z/OS

IBM

DFSMS Using the Interactive Storage Management Facility

Version 2 Release 1

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About This Book

This book is intended to help the general user manage data sets and storage using the Interactive Storage Management Facility (ISMF). It contains information on the different types of ISMF options and provides information on how to use them.

As a general introduction to ISMF, this book is meant to be used in conjunction with the ISMF help panels. The help panels provide reference information about specific commands and fields in ISMF panels; help panels supplement the material presented in this manual.

Storage administrators should refer to *z/OS DFSMSdfp Storage Administration* for information dealing with storage administration tasks.

Note: The term *end user* refers to one of the two ISMF user profiles (end user or storage administrator), whereas the term *general user* is used to describe the expertise level of the user.

Required Product Knowledge

To use this book effectively, you should be familiar with:
- Data and storage management concepts and the functions provided by DFSMS™
- Resource Authorization Control Facility (RACF®, a component of the SecureWay Security Server for z/OS®).
- Interactive System Productivity Facility (ISPF) and ISPF/Program Development Facility (ISPF/PDF).

Referenced Publications

In the text, references are made to the following publications:

Publication Title	Order Number
Device Support Facilities (ICKDSF) User's Guide and Reference	*GC35-0033*
z/OS DFSORT: Getting Started	*SC23-6880*
z/OS DFSORT Installation and Customization	*SC23-6881*
z/OS DFSMS Introduction	*SC23-6851*
z/OS DFSMS Installation Exits	*SC23-6850*
z/OS DFSMS Implementing System-Managed Storage	*SC23-6849*
z/OS DFSMS Using Data Sets	*SC23-6855*
z/OS DFSMSdfp Advanced Services	*SC23-6861*
z/OS DFSMSdfp Diagnosis	*SC23-6863*
z/OS DFSMSdfp Storage Administration	*SC23-6860*
z/OS DFSMSdfp Utilities	*SC23-6864*
z/OS DFSMShsm Managing Your Own Data	*SC23-6870*
z/OS DFSMShsm Storage Administration	*SC23-6871*
z/OS DFSMSdss Storage Administration	*SC23-6868*
z/OS DFSMSrmm Managing and Using Removable Media	*SC23-6873*

Publication Title	Order Number
z/OS ISPF Reference Summary	SC19-3624
z/OS ISPF Services Guide	SC19-3626
z/OS ISPF User's Guide Vol I	SC19-3627
z/OS MVS JCL Reference	SA23-1385
z/OS Security Server RACF Security Administrator's Guide	SA23-2289
z/OS TSO/E Command Reference	SA32-0975
z/OS TSO/E Programming Guide	SA32-0981

For information about the accessibility feature of z/OS, for users who have a physical disability, see Appendix D, "Accessibility," on page 215.

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z/OS Version 2 Release 1 summary of changes

See the following publications for all enhancements to z/OS Version 2 Release 1 (V2R1):

- *z/OS Migration, GA32-0889*
- *z/OS Planning for Installation, GA32-0890*
- *z/OS Summary of Message and Interface Changes, SA23-2300*
- *z/OS Introduction and Release Guide, GA32-0887*

Chapter 1. Introduction to ISMF

The Interactive Storage Management Facility (ISMF) is the interactive interface of DFSMS that allows you to access the storage management functions, helping you to analyze and manage data and storage.

ISMF is designed to use the storage management, data management, space management, and availability management (backup/recovery) functions that are provided by DFSMSdfp™, DFSMShsm™, DFSMSdss™, DFSMSrmm™.

ISMF is an Interactive System Productivity Facility (ISPF) application. ISMF works with the following products, with which you should be familiar:

- Interactive System Productivity Facility/Program Development Facility (ISPF/PDF), which provides the edit, browse, Data Set, and Library utility functions
- TSO/Extensions (TSO/E), TSO CLISTs and commands
- Data Facility SORT (DFSORT™), which provides the record-level functions
- RACF, a component of the Security Server for z/OS, which provides the access control function for data and services
- Device Support Facilities (ICKDSF,) which provide the storage device support and analysis functions

ISMF provides access to the functions of the DFSMS family of products, as represented in Figure 1
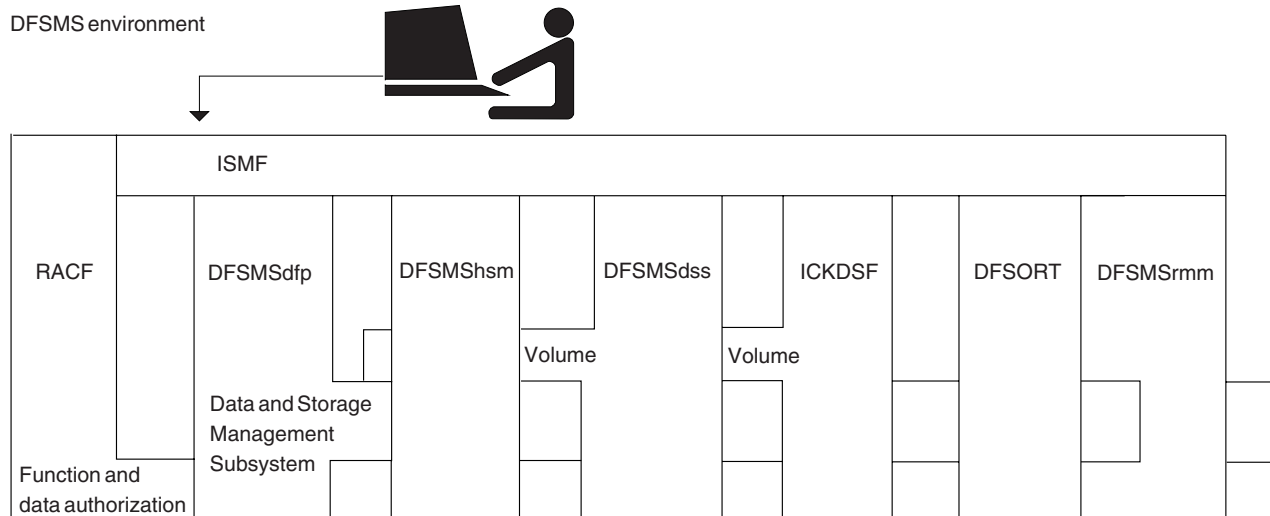
Figure 1. Storage Management Product Relationship

What You Can Do with ISMF

ISMF is a panel-driven interface. You can use the panels in an ISMF application to perform the following tasks:

- Display and print lists of information about specific data sets, DASD volumes, mountable optical volumes, and mountable tape volumes

- Generate lists of data, storage, and management classes to find out how data sets are being managed
- Display and manage lists saved from various ISMF applications

To determine which data sets will appear in a data set list or which volumes will appear in a volume list, you complete selection entry panels. ISMF generates a list based on your selection criteria. Once the list is built, you can use ISMF entry panels to perform space management or backup and recovery tasks against the entries in the list.

