command ===>

Data Set Name . . . . : VANDYKE.COBOL.SOURCE

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  . .   10         (In above units)
Secondary quantity  .   5          (In above units)
Directory blocks  . .   10         (Zero for sequential data set) *
Record format . . . .   FB
Record length . . . .   80
Block size  . . . . .   27920
Data set name type      library    (LIBRARY, HFS, PDS, LARGE, BASIC, *
                                    EXTREQ, EXTPREF 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)

( * Specifying LIBRARY may override zero directory block)

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

General rule: SMS classes, volume serial, and device type can be left blank

Specify LIBRARY or PDS for a partitioned data set that can contain members

Note: ISPF will "prime" input fields with values from most recent Data Set Information display.

After specifying option **A** and pressing enter on the Data Set Utility panel, the Allocate New Data Set panel is displayed. This panel shows the information you have to provide in order to allocate a new data set.

The example above shows information entered to allocate a partitioned data set (PDS). Partitioned data sets are particularly useful since they allow related sets of data to be grouped together in the same data set as members (eg. Have all your COBOL programs in the same PDS/E).

The data set information option (blank) on the Data Set Utility panel displays a panel showing the attributes for a data set. ISPF takes the data from the most recent Data Set Information display to pre-enter fields on the Allocate New Data Set panel.

Most sites use DFSMS to control data set allocation which means it is not necessary to specify values for Management class, Storage class, Data class, and Device type.

In general when allocating a new data set, values must be specified for the following fields:

Space units   - the space allocation units for the data set

Primary quantity   - the amount of primary space to be allocated

Secondary quantity   - the space allocated for secondary extents (used when the primary quantity fills up).

Directory blocks   - Number of blocks allocated for the index in a partitioned data set.

Record format   - The format of the records in the data set (e.g. FB for fixed blocked).

Record length   - The logical record length, in bytes, of the records in the data set.

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

Copying Data Sets and Members – ISPF Option 3.3

- Specifying option 3 on the Utility Selection Panel displays the Move/Copy Utility panel

```
 Menu   RefList   Utilities   Help
                          Move/Copy Utility
 Option ===>  c

 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 . . . PDFTDEV        (--- Options C and CP only      ---)
     Group . . . . VANDYKE  . . . STG      . . . INT      . . . SVT
     Type  . . . . GML
     Member  . . .                (Blank or pattern for member list,
                                   "*" for all members)


 From Other Partitioned or Sequential Data Set:
     Data Set Name . . 'iqu.siqusamp(iqutc*)'
     Volume Serial . . .                (If not cataloged)

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

Use option C to copy a data set or member(s)

"From" (source) data set and members

Programmers rarely, if ever, write a new program from scratch. They will copy the source for another program and modify it according to the requirements for the new program. The copying of data can be done using ISPF option 3.3 – the Move/Copy Utility.

To copy a data set or members, **C** is typed in the Option field and the name of the data set (and members) to be copied must be specified:

- A name with 3 level qualifiers can be entered in the Project, Group, and Type fields (ISPF Library).
- The data set name can also be entered in the Data Set Name field. If a value is specified here, it takes priority over the values entered in the ISPF Library fields.

For a partitioned data set (PDS), a specific or generic member name can also be supplied. If, for a PDS, no member name is specified or a generic member name is specified, a member selection list is displayed after enter is pressed.

In the example above, the user has requested a member list displaying the members in data set 'IGY.SIGYSAMP' with a name starting with IGYTC.

Copying Data Sets and Members – ISPF Option 3.3…

"To" (target) data set

After specifying option **C** and a "From" data set and pressing enter on the Move/Copy Utility panel, a panel is displayed allowing the "To" or target data set to be specified. This panel also allows options to be set to control the copy process.

In the example above, the user has requested to have data copied into the data set '*userid*.COBOL.SOURCE'.

Copying Data Sets and Members – ISPF Option 3.3…

Use the S (select) line command to identify the members to be copied

```
  Menu   Functions  Utilities  Help

 COPY         IGY.SIGYSAMP         TO VANDYKE.COBOL.SOURCE   Row 00001 of 00009
 Command ===>                                               Scroll ===> CSR
    Name      Prompt        Size   Created        Changed          ID
 s IGYTCARA
 s IGYTCARB  _
 . IGYTCNV
 . IGYTCODE
 . IGYTCPER
 . IGYTCPIP
 . IGYTCPMD
 . IGYTCPMS
 . IGYTCRC
   **End**
```

Message indicates members successfully copied

```
  Menu   Functions  Utilities  Help

 COPY         IGY.SIGYSAMP         TO VANDYKE.COBOL.SOURCE   Row 00001 of 00009
 Command ===> _                                             Scroll ===> CSR
    Name      Prompt        Size   Created        Changed          ID
 . IGYTCARA *COPIED
 . IGYTCARB *COPIED
 . IGYTCNV
 . IGYTCODE
 . IGYTCPER
 . IGYTCPIP
 . IGYTCPMD
 . IGYTCPMS
 . IGYTCRC
   **End**
```

After specifying the "To" data set and pressing enter, a member selection list is displayed if a generic member name or no member names was specified for the "From" data set. The member selection list panel allows you to identify the members to be copied by entering an S in the selection field.

In the example above, the member selection list shows all the members in PDS "IGY.SIGYSAMP" which have a name beginning with IGYTC. The user has selected members IGYTCARA and IGYTCARB to be copied. After pressing enter, ISPF re-displays the selection list with the message ***COPIED** against the members that were successfully copied into the "To" data set.

The ISPF Editor - Overview

- **Supported data sets – record oriented**

  ↓ Partitioned data sets – members

  ↓ Sequential data sets

  ↓ Record Format – F (fixed) or V (variable); blocked or unblocked

  ↓ Data (record) length – up to 32760 bytes

- **Full screen editor**

  ↓ Each line of data represents a record in the data set

  ↓ Data can be scrolled up, down, left, and right

  ↓ Changes made by overtyping displayed data

  ↓ Line commands for line (record) oriented editing operations

  ↓ Primary commands for general editing operations

You can use the ISPF editor to create, display, and change data stored in ISPF libraries or other partitioned or sequential data sets with the following characteristics:

- Record Format
- Fixed or variable
- Blocked or unblocked
- Logical Record Length
    - From 1 to 32760, inclusive, for fixed-length records
    - From 5 to 32756, inclusive, for variable-length records.

The ISPF editor is a full screen editor. It displays a full screen of data, and allows you to overtype any data that is being displayed. You can scroll the data in any direction (up, down, left or right) by a half or full page, or by any number of lines (or columns). You perform line-oriented editing operations by entering a line command directly on the line that is affected. You perform general editing operations by entering primary commands in the command field on line 2 of the display.

Edit Entry Panel – ISPF Option 2

ISPF Library – values "remembered" by ISPF

"Other" data set – has priority over ISPF library