As a user performing data management tasks against individual data sets or against lists of data sets or volumes, you can use ISMF to:
- Edit, browse, and sort data set records
- Delete data sets and backup copies
- Protect data sets by limiting their access
- Recover unused space from data sets and consolidate free space on DASD volumes
- Copy data sets or DASD volumes to the same device or another device
- Migrate data sets to another migration level
- Recall data sets that have been migrated so that they can be used
- Back up data sets and copy entire volumes for availability purposes
- Recover data sets and restore DASD volumes, mountable optical volumes, or mountable tape volumes

Each site can control who can use certain functions described in this book. Your organization might require you to have authorization to use certain functions. Your security administrator can explain any restrictions your site has established.

You cannot allocate data sets from ISMF. Data sets are allocated from ISPF, from TSO, or with job control language (JCL) commands. ISMF provides the DSUTIL command, which enables users to get to ISPF and toggle back to ISMF.

For more information on what you can do with ISMF, see Appendix C, "Customizing the Interactive Storage Management Facility," on page 189.

Using NaviQuest with ISMF

ISMF also works with NaviQuest, allowing more automation of storage management tasks. NaviQuest is a testing and reporting tool that speeds and simplifies the tasks that are associated with DFSMS initial implementation and ongoing ACS routine and configuration maintenance. NaviQuest provides the following functions:
- Familiar ISPF panel interface to functions
- Fast, easy, bulk testcase creation
- ACS routine and DFSMS configuration testing automation
- Storage reporting assistance
- Additional tools to aid with storage administration tasks
- Batch creation of data set and volume listings
- Printing of ISMF LISTs
- Batch ACS routine translation
- Batch ACS routine validation

More information on NaviQuest can be found in *z/OS DFSMSdfp Storage Administration*.

Chapter 2. Accessing ISMF

This chapter explains the following basics of the Interactive Storage Management Facility (ISMF):
- Navigating through ISMF without using the action bar
- Navigating through ISMF using the action bar
- Accessing ISMF
- Selecting an option from the ISMF primary option menu
- ISMF panel concepts
- Navigating through functional panels
- Types of functional panels
- Navigating through help panels
- Using the three types of help panels

ISMF provides an action bar–driven interface that exploits many of the usability features of Common User Access™ (CUA™) interfaces. The panels will look different than in previous releases: all screens will be mixed case and most will have action bars at the top.

Navigating through ISMF without Using the Action Bar

You can still navigate through ISMF using the standard method of typing in a selection number and pressing Enter.

Navigating through ISMF Using the Action Bar

Most ISMF panels have action bars at the top. The choices display in white (by default).

The Action Bar gives you another way to move through ISMF. If the cursor is located somewhere on the panel, there are several ways to move the cursor to the action bar:
- Using the keyboard's tab key
- Using mouse button
- Using the cursor manually

After you have chosen an Action, press ENTER to open the menu.

Figure 2 on page 6 shows the List pull-down menu for the Data Set List panel. Notice the input field in the upper left corner. In the input field, type the number of the action you want. Press ENTER.

```
    Panel  List  Dataset  Utilities  Scroll  Help
  ------               ----------------------------------------------
         _   1. Clear       DATA SET LIST
  Comman      2. Reshow                                       Scroll ===> HALF
              3. Fold                                  Entries 1-4 of 4
  Enter       4. Refresh                               Data Columns 3-6 of 41
              5. Filter...
     L        6. Filter Clear           ALLOC    ALLOC   % NOT  COMPRESSED
     O        7. Format View... | NAME  SPACE    USED    USED   FORMAT
     --       8. Sort...        | ------------ --(3)-- --(4)-- -(5)- ---(6)----
              9. Print...                      -------  -------   ---  ---
                                                -------  -------   ---  ---
                    USER001.SPFLOG1.LIST        -------  -------   ---  ---
                    USER001.SRCHFOR.LIST        -------  -------   ---  ---
          ---------- ------ ----------- BOTTOM OF DATA ----------- ------ ----
```

Figure 2. Action Bar Pull-Down for "List" on Data Set List Panel

Accessing ISMF

How you access ISMF depends on your site. This example assumes you have
logged onto TSO and the ISPF Primary Option Menu is displayed.

To access ISMF type I after the arrow on the Option command line. Figure 3 shows
the default ISPF Primary Option Menu.

```
   Menu  Utilities  Compilers  Options  Status  Help
  -----------------------------------------------------------------------------
                          ISPF Primary Option Menu
  Option ===> I

   0  Settings      Terminal and user parameters          User ID . : USER4
   1  View          Display source data or listings        Time. . . : 11:25
   2  Edit          Create or change source data           Terminal. : 3278
   3  Utilities     Perform utility functions              Screen. . : 1
   4  Foreground    Interactive language processing
   5  Batch         Submit job for language processing
   6  Command       Enter TSO or Workstation commands
   7  Dialog Test   Perform dialog testing
   8  LM Facility   Library administrator functions
   9  IBM Products  IBM program development products
  10  SCLM          SW Configuration Library Manager
   I  ISMF          Invoke Interactive Storage Management Facility


  Enter X to Terminate using log/list defaults
```

Figure 3. Starting an ISMF Session from the ISPF/PDF Primary Option Menu

- To access ISMF directly from TSO, use the command

  ISPSTART PGM(DGTFMD01) NEWAPPL(DGT)

The ISMF Primary Option Menu appears, and you can begin the ISMF session.
Figure 4 on page 7 shows the ISMF Primary Option Menu for end users.

```
   Panel  Help
   --------------------------------------------------------------------------
                    ISMF PRIMARY OPTION MENU - z/OS DFSMS V1 R10
   Enter Selection or Command ===>

   Select one of the following options and press Enter:

   0  ISMF Profile          - Change ISMF User Profile
   1  Data Set              - Perform Functions Against Data Sets
   2  Volume                - Perform Functions Against Volumes
   3  Management Class      - Specify Data Set Backup and Migration Criteria
   4  Data Class            - Specify Data Set Allocation Parameters
   5  Storage Class         - Specify Data Set Performance and Availability
   9  Aggregate Group       - Specify Data Set Recovery Parameters
   L  List                  - Perform Functions Against Saved ISMF Lists
   R  Removable Media Manager - Perform Functions Against Removable Media
   X  Exit                  - Terminate ISMF




   Use HELP Command for Help; Use END Command to Exit.
```

Figure 4. ISMF Primary Option Menu for End Users

There are two Primary Option Menus: one for end users and one for storage administrators. The menu for storage administrators includes additional applications not available to end users. Option 0, ISMF PROFILE, controls the user mode or the type of Primary Option Menu that is displayed. Refer to "Specifying a User Mode" on page 108 for information on how to change the user mode.