```
 Menu  RefList  RefMode  Utilities  Workstation  Help
 ──────────────────────────────────────────────────────────
                          Edit Entry Panel
 Command ===> _____

 ISPF Library:
    Project . . . PDFTDEV
    Group . . . . INT      . . . SVT      . . . _____ . . . _____
    Type  . . . . GML
    Member  . . . _____      (Blank or pattern for member selection list)

 Other Partitioned, Sequential or VSAM Data Set:
    Data Set Name . . . 'pdftool.common.exec'_
    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
```

When you select option **2** from the primary option menu, the edit entry panel is displayed. The panel provides ISPF library and "Other" data set name fields for you to specify the name of the data set or member to be edited.

In the example above, the user has specified the name of the partitioned data set "PDFTOOL.COMMON.EXEC" in the "Other" Data Set Name field. No member name is specified.

Edit – Member Selection List

Selection list can be scrolled using the LOCATE (L) primary command

```
   Menu   Functions   Utilities   Help
EDIT      PDFTOOL.COMMON.EXEC                        Row 00001 of 00185
Command ===> l isro_                                 Scroll ===> PAGE
   Name       Prompt          Size    Created        Changed          ID
.  $INDEX                       26    1995/07/20     2001/09/05 01:10:44  P020136
.  A                             3    2000/05/16     2001/09/21 15:00:25  GRAHAMP
.  ALLMBRS                      72    1997/04/02     1997/04/02 09:57:48  PDFTOOL
.  ALLMEMS                      73    1996/06/03     2000/11/02 15:03:53  PDFTOOL
.  ALLOCADC                    954    2004/08/31     2004/09/02 15:39:23  ACOOK2
.  ALLOCBAK                    960    2005/04/19     2005/04/19 10:09:24  ACOOK
.  ALLOCPD#                    965    2005/08/15     2005/08/15 14:45:31  LEEBUR2
.  ALLOCPDF                    978    2002/09/16     2006/05/09 15:26:32  HANKO
.  ALLOCTST                    943    2001/09/20     2003/04/29 09:10:55  HANKO
.  APARCHK                      21    1995/04/20     1995/05/04 12:42:44  PDFTOOL
.  APARCLS                     289    1995/07/26     1995/07/26 17:21:37  PERLOVS
.  APARCOPY                     38    1994/10/13     2000/06/09 20:02:00  P020136
.  APARLIST                      4    1996/10/18     1996/10/18 16:15:22  PDFTOOL
.  AREA                        703    1998/07/09     1998/07/10 17:03:41  PDFTOOL
.  AREA2                        70    1998/07/09     1998/07/10 17:28:20  P020136
```

Use the S (select) line command to identify the member to edit

```
   Menu   Functions   Utilities   Help
EDIT      PDFTOOL.COMMON.EXEC                        Row 00055 of 00185
  Command ===>                                        Scroll ===> PAGE
   Name       Prompt          Size    Created        Changed          ID
.  ISREDITD                     16    2000/02/21     2000/02/21 09:00:42  PDFTOOL
s  ISRONLY                     110    2002/07/26     2002/07/26 13:28:49  VANDYKE
.  JULIAN                       64    1996/01/02     1996/01/02 10:16:07  PDFTOOL
.  LINEMAC                      77    2001/09/21     2001/09/21 15:22:19  GRAHAMP
.  LISTCHK                     127    1998/03/20     1998/03/25 16:02:32  PDFTOOL
.  LISTCHK2                     34    1998/03/24     1998/03/24 15:16:40  PDFTOOL
.  LISTCL                       48    1995/07/19     1995/07/19 17:14:17  PDFTOOL
.  LISTINGS                    173    1995/07/19     2001/05/31 15:22:52  P020136
.  LISTINGX                    156    1996/05/17     2001/09/05 03:48:59  PDFTOOL
.  LISTING2                      4    1995/07/19     1995/07/19 16:11:06  PDFTOOL
.  LISTING3                    149    1996/05/06     1997/11/17 20:35:56  PDFTOOL
.  LISTING4                    108    1996/05/09     1997/11/17 20:36:14  PDFTOOL
.  LISTING5                    173    1996/05/09     1996/10/22 10:37:42  P020136
.  LMFPRUNE                     76    1989/03/29     1989/05/17 16:59:00  PDFTOOL
.  LMFSQUEZ                     14    1989/03/29     1989/03/29 16:56:00  P020136
```

When you specify an ISPF library or other partitioned data set and enter a pattern or blanks for member name, a member selection list is displayed. You may scroll through the list via the UP and DOWN scroll commands or via the LOCATE command, and you may select one member at a time via the SELECT primary command or the S line command.

Edit – Display Screen Format

Title

Columns/Messages

Primary command field

Line command fields

Data Area

TITLE - identifies the name of the data set (and member) being edited. If ISPF statistics are present, the version/mod level is displayed.

COLUMNS/MESSAGES - normally shows the data columns that are being displayed. Short error messages or information messages are also displayed in this area, overlaying the column information.
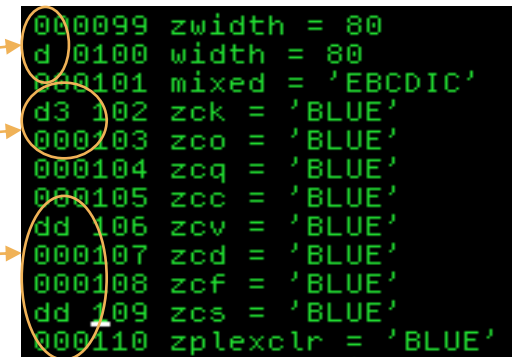
PRIMARY COMMAND FIELD - where primary commands (such as FIND) are entered.

LINE COMMAND FIELDS - normally shows the sequence number for each line. Each field is 6 columns wide. Line commands (such as R – repeat line) are typed in these fields, overlaying the sequence numbers.

DATA AREA - where the data is displayed. Each field extends to the full width of the display. To change data simply overtype it.

Edit Line Commands - Overview

- **Entered in the line command fields**

  - ↓ Column of 6 digit sequence numbers on the left of the display

  - ↓ Overtype sequence number with line command

- **Affect only a single line or multiple lines**

  - ↓ Delete one line

  - ↓ Delete 3 lines

  - ↓ Delete a block of 4 lines

- **Use to:**

  - ↓ Insert or delete lines

  - ↓ Repeat lines

  - ↓ Rearrange lines or overlay portions of line

  - ↓ Shift data

  - ↓ Include or exclude lines from the display

```
000099 zwidth = 80
d 0100 width = 80
000101 mixed = 'EBCDIC'
d3 102 zck = 'BLUE'
000 03 zco = 'BLUE'
000104 zcq = 'BLUE'
000105 zcc = 'BLUE'
dd 06 zcv = 'BLUE'
000107 zcd = 'BLUE'
000108 zcf = 'BLUE'
dd 109 zcs = 'BLUE'
000110 zplexclr = 'BLUE'
```

A line command is an edit command that is entered directly on the line to be processed. It is entered by overtyping the sequence number in the line command field at the beginning of the line.

Many of the line commands can refer to either a single line or multiple lines. An example is the **D** (delete) line command.

A single **D** deletes the line on which it is entered

A **D** followed by a number **n** deletes **n** lines starting at the line the on which the command was entered (e.g. **D3** deletes 3 lines).

A pair of **DD**s deletes a block of lines. A **DD** is entered on the first and last lines of the block to be deleted.

Edit Line Commands – Commonly Used

- **I** **- Insert lines**

- **D** **- Delete lines**

- **R** **- Repeat lines**

- **C** **- Copy lines**

- **M** **- Move lines**

- **A** **- After line**

- **B** **- Before line**

```
000099 zwidth = 80
c 0100 width = 80
000101 mixed = 'EBCDIC'
000102 zck = 'BLUE'
000103 zco = 'BLUE'
a 0104 zcq = 'BLUE'
000105 zcc = 'BLUE'
000106 zcv = 'BLUE'
000107 zcd = 'BLUE'
```

```
000099 zwidth = 80
000100 width = 80
000101 mixed = 'EBCDIC'
000102 zck = 'BLUE'
000103 zco = 'BLUE'
000104 zcq = 'BLUE'
000105 width = 80
000106 zcc = 'BLUE'
000107 zcv = 'BLUE'
000108 zcd = 'BLUE'
```

Three of the most commonly used line commands are I (insert), D (delete), and R (repeat). Together they provide the most basic line editing functions. The C (copy) and M (move) line commands are used to specify the source of a copy or move operation. The A (after) and B (before) line commands are used together with the C and M line commands to specify the destination of the copy/move operation.

To learn about line commands:

Type **?** in the line command field and press Enter. This causes a short Help message to appear at top right of the screen.

Press Help function key (PF1) and a long message appears.

Press Help again to display a help panel with all the line commands included.

There is also a help panel for each line command, showing its effect.

Edit Primary Commands - Overview

- **Entered in the command input (`Command ===>`) field**

- **Affect the entire data set being edited**

- **Use to:**

  ↓Find a specific line

  ↓Find and/or change a character string

  ↓Sort data

  ↓Delete lines

  ↓Control your editing environment

  ↓Combine several members into one

  ↓Split a member into two or more members

  ↓Save the edited data or cancel without saving

Edit primary commands are entered in the command input field. Primary commands affect the entire data set being edited.

As you can see from the list above, edit primary commands have a wide variety of functions. Often a primary command requires operands. Either a blank or a comma can be used as a separator between command operands.

Edit Primary Commands – Commonly Used

- `FIND`   find a specified character string

- `CHANGE`   find and then change a specified character string

- `RFIND`   locates the search string defined by the most recent FIND or CHANGE command (assigned to PF5 by ISPF)

- `RCHANGE`   repeats the change requested by the most recent CHANGE command (assigned to PF6 by ISPF)

- `COPY`   copy data from a member or sequential data set

- `LOCATE`   scroll up or down to a specified line

- `SAVE`   save the data without ending the edit session

- `CANCEL`   cancel edit without saving the data

- `END`   end edit session and save changes (assigned to PF3 by ISPF)

An easy way to access a tutorial about all Edit primary commands is:

Type **P** in the Command line and press Enter. You receive the message **"COMMAND P NOT FOUND"**. Press Enter; you receive a short message at the right top of the panel.

Press the Help function key (PF1); now you receive a long message.

Press the Help function key one more time; now you are in the tutorial of all Edit primary commands showing how each command works.

Using the Editor – A Sample Task

- **Create a new member in a partitioned data set used to hold JCL**

- **Copy the JCL from a member of another data set**

- **Make some changes by overtyping data**

- **Use the CHANGE command to change all occurrences of a character string**

- **Use the END command (PF3) to end the edit session and save the changes**

To illustrate some of the features of the ISPF editor we will take you through a typical task involving the use of the editor.

Using the Editor – A Sample Task…

Create new member
ISPFBAT in partitioned
data set *userid*.JCLLIB

```
   Menu   RefList   RefMode   Utilities   Workstation   Help
                              Edit Entry Panel
Command ===> _____

ISPF Library:
   Project . . . PDFTDEY
   Group . . . . INT_____ . . . SVT_____ . . . _____ . . . _____
   Type  . . . . GML_____
   Member  . . . _____         (Blank or pattern for member selection list)

Other Partitioned, Sequential or VSAM Data Set:
   Data Set Name . . . jcllib(ispfbat)_
   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
```

Edit session for new
member

↓ Empty data lines

↓ Line number fields set to
quote marks

```
   File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help
EDIT       VANDYKE.JCLLIB(ISPFBAT) - 01.00              Columns 00001 00080
Command ===> _                                           Scroll ===> CSR
****** ************************************** Top of Data *******************************
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
```

When you specify to edit an empty sequential data set or nonexistent member of a partitioned data set, the first edit display contains several empty lines between the **"Top of Data"** and **"Bottom of Data"** message lines. The editor replaces the quote marks on the left of the panel with sequence numbers when you type information on the lines.

Using the Editor – A Sample Task…

```
   File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help
EDIT        VANDYKE.JCLLIB(ISPFBAT) - 01.00              Columns 00001 00080
Command ===> copy 'pvandyk.jcllib(ispfjob)               Scroll ===> CSR
****** **************************** Top of Data ********************************
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
```

Use the **COPY** primary command to copy the data from member ISPFJOB in partitioned data set PVANDYK.JCLLIB

↓ Message indicates COPY command is successful

↓ Copied data shown in data display area

↓ Sequence numbers now in line number fields