Prerequisite: The ISMF Primary Option Menu example in Figure 4 assumes that DFSMS is at the latest release level. For information about adding the DFSORT option to your Primary Option Menu, refer to *z/OS DFSORT Installation and Customization*.

Selecting an Option from the ISMF Primary Option Menu

The following options are available from the ISMF Primary Option Menu:
- **0—ISMF Profile**

  This option displays the ISMF Profile Option Menu. Use this menu to control the way ISMF runs during the session. You can select these options:
  - Change the user mode from end user to storage administrator or from storage administrator to end user. For more information, refer to "Specifying a User Mode" on page 108.
  - Control ISMF's error logging and recovery from abends. For more information, see "Controlling Logging and Recovery from Abends" on page 109.
  - Define statements for ISMF to use in processing your jobs. Examples include JOB statements, DFSMSdss™, Device Support Facilities (ICKDSF), Access Method Services (IDCAMS), and PRINT execute statements in your profile. You can select ISMF or Interactive System Productivity Facility (ISPF) JCL statements for processing batch jobs. For more information, see "Setting Up Background Job Information" on page 110.
- **1—Data Set**

  The Data Set Application constructs a list of data sets. Use **line operators** to do tasks with individual data sets. Use **list commands** to do tasks with a group of data sets. These tasks include editing, browsing, recovering unused space, copying, migrating, deleting, backing up, and restoring of data sets. TSO

commands and CLISTs can also be used as line operators or list commands. You can save a copy of a data set list and reuse it later.

This option displays the Data Set Selection Entry Panel. For information about when to select the data set option and tasks you can do using the Data Set Application, see Chapter 3, "Generating Lists," on page 23, Chapter 4, "Using the Data Set or Volume List," on page 47, and Chapter 6, "Performing Data and Storage Management Tasks," on page 93.

- **2—Volume**

  The Volume Application constructs a list of DASD volumes, mountable optical volumes, or mountable tape volumes. Use **line operators** to do tasks with an individual volume. These tasks include consolidating or recovering unused space, copying, backing up, and restoring volumes. TSO commands and CLISTs can also be line operators or list commands. You can save a copy of a volume list and reuse it later. With the list of mountable optical volumes or mountable tape volumes, you can only browse the list.

  This option displays the Volume List Selection Menu. For information about when to select the Volume option and tasks you can do using the Volume Application, see Chapter 3, "Generating Lists," on page 23, Chapter 4, "Using the Data Set or Volume List," on page 47, and Chapter 6, "Performing Data and Storage Management Tasks," on page 93.

- **3, 4, and 5—Management, Data and Storage Classes**

  These options display the Storage Management Subsystem (SMS) attributes assigned to your data sets or objects. They also construct a list of the available management, data, and storage classes. If you have authorization, you can change the management and storage classes assigned to your data sets or objects from the Data Set Application. A limited set of **line operators** and **list commands** can locate the information you need or tailor the list itself.

  These options display an application selection panel. For information about when to select these options and tasks you can do using these classes, see Chapter 8, "Using Data Facility Storage Management Subsystem (DFSMS)," on page 119.

- **9—Aggregate Group**

  This option displays the Aggregate Group Application Selection panel. You can select these options from the panel:
  - Select option 1 to generate a list of all selected Aggregate Groups, and issue line operators and list commands against the entire list.
  - Select option 2 and fill in the Aggregate Group Name field to display attributes for a particular Aggregate Group.

- **L—List**

  The List Application displays a list of all lists saved from ISMF applications. Each entry in the list represents a list that was saved. When you select the List option, the Saved ISMF Lists Panel is displayed if there are any saved ISMF lists. If there are no saved lists to be found, the Primary Option Menu is redisplayed with the message that the list is empty.

  You can reuse and delete saved lists. From the List Application, you can reuse lists as if they were created from the corresponding application. You can then use **line operators** and **commands** to tailor and manage the information in the saved lists. For more information, see Chapter 4, "Using the Data Set or Volume List," on page 47.

- **R—Removable Media Manager**

  This option displays the Primary Option Menu of the Removable Media Manager Application.

- **X—Exit**

Use this option when you finish the ISMF session. If you invoked ISMF from ISPF, you return to ISPF. If you used ISPSTART to invoke ISMF fromTSO, you return directly to TSO.

You can also exit by using the END command or associated PF key.

ISMF Panel Concepts

ISMF is a panel-driven program for interacting in the DFSMS environment. ISMF is structured as a series of: (1) menu panels and data entry panels on which users indicate their selections; (2) output panels that display the results of the user-selected actions. Default values are provided on all data entry panels. You use selection numbers, commands, and program function keys to navigate through the panels. You can use either uppercase or lowercase characters to enter information into the input fields of the data entry panels.

All ISMF panels are formatted for use by the ISPF Dialog Manager. The standard screen is 24 lines deep and 80 characters wide.

ISMF also supports screens of the following depths and widths:
    31 by 160
    27 by 132
    32 by 80
    43 by 80

The 31 by 160 format is actually a 31 by 160 window on a 62 by 160 screen.

Only list displays occur in these additional formats. The list panels shown in this book are in the standard 24 by 80 format. All ISMF panels other than lists are always in 24 by 80 format.

There are two basic types of ISMF panels: functional panels and help panels.

Functional panels enable you to display information about your applications and to do tasks. You can either fill in fields to select an application and indicate values, or enter commands in the command area of certain panels.

Help panels provide context-sensitive help for functional panels, usually task-oriented snapshot descriptions of functional panel data entry fields or application attributes. For a detailed description of these panel types, see "Types of Functional Panels" on page 11 and "Using the Three Types of Help Panels" on page 15.

Navigating Through Functional Panels

There are different types of functional panels, but they all use the same navigation commands. You can use commands that you enter on the command line or program function (PF) keys that are preset with defaults.

Controlling Functional Panel Flow

Table 1 on page 10 shows the keys and commands that control the functional panel flow. Enter the commands explicitly on the command line. You can also set up these commands as program function (PF) keys. For an explanation of the default PF key settings and how to change them, see "Program Function (PF) Key Assignments" on page 11.

Tip: The descriptions and examples in this book assume that the command line appears at the top left of the screen. The command line on your screen might appear at either the top left or bottom left. You can control the command line location by using the ISPF Primary Option Menu and selecting Option 0.4, Display Characteristics.

Table 1. Navigation Commands for Functional Panels

ENTER	This key either takes you to the next sequential panel or verifies the panel fields and does the specified operation.
HELP PF1	• If a short message or error message is displayed, this command provides a long message.Then, use HELP again to go to a message help panel. • If an error message is not displayed, Help panels give more information about a particular ISMF functional panel or function. For a more detailed explanation of how to use HELP, see "Using Help Panels for Functional Panels" on page 16.
END PF3	This command takes you back to the previous panel in logical sequence. • If you are using HELP, END takes you back to the panel from which you invoked HELP. • If you are looking at a list, END takes you back to the selection panel. When you use END, ISMF completes the current task. In some cases, END is a save and exit operation. The instruction area for the panel describes the use of END. On some panels, the CANCEL command ends the task; END saves the data and returns you to the selection panel.
RETURN PF4	This command takes you back to the ISMF Profile Option Menu if you are within the Profile Application; to the ISMF Primary Option Menu if you are in any other application;or to the functional panel from which you originally asked for HELP if you are on an ISMF help panel. If you are on an ISMF functional panel, RETURN is equivalent to repeatedly entering the END command until a menu panel is reached. Therefore, it will normally save the data when you exit an application.
CANCEL	This command returns you to the previous dialog without performing any of the current dialog functions. A dialog in this context is a set of related panels, such as the set of pages for generating a list or the set of pages for the created list for example. Use this command to exit the current dialog without saving the values you entered in the input fields. The command is valid from the Mountable Optical and Mountable Tape Volume Applications, the SMS applications, and the List Application.
UP PF7	This command enables you to go back to the previous panel usually when you have used the DOWN command to access the current panel.
DOWN PF8	This command enables you to access additional selection panels, usually panels on which you narrow down your selections rather than use defaults.
PROFILE	This command takes you to the ISMF Profile Option Menu.From this menu, you can change the characteristics of your ISMF user profile. Enter the PROFILE command from any ISMF panel except the menu panels and the panels listed under the ISMF Profile Option Menu.
ERTB	This command takes you to the Error Table. ISMF passes detailed information to the Error Table when an ISMF error occurs. This information provides further explanation to help diagnose an ISMF error message. You can enter the ERTB command as soon as the error occurs. Enter the ERTB command on any functional panel except the ISMF Primary Option Menu or the ISMF Profile Option Menu. You cannot enter the ERTB command when you are in PDF BROWSE or EDIT. For more information, see Figure 30 on page 45.

Program Function (PF) Key Assignments

ISMF supports one set of PF key assignments for the Primary Option Menu and one for each of the ISMF applications. When you install ISMF, the Primary Option Menu and the ISMF applications have common PF key assignments. Table 2 shows the initial PF key assignments.

Table 2. Initial PF Key Assignments

PF1/13 HELP	**PF2**/14 SPLIT	**PF3**/15 END	**PF4**/16 RETURN	**PF5**/17 not assigned	**PF6**/18 not assigned
PF7/19 UP	**PF8**/20 DOWN	**PF9**/21 SWAP	**PF10**/22 LEFT	**PF11**/23 RIGHT	**PF12**/24 CURSOR

Displaying PF Key Assignments

The ISPF **PFSHOW** command displays the current PF key settings at the bottom of your screen. Once you enter PFSHOW, the PF key assignments remain until you enter the **PFSHOW OFF** command.

Changing PF Key Assignments

Use the **KEYS** command to change the PF key assignments. Because the ISMF Primary Option Menu and the ISMF applications all have their own sets of PF keys, the KEYS command affects only the menu panel or application in use when you enter the command. The new PF key assignments remain in effect until you alter them again.

Simply enter the KEYS command on the menu panel or any page of the application you want:

```
Command ===> KEYS
```

ISMF displays a PF Key Definition Panel with the current PF key settings for the ISMF Primary Option Menu or application. Change the PF key definitions on the PF Key Definition Panel to suit your needs.

Related Reading: For more information on customizing PF keys, refer to *z/OS ISPF Services Guide*.

Types of Functional Panels

The basic types of functional panels are:
    Menu panels
    Data entry panels
    List panels
    Display panels
    Confirmation panels

Figure 9 on page 14 gives descriptions and examples of each type of panel.

Menu Panels

A menu panel displays the available ISMF applications or functions. Select an option and press enter.

Figure 5 is an example of a menu panel. To look at or change your logging and abend control settings, enter a **1** on the command line.

```
   Panel  Help
 ------------------------------------------------------------------------------
                          ISMF PROFILE OPTION MENU
 Enter Selection or Command ===> 1

 Select one of the following options and Press Enter:

   0  User Mode Selection
   1  Logging and Abend Control
   2  ISMF Job Statement
   3  DFSMSdss Execute Statement
   4  ICKDSF Execute Statement
   5  Data Set Print Execute Statement
   6  IDCAMS Execute Statement
   X  Exit




 Use HELP Command for Help; Use END Command to Exit.
```

Figure 5. Example of an ISMF Menu Panel

Data Entry Panels

A data entry panel contains fields that you must fill in with information that ISMF needs to do a task. ISMF primes mandatory fields with default values or with previously specified values.

Figure 6 is an example of a data entry panel. Input fields are preceded by an input arrow (===>). Fields that are preceded by a colon show output data that cannot be written over.

```
   Panel  Defaults  Utilities  Scroll  Help
 --------------------------------------------------------------------------
                       DATA SET SELECTION ENTRY PANEL            Page 1 of 5
 Command ===>

 For a Data Set List, Select Source of Generated List  . . 2  (1 or 2)

   1  Generate from a Saved List        Query Name To
      List Name  . .                    Save or Retrieve

   2  Generate a new list from criteria below
      Data Set Name . . . **
      Enter "/" to select option    _  Generate Exclusive list
      Specify Source of the new list  . . 2    (1 - VTOC, 2 - Catalog)
      1 Generate list from VTOC
         Volume Serial Number . . .          (fully or partially specified)
         Storage Group Name . . . .          (fully specified)
      2 Generate list from Catalog
         Catalog Name . . .
         Volume Serial Number . . .          (fully or partially specified)
         Acquire Data from Volume . . . . . . . N  (Y or N)
         Acquire Data if DFSMShsm Migrated  . . N  (Y or N)
 Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 6. Example of an ISMF Data Entry Panel

List Panels

A list panel is a tabular display of information about data sets, volumes, or SMS classes. List panels contain status information for each item in the list. Use a list panel to do tasks for an individual item or for the entire list.

Figure 7 is an example of a list panel. This panel shows total amount of space allocated, amount of space actually used, percentage of allocated space not currently used, and whether the data set is in compressed format.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 -----------------------------------------------------------------------------
                          DATA SET LIST
 Command ===>                                          Scroll===> HALF
                                                  Entries 1-4 of 4
 Enter Line Operators below:                      Data Columns 3-5 of 41

     LINE                              ALLOC     ALLOC    % NOT
     OPERATOR        DATA SET NAME     SPACE     USED     USED
    ---(1)----  ------------(2)------------ ---(3)--- ---(4)--- -(5)-
                USER10.HCD.TERM        --------- ---------    ---
                USER10.HCD.TRACE       --------- ---------    ---
                USER10.ISPPROF         --------- ---------    ---
                USER10.SPFLOG1.LIST    --------- ---------    ---
    ---------- ------  ----------- BOTTOM OF  DATA ----------- -----------
```