```
   File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help
EDIT        VANDYKE.JCLLIB(ISPFBAT) - 01.00            Member ISPFJOB copied
Command ===> _                                           Scroll ===> CSR
****** **************************** Top of Data ********************************
000001 //PVANDYKC JOB (ISPF),'ISPF BATCH',MSGCLASS=X,
000002 //          CLASS=A,NOTIFY=&SYSUID
000003 //*
000004 //ISPFSTP   EXEC PGM=IKJEFT01,DYNAMNBR=30
000005 //SYSEXEC   DD DSN=PVANDYK.EXEC,DISP=SHR
000006 //SYSPROC   DD DSN=PVANDYK.CLIST,DISP=SHR
000007 //ISPPROF   DD RECFM=FB,LRECL=80,SPACE=(TRK,(1,1,2))
000008 //ISPMLIB   DD DSN=ISP.SISPMENU,DISP=SHR
000009 //ISPPLIB   DD DSN=ISP.SISPPENU,DISP=SHR
000010 //ISPSLIB   DD DSN=ISP.SISPSENU,DISP=SHR
000011 //ISPTLIB   DD DISP=(NEW,DELETE),RECFM=FB,LRECL=80,
000012 //          SPACE=(TRK,(1,0,1))
000013 //          DD DSN=ISP.SISPTENU,DISP=SHR
000014 //ISPCTL1   DD SPACE=(CYL,1),RECFM=FB,LRECL=80
000015 //ISPLOG    DD SYSOUT=*,RECFM=FB,LRECL=133
000016 //ISPTRACE  DD DSN=NULLFILE
000017 //ISPLLIB   DD DSN=PDFTDEV.PVANDYK.LOAD,DISP=SHR
000018 //          DD DSN=PDFTDEV.STG.LOAD,DISP=SHR
000019 //          DD DSN=PDFTDEV.INT.LOAD,DISP=SHR
000020 //          DD DSN=PDFTDEV.SVT.LOAD,DISP=SHR
000021 //SYSTSPRT  DD SYSOUT=*
000022 //SYSPRINT  DD SYSOUT=*
000023 //SYSTSIN   DD *
000024    ISPSTART CMD(%TX 1A)
****** ************************** Bottom of Data *******************************
```

While you are editing, you can copy data set or member into the current data by using the COPY primary command. The COPY command can optionally be followed by the name of the member or data set to be copied. If you omit the member or data set name, the editor displays a panel on which you can specify the name of the member or data set to be copied.

If the COPY command works successfully, the editor displays a message indicating success, the copied data is can be seen in the data display area, and sequence numbers are placed in the line number fields for the copied lines.

Using the Editor – A Sample Task…

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
 ─────────────────────────────────────────────────────────────────────────
EDIT       VANDYKE.JCLLIB(ISPFBAT) - 01.00          Member ISPFJOB copied
Command ===>                                          Scroll ===> CSR
****** ***************************** Top of Data ********************************
000001 //PYANDYKC JOB (ISPF),'ISPF BATCH job',MSGCLASS=X,
000002 //            CLASS=A,NOTIFY=&SYSUID
000003 //*
000004 //ISPFSTP  EXEC PGM=IKJEFT01,DYNAMNBR=30
000005 //SYSEXEC  DD DSN=PYANDYK.EXEC,DISP=SHR
000006 //SYSPROC  DD DSN=PYANDYK.CLIST,DISP=SHR
000007 //ISPPROF  DD RECFM=FB,LRECL=80,SPACE=(TRK,(1,1,2))
000008 //ISPMLIB  DD DSN=ISP.SISPMENU,DISP=SHR
000009 //ISPPLIB  DD DSN=ISP.SISPPENU,DISP=SHR
000010 //ISPSLIB  DD DSN=ISP.SISPSENU,DISP=SHR
000011 //ISPTLIB  DD DISP=(NEW,DELETE),RECFM=FB,LRECL=80,
000012 //            SPACE=(TRK,(1,0,1))
000013 //         DD DSN=ISP.SISPTENU,DISP=SHR
000014 //ISPCTL1  DD SPACE=(CYL,1),RECFM=FB,LRECL=80
000015 //ISPLOG   DD SYSOUT=*,RECFM=FB,LRECL=133
000016 //ISPTRACE DD DSN=NULLFILE
000017 //ISPLLIB  DD DSN=PDFTDEV.PYANDYK.LOAD,DISP=SHR
000018 //         DD DSN=PDFTDEV.STG.LOAD,DISP=SHR
000019 //         DD DSN=PDFTDEV.INT.LOAD,DISP=SHR
000020 //         DD DSN=PDFTDEV.SVT.LOAD,DISP=SHR
000021 //SYSTSPRT DD SYSOUT=*
000022 //SYSPRINT DD SYSOUT=*
000023 //SYSTSIN  DD *
000024   ISPSTART CMD(%zbdmax)_
****** ***************************** Bottom of Data *****************************
```

Able to modify data in the data display area

↓Data inserted

↓Data overtyped

The editor displays the data in a series of unprotected (modifiable) fields, allowing you to change the data using keyboard functions. To alter data, type over the existing material or use the Ins (Insert) and Del (Delete) keys to add or remove characters.

Using the Editor – A Sample Task…

Use **CHANGE** primary command to change all occurrences of **PVANDYK** to **VANDYKE**

```
   File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help
EDIT         VANDYKE.JCLLIB(ISPFBAT) - 01.00                Columns 00001 00080
Command ===    c PYANDYK VANDYKE all_                       Scroll ===> CSR
****** ******************************** Top of Data ********************************
000001  //PYANDYKC JOB (ISPF),'ISPF BATCH JOB',MSGCLASS=X,
000002  //            CLASS=A,NOTIFY=&SYSUID
000003  //*
000004  //ISPFSTP   EXEC PGM=IKJEFT01,DYNAMNBR=30
000005  //SYSEXEC   DD DSN=PYANDYK.EXEC,DISP=SHR
000006  //SYSPROC   DD DSN=PYANDYK.CLIST,DISP=SHR
000007  //ISPPROF   DD RECFM=FB,LRECL=80,SPACE=(TRK,(1,1,2))
000008  //ISPMLIB   DD DSN=ISP.SISPMENU,DISP=SHR
000009  //ISPPLIB   DD DSN=ISP.SISPPENU,DISP=SHR
000010  //ISPSLIB   DD DSN=ISP.SISPSENU,DISP=SHR
000011  //ISPTLIB   DD DISP=(NEW,DELETE),RECFM=FB,LRECL=80,
000012  //            SPACE=(TRK,(1,0,1))
000013  //            DD DSN=ISP.SISPTENU,DISP=SHR
000014  //ISPCTL1   DD SPACE=(CYL,1),RECFM=FB,LRECL=80
000015  //ISPLOG    DD SYSOUT=*,RECFM=FB,LRECL=133
000016  //ISPTRACE  DD DSN=NULLFILE
000017  //ISPLLIB   DD DSN=PDFTDEV.PYANDYK.LOAD,DISP=SHR
000018  //            DD DSN=PDFTDEV.STG.LOAD,DISP=SHR
000019  //            DD DSN=PDFTDEV.INT.LOAD,DISP=SHR
000020  //            DD DSN=PDFTDEV.SVT.LOAD,DISP=SHR
000021  //SYSTSPRT DD SYSOUT=*
000022  //SYSPRINT DD SYSOUT=*
000023  //SYSTSIN  DD *
000024     ISPSTART CMD(%ZBDMAX)
****** ******************************** Bottom of Data ******************************
```