Figure 7. Example of an ISMF List Panel

Chapter 3, "Generating Lists," on page 23 explains how to construct a list containing only the items you want. Chapter 4, "Understanding the Format and Contents of the Lists" on page 47 explains the format of list panels and how to use the panels.

Display Panels

A display panel shows the attributes of one data class, management class, or storage class. You cannot change the information on a display panel.

Figure 8 on page 14 is an example of a display panel.

```
   Panel  Utilities  Scroll  Help
-----------------------------------------------------------------------------
                          MANAGEMENT CLASS DISPLAY               Page 3 of 5
Command ===>

CDS Name  . . . . . . : ACTIVE
Management Class Name : ACCTDSN4

Backup Attributes
  Backup frequency  . . . . . . . . . . . : 1
  Number of backup versions . . . . . . . : 2
     (Data Set Exists)
  Number of backup versions . . . . . . . : 1
     (Data Set Deleted)
  Retain days only backup version . . . . : 30
     (Data Set Deleted)
  Retain days extra backup versions . . . : 60

  Admin or User Command Backup  . . . . . : BOTH
  Auto Backup . . . . . . . . . . . . . . : YES
  Backup copy technique . . . . . . . . . : STANDARD

Use UP Command to View previous Panel; Use Down Command to View next Panel;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 8. Example of an ISMF Display Panel

Chapter 8, "Using Data Facility Storage Management Subsystem (DFSMS)," on page 119, discusses data classes, management classes, and storage classes.

Confirmation Panels

A confirmation panel is a warning that ISMF displays before beginning some operations, usually a delete. The confirmation panel asks you to verify that you really want ISMF to do the specified operation.

Figure 9 is an example of a confirmation panel. Press the ENTER key to continue or use the END command to cancel the operation.

```
   Panel  Utilities  Help
--------------------------------------------------------------------------
                          DELETE CONFIRMATION PANEL



****************************************************************************
****************************************************************************
****************************************************************************
****************************************************************************
*******                                                           ********
*******     Confirm Delete of                                     ********
*******       Data Set: USER230.ISMF.JCLIN                        ********
*******                                                           ********
****************************************************************************
****************************************************************************
****************************************************************************
****************************************************************************


Use ENTER to Perform DELETE;
Use HELP Command for Help; Use END Command to Cancel DELETE.
```

Figure 9. Example of an ISMF Confirmation Panel

Navigating Through Help Panels

Although there are different types of ISMF help panels, they all use the same basic navigation commands.

The following keys and commands control the flow of the help panels. They are the same as the keys and commands ISPF uses for HELP. You can abbreviate these commands by using enough letters to distinguish the command from others. The minimal abbreviations you may use are printed in bold characters in Table 3.

Table 3. Navigation Commands for Help Panels

ENTER	This key takes you to the next sequential help panel associated with a particular panel.
END PF3	This command takes you to the functional panel from which you originally asked for help.
UP PF7	This command takes you to the previous help selection list. From the selection list you can choose another related topic.
BACK	This command takesyou to the help panel you looked at last.
SKIP	This command takesyou to the help panel for the next related topic. In some cases, using the SKIP command is the same as pressing ENTER.
INDEX	This command takes you to the index for the ISMF help panels. Within the ISMF help index, use the ENTER key to continue with the index or the END command to return to the data entry panel. For more information, see "Using the Help Panel Index" on page 21.
HELP **PF1**	This command in HELP takes you to an ISPF tutorial panel about these HELP commands.

Using the Three Types of Help Panels

There are three types of ISMF help panels:

- Help panels for functional panels

  These help panels describe the data attributes of the output panel currently displayed, or the data entry fields, commands, and line operators for the data entry panel currently displayed. In general, they tell you how to interpret output panels and how to complete a task from the data entry panels. Help panels also give overviews of the different applications.

- Help panels for error messages

  This type of help panel explains error messages and informational messages encountered on an ISMF functional panel.

- Help panel index

  A Help Index is available from ISMF Help. It explains the terms and attributes encountered on an ISMF functional panel.

Tip: You can use the ISPF Help and ISPF Tutorial to get additional information on how to use the panels. From an ISMF help panel, use PF1 (Help) to get to an ISPF tutorial page, which lists some of the navigation commands for ISMF help panels. To view the complete tutorial, you can either create a second session using PF2 to split the screen or leave ISMF and use your current ISPF session to run the tutorial.

Using Help Panels for Functional Panels

ISMF help panels offer immediate online reference information to help you interpret and complete the ISMF panels. ISMF HELP is similar to ISPF HELP. Any time an ISMF panel is displayed, you can invoke HELP for that panel by entering **HELP** on the command line or pressing the associated PF key. You can also invoke help for a particular field in a panel by placing the cursor in the field and pressing the PF key.

Pages 16 through 17 guide you through an example of how to use the help panels.

Figure 10 shows page 1 of the Data Set Selection Entry Panel. Enter the HELP command (or use the associated PF key) on this panel.

```
   Panel  Defaults  Utilities  Scroll  Help
  ------------------------------------------------------------------------------
                        DATA SET SELECTION ENTRY PANEL            Page 1 of 5
  Command ===>

  For a Data Set List, Select Source of Generated List  . . 2  (1 or 2)

    1  Generate from a Saved List         Query Name To
         List Name  . .                    Save or Retrieve

    2  Generate a new list from criteria below
         Data Set Name . . . **
         Enter "/" to select option    _   Generate Exclusive list
         Specify Source of the new list  . . 2   (1 - VTOC, 2 - Catalog)
         1 Generate list from VTOC
           Volume Serial Number . . .          (fully or partially specified)
           Storage Group Name . . . .          (fully specified)
         2 Generate list from Catalog
           Catalog Name . . .
           Volume Serial Number . . .          (fully or partially specified)
           Acquire Data from Volume . . . . . . . N  (Y or N)
           Acquire Data if DFSMShsm Migrated  . . N  (Y or N)
  Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
  Use HELP Command for Help; Use END Command to Exit.
```

Figure 10. Invoking Help

When there is no error message, ISMF takes you to a panel containing an overview of how the Data Set Selection Entry Panel works (Figure 11 on page 17). This panel lists specific entry fields you can select for more information.

```
HELP--------------  DATA SET SELECTION FIELD DESCRIPTIONS  -------------------
Command ===> 5

   ISMF uses the information you provide on the five pages of the Data Set
   Selection Entry Panel to choose the data sets to be included in the
   data set list.  The values you specify on page 1 tell ISMF which data
   sets to look for and where to gather the information about each data
   set so that it can be displayed in the data columns on the list panel.
   Only DASD data sets or data sets originally allocated on DASD which have
   been migrated on to tape are included in the list

   Use ENTER to see the following topics in sequence, or choose them by number:

     1  DATA SET SELECTION Overview        9  Generate list from VTOC:
     2  For a Data Set List,                  Volume Serial Number
        Select Source of Generated List   10  Generate list from VTOC:
     3  List Name                             Storage Group Name
     4  Query Name To Save or Retrieve    11  Generate list from Catalog
     5  Data Set Name                         field defaults
     6  Generate Exclusive list           12  Catalog Name
     7  Specify Source of the new list    13  Volume Serial Number
        VTOC                              14  Acquire Data from Volume
     8  Specify Source of the new list    15  Acquire Data if DFSMShsm
        Catalog                               Migrated
   Use ENTER to continue, END to exit Help.
```

Figure 11. Example of Help Menu

Read the help panels in sequence by pressing the ENTER key. Or read about a specific topic by entering its selection number on the command line. For example, after typing in 5 on the help panel in Figure 11, ISMF takes you to a panel explaining the DATA SET NAME field (Figure 12).

```
HELP------  GENERATE A NEW LIST FROM CRITERIA BELOW - DATA SET NAME  -----HELP
Command ===>

   To select entries for the Data Set List, you must specify a value in the
   DATA SET NAME field.  You can specify a fully qualified name of up to 46
   characters.  You can also specify a partially qualified name:

       *  A single asterisk by itself indicates that either a qualifier or
          one or more characters within a qualifier can occupy that position.
      **  A double asterisk indicates that zero or more qualifiers can occupy
          that position.  You will be prompted for a catalog name if:
            1) you use asterisk notation with TSO prefix off, or
            2) you use quoted asterisk notation regardless of TSO prefix.
       %  A single percent sign by itself indicates that exactly one
          alphanumeric or national character can occupy that position.
   %%...  One to eight percent signs can be specified in each qualifier.

   For example, the following values are valid for DATA SET NAME:

      'SYS1.PARMLIB'         MEMO.*LIB         SYS*%.B*%%%%%.C
      'SYS1.*'              **.CLIST              *


   Use ENTER to continue, END to exit Help.
```

Figure 12. Example of HELP for a Specific Field

Use the END command to go back to the Data Set Selection Entry Panel.

Use the UP command to go back to the help menu and choose another topic.

Using Help Panels for Error Messages

ISMF also provides HELP for the ISMF messages displayed on yourscreen. When ISMF detects an error, you see a short error messagein the upper right corner of the screen. For more information, use the HELP command. ISMF displays a long error message that furtherdescribes the problem. The long error message appears just below the command line. If your ISPF user profile sets the command line to the bottom of the screen, the long message appears just above the command line.

If you invoke HELP again, ISMF displays a message help panel. This panel contains both the short and long messages and suggests how to correct the problem.

Figure 13 through Figure 15 on page 19 shows this sequence when the command RSETORE (instead of RESTORE) is entered on the command line of the Data Set List panel in Figure 13.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 -------------------------------------------------------------------------------
                          DATA SET LIST                    INVALID COMMAND
  Command ===> RSETORE                                      SCROLL ===> DATA
                                                           Entries 1-7 of 7
  Enter Line Operators Below:                              Data Columns 3-5 of 41

     LINE                                    ALLOC     ALLOC     % NOT
     OPERATOR          DATA SET NAME         SPACE     USED      USED
     ---(1)----   ------------(2)----------- ---(3)--- ---(4)--- -(5)-
     ?RSETORE     USER1.DEB.LISTING1         -------   -------    ---
                  USER1.ISMF.SYSIN.D880125.     46K       40K      13
                    T105441
                  USER1.ISPFILE               139K       93K      33
                  USER1.ISPPROF               185K      185K       0
                  USER1.SPFLOG1.LIST          371K      371K       0
                  USER1.SPFTEMP1.CNTL       ---------  ---------   ---
                  USER1.SPF3.LIST             788K      788K       0
     ----------  ------  ----------- BOTTOM  OF  DATA ----------- ------  ----
```

Figure 13. Example of a Short Error Message

The short message INVALID COMMAND appears in the upper right corner indicating that ISMF did not recognize the command.

Use the HELP command. ISMF displays the long message shown on the third line of Figure 14 on page 19.

```
  Panel  List  Dataset  Utilities  Scroll  Help
-----------------------------------------------------------------------------
                           DATA SET LIST                    INVALID COMMAND
 Command ===> RSETORE                                       SCROLL ===> DATA
 COMMAND 'RSETORE' NOT FOUND OR CONTAINS INVALID SYNTAX.
 Enter Line Operators Below:                             Data Columns 3-5 of 41

    LINE                                      ALLOC    ALLOC   % NOT
   OPERATOR           DATA SET NAME           SPACE    USED    USED
   ---(1)----  ------------(2)------------  ---(3)---  ---(4)--- -(5)-
   ?RSETORE    USER1.DEB.LISTING1           ---------  --------   ---
               USER1.ISMF.SYSIN.D880125.       46K       40K     13
                 T105441
               USER1.ISPFILE                  139K       93K     33
               USER1.ISPPROF                  185K      185K      0
               USER1.SPFLOG1.LIST             371K      371K      0
               USER1.SPFTEMP1.CNTL          ---------  --------   ---
               USER1.SPF3.LIST                788K        0K      0
   ----------  ------  ----------- BOTTOM  OF  DATA -----------  ------  ----
```

Figure 14. Example of a Long Error Message

The long message gives a further explanation of the error, suggesting that you
check the syntax.