Message displayed to indicate the success of the **CHANGE** command

```
   File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help
EDIT         VANDYKE.JCLLIB(ISPFBAT) - 01.01                CHARS 'PYANDYK' changed
Command ===                                                 Scroll ===> CSR
****** ******************************** Top of Data ********************************
==CHG> //YANDYKEC JOB (ISPF),'ISPF BATCH JOB',MSGCLASS=X,
000002  //            CLASS=A,NOTIFY=&SYSUID
000003  //*
000004  //ISPFSTP   EXEC PGM=IKJEFT01,DYNAMNBR=30
==CHG> //SYSEXEC   DD DSN=YANDYKE.EXEC,DISP=SHR
==CHG> //SYSPROC   DD DSN=YANDYKE.CLIST,DISP=SHR
000007  //ISPPROF   DD RECFM=FB,LRECL=80,SPACE=(TRK,(1,1,2))
000008  //ISPMLIB   DD DSN=ISP.SISPMENU,DISP=SHR
000009  //ISPPLIB   DD DSN=ISP.SISPPENU,DISP=SHR
000010  //ISPSLIB   DD DSN=ISP.SISPSENU,DISP=SHR
000011  //ISPTLIB   DD DISP=(NEW,DELETE),RECFM=FB,LRECL=80,
000012  //            SPACE=(TRK,(1,0,1))
000013  //            DD DSN=ISP.SISPTENU,DISP=SHR
000014  //ISPCTL1   DD SPACE=(CYL,1),RECFM=FB,LRECL=80
000015  //ISPLOG    DD SYSOUT=*,RECFM=FB,LRECL=133
000016  //ISPTRACE  DD DSN=NULLFILE
==CHG> //ISPLLIB   DD DSN=PDFTDEV.YANDYKE.LOAD,DISP=SHR
000018  //            DD DSN=PDFTDEV.STG.LOAD,DISP=SHR
000019  //            DD DSN=PDFTDEV.INT.LOAD,DISP=SHR
000020  //            DD DSN=PDFTDEV.SVT.LOAD,DISP=SHR
000021  //SYSTSPRT DD SYSOUT=*
000022  //SYSPRINT DD SYSOUT=*
000023  //SYSTSIN  DD *
000024     ISPSTART CMD(%ZBDMAX)
****** ******************************** Bottom of Data ******************************
```

Lines changed by the **CHANGE** command are flagged with `==CHG` in the line command field

The **CHANGE** primary command (which can be abbreviated to **C**) can be used to change all occurrences of a string within the file to another value. The editor flags all lines where the string was changed with **==CHG** displayed in the associated line command field.

Using the Editor – A Sample Task…

Issuing **END** command (PF3) in the editor returns control to the entry panel with a message indicating the data changes were saved.

```
 Menu  RefList  RefMode  Utilities  Workstation  Help
───────────────────────────────────────────────────────────────────
                        Edit Entry Panel            Member ISPFBAT saved
Command ===> _____

ISPF Library:
   Project . . . PDFTDEV
   Group . . . . INT      . . . SYT      . . . _____ . . . _____
   Type . . . . GML
   Member . . . _____      (Blank or pattern for member selection list)

Other Partitioned, Sequential or VSAM Data Set:
   Data Set Name . . . JCLLIB(ISPFBAT)
   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
```

An edit session can be terminated by entering the **END** primary command or pressing the PF key to which END is assigned. By default, ISPF assigns the END command to PF3. ISPF will normally save any changes made when processing the END command. This is the behaviour with AUTOSAVE mode active. This is the default. If AUTOSAVE mode is not active (set using the AUTOSAVE OFF command) ISPF will not save changes when the END command is entered.

Edit Highlighting – Your Friend!

- **provides language-sensitive coloring**
  - ↓ Productivity aid
  - ↓ allows programmers to immediately see simple programming errors
    - mismatched quotes or parentheses
    - Unclosed comments
    - mismatched logical constructs
- **Recognises components for a variety of programming languages**
  - ↓ Assembler, C, COBOL, HTML, JCL, Pascal, PL/I, REXX, XML
  - ↓ Keywords for individual languages
  - ↓ Comments
  - ↓ Quoted strings
  - ↓ Compiler directives
  - ↓ Logical blocks and IF/ELSE logic

One of the most helpful features of the ISPF editor is its ability to provide language-sensitive coloring. It is a productivity aid for users who are editing program source and it supports a variety of programming languages. The editor's color highlighting allows programmers to immediately see simple programming errors, such as mismatched quotes or parentheses, unclosed comments, and mismatched logical constructs.

NOTE: Language-sensitive and enhanced coloring of the edit session is only available when enabled by the installer or the person who maintains ISPF.

Edit Highlighting – HILITE Command

HILITE primary command used to enable color highlighting

Pop-up panel displayed allowing highlighting options to be set

The editor's language-sensitive color highlighting is enabled using the HILITE primary command. If no operands are specified when the HILITE command is entered, the Edit Color Settings pop-up panel is displayed. The panel allows you to set options that could otherwise be set via operands specified with the HILITE command. The language can be explicitly set by the user, however the editor has the ability to *automatically* determine the language of the part being edited. In general, the editor determines the language by examining the format of the first nonblank string in the file. For example, the editor will assume the file contains **Assembler** code if it finds an asterisk in column 1 or a recognized opcode of CSECT, DSECT, MACRO, TITLE, START or COPY.

Edit Highlighting – HILITE Command…

IF logic highlighting

DO logic highlighting

This foil shows the improved readability of REXX source code when edit highlighting is enabled. IF logic highlighting uses different colors to match pairs of IF and ELSE statements. This is useful for finding matching or mismatched ELSE statements. DO logic highlighting uses different colors to match pairs of DO and END statements. This is very useful for finding matching or mismatched block delimiters.