If you invoke HELP again, ISMF displays the message help panel shown in
Figure 15, which tells you how to proceed.

```
 HELP---------------------------ISMF MESSAGE---------------------------------
 COMMAND ===>

    MESSAGE NUMBER:  DGTUS005

    SHORT MESSAGE:   INVALID COMMAND

    LONG MESSAGE:
     COMMAND 'RSETORE' NOT FOUND OR CONTAINS INVALID SYNTAX.

    EXPLANATION:
       The messages above were issued by the command, line operator,
       or ISPF during processing.

    SUGGESTED ACTION:
       The above messages should indicate the reason the command or line
       operator was not successful. For additional information refer to
       documentation appropriate to specific command. If you need further
       help contact your system programmer or your IBM customer
       representative for help.


    Use ENTER to continue with ISMF HELP, Use END to return to ISMF.
```

Figure 15. Example of a Message Help Panel

Some message help panels link back to the help panels for ISMF panels. If a panel
is linked, the bottom instruction line tells you to use ENTER to look at the next
ISMF help panel.

Because ISMF is an ISPF application, ISMF also displays ISPF error messages. If
you receive an ISPF error message, you will always see a short error message and
an associated long error message. However, you will not always see a message
help panel.

MESSAGE Line Operator

When you are working with list panels, use the **MESSAGE** line operator to display messages resulting from a previously used line operator. The resulting messages can help diagnose errors that occur when ISMF processes line operators.Line operators are commands you use in the line operator field of a list panel to perform functions on individual entries in the list. For more information about line operators, see "Line Operators" on page 77.

ISMF saves the information from the last operation performed on a specific list entry even if this operation was not the last one that ISMF did. However, ISMF only saves the information from the last operation performed for line operators that update the message history. SECURITY is an example of a line operator that does not update the message history.

Enter MESSAGE in the line operator column over the original line operator that failed. Be sure to delete at least the first character that remains from the original line operator.

A short message appears in the upper right corner of the list panel. If you invoke HELP after the short message is displayed, a longer version of the message appears just below the command line. If you invoke HELP a second time, ISMF takes you to a help panel similar to the one shown in Figure 15 on page 19. This MESSAGE help panel provides information about the line operator that failed.

Figure 16 shows an example of the MESSAGE line operator.

```
 Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                           DATA SET LIST              INVALID COMMAND
 Command ===>                                         SCROLL ===> DATA
 COMMAND 'POMPRESS' NOT FOUND OR CONTAINS INVALID SYNTAX.
 Enter Line Operators Below:                          Data Columns 3-5 of 41

    LINE                               ALLOC      ALLOC    % NOT
    OPERATOR        DATA SET NAME      SPACE      USED     USED
    ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
    *COMPRESS   USER1.DEB.LISTING1          ---------  ---------    ---
                USER1.ISMF.SYSIN.D880125.      46K        40K       13
                  T105441
                USER1.ISPFILE                 139K        93K       33
    *COMPRESS   USER1.ISPPROF                 185K       185K        0
    message S   USER1.SPFLOG1.LIST            371K       371K        0
                USER1.SPFTEMP1.CNTL        ---------  ---------    ---
                USER1.SPF3.LIST               788K       788K        0
    ----------  ------  -----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 16. Example of the MESSAGE Line Operator

In this example, the COMPRESS line operator was entered and processed for three individual data sets. However, the third COMPRESS command was misspelled. Typing in the MESSAGE line operator on top ofthe line operator causing the error gives information about the last operation done on that data set.

Using the Help Panel Index

There is an online index for ISMF help panels. From any help panel, type **INDEX** on the command line. To find a topic from the index, enter the first letter or special character of the topic on the command line. Index entries starting with that character appear. Select the index entry you want by typing in the number of the entry on the command line.

Figure 17 shows one page of the help panel index. Enter the topic identifier **31** as shown.

```
HELP-----------------  ISMF HELP INDEX: A (PAGE 3 OF 5)  -----------------HELP
COMMAND ===>

   To select a topic, enter its number on the command line.

   31  ALLOC SPACE                        (data set)
   32  ALLOC SPACE                        (DASD volume)
   33  ALLOC SPACE IN TRK-MANAGED         (DASD volume)
   34  ALLOC SP TRK-MANAGD                (DASD volume)
   35  ALLOC UNIT                         (data set)
   36  ALLOC USED                         (data set)
   37  allocation threshold               (storage group)
   38  ALLOC THRESHOLD TRK-MANAGED HIGH   (storage group)
   39  ALLOC THRESHOLD TRK-MANAGED LOW    (storage group)
   40  ALTER line operator                (construct applications)
   41  ALTER line operator                (data set)
   42  ALTER line operator                (mountable tape volume)
   43  ALTER list command                 (mountable tape volume)
   44  ALTER option overview
   45  ALTERNATE DEVICE NUMBER            (optical library)


                      (continued on next page)

   Use ENTER to continue, END to exit Help.
```

Figure 17. Example of a Page in the Help Panel Index

ISMF displays the ALLOCATED SPACE (ALLOC SPACE) help panel, as shown in Figure 18 on page 22.

```
HELP------------------------- ALLOC SPACE (3) ------------------------HELP
COMMAND ===>

 ALLOC    The value in this data column represents the total amount of space
 SPACE    (in kilobytes, K=1024 bytes, or in megabytes, M=1024 kilobytes) on
--(3)---   the volume allocated to this data set. This value is determined by
    32K   converting the number of tracks listed in the VTOC to kilobytes
          (or megabytes), and rounding to the nearest kilobyte (or megabyte).

 Possible values:  0 to 99999999 followed by K (Kilobytes)
                   or M (Megabytes).

 The following special characters may appear in this data column:

 --------  The value is not available.
 ????????  The value cannot be displayed because of an error in the VTOC
           or catalog.

 For VSAM data sets, the space shown is for the component listed.  If the
 list entry is a data component of a VSAM data set with the IMBED attribute,
 the space includes the index sequence set space.  An INDEX component entry
 only includes space for the high-level index.