The Data Set List Utility - Overview

- **Invoked by selecting ISPF option 3.4**

- **Displays or prints lists of data sets built via a search of:**
  - ↓ Catalog – describes attributes and the location of data sets
  - ↓ Volume Table of Contents (VTOC) – describes the data sets on a DASD volume

- **Provides an interface to many ISPF functions used to process data sets**

Edit	View/Browse	Delete	Rename
Catalog	Uncatalog	Print	Compress
Copy	Move		

The **Data Set List Utility** is one of the most useful features of ISPF. It is invoked by selecting option 3.4 from the ISPF Primary Options Menu and allows you to manage all the data sets you have the authority to access.

ISPF can create a list of data sets via either a search of the MVS catalog or a search of the Volume Table of Contents (VTOC) for a DASD volume. A catalog is a data set containing information describing the attributes and location of data sets. A VTOC is a data set that describes the contents of the DASD volume on which it resides.

You can process any of the data sets displayed in a list using many functions available through other ISPF options.

The Data Set List Utility – Entry Panel

```
 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 . . . pdftool.*.c*
   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
                                          /  Display Catalog Name

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.
```

Enter qualifiers for data sets to be included in list – catalog and VTOC search

Enter specific or generic volume name – VTOC search

Leaving the Option field blank and pressing enter causes a list of data sets to be displayed. The names of the data sets in the list must match the value entered in the **Dsname Level** field. If a value is specified in the **Volume serial** field, the data sets in the list must be in the VTOC for the volume. Typing **P** in the Option field and pressing enter causes the data set list to be printed to the ISPF list data set. Typing **P** or **PV** in the option field causes ISPF to retrieve generic VTOC information for the volume specified in the Volume serial field. For option P, the VTOC information is displayed. For option **PV**, the VTOC information is printed to the ISPF list data set.

The **Dsname Level** field is used to provide data set name qualifiers that are used to identify the data sets to be included in the displayed or printed list/ The qualifiers can be partially specified using asterisks (*) as global file-name characters percent signs (%) as placeholders:

* A single asterisk by itself indicates that at least one qualifier is needed to occupy that position. A single asterisk within a qualifier indicates that zero or more characters can occupy that position.

** A double asterisk indicates that zero or more qualifiers can occupy that position. A double asterisk within a qualifier is invalid.

% A single percent sign indicates that any one single alphanumeric or national character can occupy that position.

%%... One to eight percent signs can be specified in each qualifier.

For example entering **AAA%*.B*%%%B** lists all data sets that start with **AAA**, have at least one more character in the high level qualifier and have a second qualifier that begins and ends in **B** with at least three letters between the **Bs**.

Data Set List – Volume View

Data set name – default list order

Message

Volume serial

Line command field

```
 Menu  Options  View  Utilities  Compilers  Help
DSLIST - Data Sets Matching PDFTOOL.*.C*           1 Member processed
Command ===>                                        Scroll ===> PAGE

Command - Enter "/" to select action              Message        Volume
--------------------------------------------------------------------------
         PDFTOOL.CLIST.COPYRITE                                   D$IS08
         PDFTOOL.COMMON.CLIST                                     D$IS03
         PDFTOOL.COMMON.CLIST.VB                                  D$IS03
-        PDFTOOL.COMMON.CNTL                       Edited         D$IS02
         PDFTOOL.COMMON.CNTL.INPUT                                D$IS01
         PDFTOOL.CPLUS.COPYBOOK                                   D$IS01
         PDFTOOL.CPLUSZ16.COPYBOOK                                D$IS07
         PDFTOOL.EXEC.COPYRITE                                    D$IS01
         PDFTOOL.GML.COPYRITE                                     D$IS01
         PDFTOOL.GMLGE.COPYRITE                                   D$IS09
         PDFTOOL.GMLINC.COPYRITE                                  D$IS03
         PDFTOOL.GMLKA.COPYRITE                                   D$IS09
         PDFTOOL.MACROS.COPYRITE                                  D$IS04
         PDFTOOL.MISC.COPYRITE                                    D$IS09
         PDFTOOL.MODELS.COPYRITE                                  D$IS08
         PDFTOOL.MODELSGE.COPYRITE                                D$IS07
         PDFTOOL.MODELSKA.COPYRITE                                D$IS06
         PDFTOOL.MSGSGE.COPYRITE                                  D$IS07
         PDFTOOL.MSGSKA.COPYRITE                                  D$IS09
         PDFTOOL.MSGSRCE.COPYRITE                                 D$IS01
         PDFTOOL.NADEL.CLIST.VB                                   D$IS03
         PDFTOOL.PANELS.COPYRITE                                  D$IS05
         PDFTOOL.PANELSGE.COPYRITE                                D$IS08
         PDFTOOL.PANELSKA.COPYRITE                                D$IS09
         PDFTOOL.PRIVATE.CEXEC                                    D$IS08
         PDFTOOL.PRIVATE.CLIST                                    D$IS01
         PDFTOOL.PRIVATE.CLIST.MVS6                               D$IS08
         PDFTOOL.PRIVATE.CNTL                                     D$IS07
         PDFTOOL.PRIVATE.CNTL2                                    D$IS02
         PDFTOOL.SKELS.COPYRITE                                   D$IS06
         PDFTOOL.SOURCE.COPYRITE                                  D$IS06
         PDFTOOL.SPASCLM.CBG11DEV.TABLES                          D$IS05
         PDFTOOL.SPASCLM.CLIST                                    D$IS01
         PDFTOOL.SPASCLM1.CLIST                                   D$IS03
         PDFTOOL.TERSEMVS.CLIST                                   D$IS01
         PDFTOOL.TERSEMVS.CLIST.VB                                D$IS02
*********************** End of Data Set list ***********************
```

The data set list display has 4 different formats or views. The **LEFT** and **RIGHT** (PF10 and PF11) commands allow you to switch between these views. The initial view displayed when leaving the Option field blank and pressing enter on the entry panel, depends on the value specified in the Initial View field. The Volume View (shown on this foil) is displayed when Initial View field is set to 1. This view shows each data set name along with the volume on which the data set resides. There is also a Message column where ISPF displays a short message indicating processing performed against a data set.

Each of the 4 views has at the left-hand side of the screen a line command field alongside the data set name.

Data Set List – Space View


```
  Menu  Options  View  Utilities  Compilers  Help
 ────────────────────────────────────────────────────────────────────────────
 DSLIST - Data Sets Matching PDFTOOL.*.C*                        Row 1 of 36
 Command ===> _____    Scroll ===> PAGE

 Command - Enter "/" to select action          Tracks %Used XT  Device
 ─────────────────────────────────────────────────────────────────────────────
          PDFTOOL.CLIST.COPYRITE                      1     0   1  3390
          PDFTOOL.COMMON.CLIST                      328    59   1  3390
          PDFTOOL.COMMON.CLIST.VB                    34   100   1  3390
          PDFTOOL.COMMON.CNTL                        24   100   1  3390
          PDFTOOL.COMMON.CNTL.INPUT                   4   100   1  3390
          PDFTOOL.CPLUS.COPYBOOK                    285    99   7  3390
          PDFTOOL.CPLUSZ16.COPYBOOK                 285    98   5  3390
          PDFTOOL.EXEC.COPYRITE                       1   100   1  3390
          PDFTOOL.GML.COPYRITE                        1   100   1  3390
          PDFTOOL.GMLGE.COPYRITE                      1   100   1  3390
          PDFTOOL.GMLINC.COPYRITE                     1   100   1  3390
          PDFTOOL.GMLKA.COPYRITE                      1   100   1  3390
          PDFTOOL.MACROS.COPYRITE                     1   100   1  3390
          PDFTOOL.MISC.COPYRITE                       1   100   1  3390
          PDFTOOL.MODELS.COPYRITE                     1   100   1  3390
          PDFTOOL.MODELSGE.COPYRITE                   1   100   1  3390
          PDFTOOL.MODELSKA.COPYRITE                   1   100   1  3390
          PDFTOOL.MSGSGE.COPYRITE                     1   100   1  3390
          PDFTOOL.MSGSKA.COPYRITE                     1   100   1  3390
          PDFTOOL.MSGSRCE.COPYRITE                    1   100   1  3390
          PDFTOOL.NADEL.CLIST.VB                     46   100   1  3390
          PDFTOOL.PANELS.COPYRITE                     1   100   1  3390
          PDFTOOL.PANELSGE.COPYRITE                   1   100   1  3390
          PDFTOOL.PANELSKA.COPYRITE                   1   100   1  3390
          PDFTOOL.PRIVATE.CEXEC                       3   100   1  3390
          PDFTOOL.PRIVATE.CLIST                       6   100   1  3390
          PDFTOOL.PRIVATE.CLIST.MVS6                  9   100   1  3390
          PDFTOOL.PRIVATE.CNTL                       15   100   1  3390
          PDFTOOL.PRIVATE.CNTL2                      34   100   1  3390
          PDFTOOL.SKELS.COPYRITE                      1   100   1  3390
          PDFTOOL.SOURCE.COPYRITE                     3   100   1  3390
          PDFTOOL.SPASCLM.CBG11DEV.TABLES            90   100   5  3390
          PDFTOOL.SPASCLM.CLIST                     600    14   1  3390
          PDFTOOL.SPASCLM1.CLIST                     66   100   1  3390
          PDFTOOL.TERSEMVS.CLIST                      2   100   1  3390
          PDFTOOL.TERSEMVS.CLIST.VB                   2   100   1  3390
 ********************************* End of Data Set list ********************************
```

Issuing a **RIGHT** scroll command (PF11) on the Volume View or entering 2 in the Initial View field on the entry panel causes the Space View to be displayed. The Space View shows the following information for each data set:

Tracks - Number of tracks allocated to the data set

%Used - Percentage of allocated tracks used

XT - Number of extents allocated to the data set

Device - Device type of the volume on which the data set resides

Data Set List – Attribute View

Partitioned data sets

Sequential data set

```
  Menu  Options  View  Utilities  Compilers  Help
 ────────────────────────────────────────────────────────────────────────
 DSLIST - Data Sets Matching PDFTOOL.*.C*                    Row 1 of 36
 Command ===> _                                         Scroll ===> PAGE

 Command - Enter "/" to select action            Dsorg  Recfm  Lrecl  Blksz
 ─────────────────────────────────────────────────────────────────────────
          PDFTOOL.CLIST.COPYRITE                   PS     FB     132   3300
          PDFTOOL.COMMON.CLIST                     PO     FB      80  27920
          PDFTOOL.COMMON.CLIST.VB                  PO     VB     255   6160
          PDFTOOL.COMMON.CNTL                      PO     FB      80  27920
          PDFTOOL.COMMON.CNTL.INPUT                PO     FB      80  27920
          PDFTOOL.CPLUS.COPYBOOK                   PO-E   VB     256  32760
          PDFTOOL.CPLUSZ16.COPYBOOK                PO-E   VB     256  32760
          PDFTOOL.EXEC.COPYRITE                    PS     FB     132   3300
          PDFTOOL.GML.COPYRITE                     PS     FB     132   3300
          PDFTOOL.GMLGE.COPYRITE                   PS     FB     132   3300
          PDFTOOL.GMLINC.COPYRITE                  PS     FB     132   3300
          PDFTOOL.GMLKA.COPYRITE                   PS     FB     132   3300
          PDFTOOL.MACROS.COPYRITE                  PS     FB     132   3300
          PDFTOOL.MISC.COPYRITE                    PS     FB     132   3300
          PDFTOOL.MODELS.COPYRITE                  PS     FB     132   3300
          PDFTOOL.MODELSGE.COPYRITE                PS     FB     132   3300
          PDFTOOL.MODELSKA.COPYRITE                PS     FB     132   3300
          PDFTOOL.MSGSGE.COPYRITE                  PS     FB     132   3300
          PDFTOOL.MSGSKA.COPYRITE                  PS     FB     132   3300
          PDFTOOL.MSGSRCE.COPYRITE                 PS     FB     132   3300
          PDFTOOL.NADEL.CLIST.VB                   PO     VB     255  27998
          PDFTOOL.PANELS.COPYRITE                  PS     FB     132   3300
          PDFTOOL.PANELSGE.COPYRITE                PS     FB     132   3300
          PDFTOOL.PANELSKA.COPYRITE                PS     FB     132   3300
          PDFTOOL.PRIVATE.CEXEC                    PO     VB     255  27998
          PDFTOOL.PRIVATE.CLIST                    PO     VB     255  27998
          PDFTOOL.PRIVATE.CLIST.MVS6               PO     VB     255  27998
          PDFTOOL.PRIVATE.CNTL                     PO     FB      80  27920
          PDFTOOL.PRIVATE.CNTL2                    PO     FB      80  27920
          PDFTOOL.SKELS.COPYRITE                   PS     FB     132   3300
          PDFTOOL.SOURCE.COPYRITE                  PS     FB     132   3300
          PDFTOOL.SPASCLM.CBG11DEV.TABLES          PO     FB      80  27920
          PDFTOOL.SPASCLM.CLIST                    PO-E   FB      80  27920
          PDFTOOL.SPASCLM1.CLIST                   PO     FB      80  27920
          PDFTOOL.TERSEMVS.CLIST                   PO     FB      80  27920
          PDFTOOL.TERSEMVS.CLIST.VB                PO     VB     255   3120
 ********************************* End of Data Set list *********************
```

Issuing a RIGHT scroll command (PF11) on the Space View or entering 3 in the Initial View field on the entry panel causes the Attribute View to be displayed. The Attribute View shows the following information for each data set:

Dsorg - Data set organization

Recfm - Record format

Lrecl - Logical record length

Blksz - Block size

Data Set List – Total View

Issuing a RIGHT scroll command (PF11) on the Attribute View, or issuing a LEFT scroll command (PF10) on the Volume View, or entering 4 in the Initial View field on the entry panel causes the Total View to be displayed. The Total View shows all the information on the Volume, Space, and Attribute Views, plus the following:

Created   - Creation date

Expires   - Expiration date

Referred   - Last reference date

Catalog   - Name of catalog where data set name was found

Data Set List – Data Set Actions

While the data set list utility is helpful in displaying information relating to data sets, its greatest benefit is the support it provides for performing many different actions against data sets. While these actions are available through other ISPF panels, the data set list utility makes them available in the one place.

Typing a forward slash character (/) in the line command field for a data set causes ISPF to display a pop-up panel showing the many actions that can be performed against a data set in the data set list. You can perform the action against the selected data set by entering the associated option number in the field in the pop-up panel.

Data Set List – Line Commands

E – Edit	**V** – View	**B** – Browse
M – Member List	**D** – Delete	**R** – Rename
I – Data Set Information	**S** – Information (short)	**P** – Print
C – Catalog	**U** – Uncatalog	**Z** – Compress
F – Free Unused	**PX** – Print Index	**RS** – Reset
MO – Move	**CO** – Copy	**RA** – Add to Referral List
X – Exclude	**NX** – Unexclude	**NXF** – Unexclude First
NXL – Unexclude Last	**=** – Repeat Last	

- TSO commands, CLISTs, and REXX execs can also be entered in the Line Command field

Rather than perform actions against a data set using the action list pop-up panel, you can enter a line command for the action in the line command field. You can also use TSO commands, CLISTs, and REXX execs as data set list line commands.

Data Set List – E (Edit) and V (View) Line Commands

The data set list **E** (Edit) and **V** (View) line commands invoke the ISPF editor. When these line commands are entered ISPF displays a pop-up panel allowing you to enter values and options available on the View and Edit entry panel (ISPF options 1 and 2).

Data Set List – CO (Copy) and MO (Move) Line Commands

```
 Menu   Options  View  Utilities  Compilers  Help
─────────────────────────────────────────────────────────────────────
DSLIST - Data Sets Matching PDFTOOL.*.C*                   Row 8 of 36
Command ===>                                         Scroll ===> CSR

Command - Enter "/" to select action         Message          Volume
─────────────────────────────────────────────────────────────────────
co_          PDFTOOL.EXEC.COPYRITE                            D$IS09
             PDFTOOL.GML.COPYRITE                             D$IS01
             PDFTOOL.GMLGE.COPYRITE                           D$IS09
```

```
 RefList  Help
─────────────────────────────────────────────────────────────────────
                         COPY Entry Panel
Command ===>

CURRENT from data set: 'PDFTOOL.EXEC.COPYRITE'

To Library                     Options:
   Project . . . PDFTDEV           Enter "/" to select option
   Group . . . . INT               _  Replace like-named members
   Type  . . . . GML               /  Process member aliases

To Other Data Set Name
   Data Set Name . . . _
   Volume Serial . . . _____      (If not cataloged)

NEW member name  . . . _____    (Blank unless member to be renamed)

Options
   Sequential Disposition      Pack Option         SCLM Setting
   2  1. Mod                   1  1. Default        3  1. SCLM
      2. Old                      2. Pack              2. Non-SCLM
                                                       3. As is

Press ENTER to perform action.  Press CANCEL to cancel action.
```

The data set list **CO** (Copy) and **MO** (Move) line commands invoke the ISPF Move/Copy Utility (ISPF option 3.3). When these line commands are entered ISPF displays a pop-up panel allowing you to enter information relating to the data set into which the data will be moved/copied. This is similar to the panel displayed after the source data set is entered using the Move/Copy Utility.

Data Set List – M (Member List) Line Command

Expanded Line Command Field

The data set list **M** (Member List) line command is used to display an enhanced member selection list for a partitioned data set. This member list provides an expanded line command field which supports line commands for many member processing function supported by ISPF. Typing a forward slash character (/) in the line command field for a member causes ISPF to display a pop-up panel showing the many actions that can be performed against a member in the member list. You can perform the action against the selected member by entering the associated option number in the field in the pop-up panel. Alternatively, you can simply enter one of the following line commands in the line command field:

E – Edit   **V** – View   **B** – Browse

D – Delete   **R** – Rename **P** – Print

M – Move   **C** – Copy   **G** – Reset

J – Submit   **T** – TSO command **=** - Repeat

TSO commands, CLISTs, and REXX execs can also be entered in the expanded line command field.

<u>NOTE</u>: An enhanced member list is also displayed when the E (Edit), V (View), or B (Browse) line command is entered against a partitioned data set in the data set list.

How to Learn More

- **Get your hands dirty!**
  - ↓ Use ISPF
    - The editor
    - The Data Set List Utility
    - The HELP facilities
      - – HELP command (PF1)
      - – Tutorial (TUTOR command)
- **Read the manuals**
  - ↓ SC34-4822-09: ISPF User's Guide, Volume 1
  - ↓ SC34-4822-09: ISPF User's Guide, Volume 2
  - ↓ SC34-4820-09: ISPF Edit and Edit Macros

- **z/OS Basic Skills Info Center**
  - ↓ http://publib.boulder.ibm.com/infocenter/zos/basics/index.jsp

This presentation has only scratched the surface in terms of the features and capabilities of ISPF's editor and data set utilities. There is plenty more to learn!

The best way to learn more is to use ISPF. Play with the editor to find out more about its capabilities and features. Use the Data Set List Utility as the place where you manage your data sets. It provides interfaces to many other ISPF data set utilities so you will soon get familiar with these as well. There is lots of information available online through the ISPF HELP facilities. The ISPF tutorial is a hierarchy of panels which allows you to easily navigate through a vast amount of helpful information relating to ISPF. The tutorial can be invoked using the TUTOR command. From any panel within ISPF you can enter the HELP command to learn more about that particular panel and its function.

The ISPF manuals are an obvious source of information. **The ISPF User's Guide Volume I** provides introductory information about using ISPF. The **ISPF User's Guide Volume II** provides specific information on each of the ISPF options. The **ISPF Edit and Edit Macros** manual describes how to use the ISPF editor.