 Use ENTER to continue, END to exit Help.
```

Figure 18. Displaying a Help Panel from the ISMF Help Panel Index

Use the ENTER key to go back to the help panel index. Use the END command from either the index or help panel to return to the functional panel you were using when you invoked HELP.

Chapter 3. Generating Lists

You can construct a list of information about specific data sets, volumes, or SMS classes. This list can help you manage your data and storage. To generate a list of data sets, volumes, or SMS classes, select the appropriate ISMF application and supply the required information on the application selection entry panels.

This chapter gives an overview of the following topics:
- The basics of generating lists
- Generating each type of list
- List generation error messages
- Redisplaying a list during an ISMF session

Some Basics of Generating Lists: Listing Data Sets and Volumes

As mentioned, the goal of list generation is to provide a list of data sets, volumes, or SMS classes and their attributes. Through these lists, you may directly manage your data for space, availability, and performance.

To generate a list, you must describe to ISMF which data sets or volumes to include. You can generate a list of your data sets using the defaults, or a list containing only a few narrowly selected entries by entering more specific information about the entries on the appropriate selection entry panel. The more entries you select, the longer it will take to generate the list.

Rule: If you limit more than one field on a selection entry panel, the list contains only the data sets meeting *all* of the selection criteria. If ISMF cannot determine whether a data set meets your selection criteria, the data set will be included in the list. Values of dash (-), question mark (?), less-than (<), and greater-than (>) always meet any selection criteria.

The Data Set and DASD Volume Applications have more than one page for entering selections. Page 1 is mandatory. The other pages of these applications are optional. They include only fields that you may use as criteria to limit the types of data sets or volumes you wish to appear in the final list. All of these optional selection criteria correspond to the informational data attributes provided in the generated lists. Use the following scrolling commands to move back and forth through the pages of selection entry panels:

Command
> **Description**

DOWN
> Takes you to the next page of the selection entry panel.

UP Takes you to the previous page of the selection entry panel.

Scroll back and forth through the pages of a selection entry panel until you have finished filling in all the fields you need. Press the ENTER key to create the list.

Specifying Information in Input Fields

To fill out a selection entry panel, enter information in the input fields. As mentioned, some fields are mandatory and some are optional. When a selection entry panel is first used, ISMF displays default values in the mandatory fields. The optional fields are blank. ISMF online help describes each field.

The input fields on the selection entry panels hold their values from the last time you generated a list. Change an existing value by typing over it. Erase an existing value by spacing over it with blanks.

Use the CLEAR command to reset all fields on a selection entry panel to their default settings. Enter CLEAR on the command line in one of the following ways:

CLEAR PAGE
    Clears the current page of the selection entry panel.
CLEAR PAGE_x_
    Clears page _x_ of the selection entry panel.
CLEAR ALL
    Clears all pages of the selection entry panel.

Tip: CLEAR PAGE is the only valid CLEAR command that you can use for applications with only one selection entry panel page.

Limiting Entries in the List and Partial Qualification

The information you supply on a selection entry panel limits the entries appearing on a list. Each input field on a selection entry panel corresponds to a data column in the corresponding list panel. For example, specify a single data set name on the Data Set Selection Entry Panel. The corresponding list panel contains a single entry for that data set. Or, if you specify a partial data set name, the corresponding list panel contains all data sets whose name matches the partial name. The process of selecting data sets and volumes using partial names is called _partial qualification_.

Partially Qualifying Data Set Names

To qualify data set names, use asterisks and percent signs as global file-name characters within a qualifier:

- Use a percent sign as a global file-name character for a single position:

  ```
  Data Set Name   ===> TEST%
  ```

  ISMF selects data sets whose name is exactly five characters and starts with the letters TEST. This example could include TEST1 to TEST9 or TESTA to TESTZ, or both.

- Use an **asterisk** as a global file-name character for zero or more characters.

  For example, when you specify the following data set name, ISMF selects data sets whose name consists of only one qualifier and begins with the letters TEST. This could include: TEST, TESTX, and TEST1 through TEST1000:

  ```
  Data Set Name   ===> TEST*
  ```

- When specifying a data set name, use a **double asterisk** as a global file-name character for any number of qualifiers. A _qualifier_ is one of the parts connected by periods that constitute a data set name. A data set name consists of one or more qualifiers.

For example, when you specify the following partial data set name, ISMF selects data sets with any number of qualifiers:

```
Data Set Name   ===> 'SYS1.**'
```

The first qualifier must be SYS1. The other qualifiers can be anything. ISMF could select the following data sets: SYS1.TEST.TEST, SYS1.LIST.XMP, SYS1.MEMO.EMPL.A.

You can use and mix several global file-name characters to qualify data sets. For example:

```
Data Set Name   ===> 'SYS*%.B*%%%%.C'
```

In the first qualifier, SYS*%, the percent sign means that there must be at least one character after the letters SYS. In the second qualifier, B*%%%%, the five percent signs mean that there must be at least five characters after the letter B. The asterisk between the letter B and the first percent sign indicates that zero or more characters can be inserted in this position.

Partially Qualifying DASD Volume Names

Use an **asterisk sign** as a global file-name character for zero or more characters.

For example, when you specify the following partial volume serial number, ISMF lists all volume names whose first three characters are SYS.

```
Volume Serial Number ===> SYS*
```

The list might include SYS1, SYSA, SYS, or SYSLIB.

In a later discussion of selection entry panels (starting with "Generating a Data Set List"), the instructions for each field explain how the global file-name characters work in different situations.

Other Ways of Limiting Entries

For many fields on the selection entry panels, you can specify ranges of acceptable values. For example, use the Data Set Selection Entry Panel to ask for data sets created between two selected dates. Or, use the Volume Selection Entry Panel to ask for volumes with more than 100 free extents.

You can combine selection criteria to produce highly selective lists. For example, use the Data Set Selection Entry Panel to ask for all data sets on a specific volume last referenced more than six months ago. Or, use the Volume Selection Entry Panel to ask for a list of volumes with less than 20% free space and a high fragmentation index.

Generated List Panel

The output generated from the selection entry panels is displayed in a list panel. Please refer to "Understanding the Format and Contents of the Lists" on page 47 for a description of the list panels.

Generating a Data Set List

Select option 1, Data Set Application, from the ISMF Primary Option Menu. ISMF then displays the first page of the Data Set Selection Entry Panel. Page 1 contains several mandatory and optional fields. The other pages contain optional fields. The following sections explain how to fill in each of the pages.

Completing Page 1 of the Data Set Selection Entry Panel

Only DASD data sets, or data sets originally allocated on DASD and migrated to tape, are included in the data set lists. Use the fields on page 1 of the Data Set Selection Entry Panel to set up your basic selection criteria: the names of the data sets to include in the list and the source ISMF uses to generate the list.

Figure 19 on page 26 shows page 1 with its default values.

```
   Panel  Defaults  Utilities  Scroll  Help
 -----------------------------------------------------------------------------
                       DATA SET SELECTION ENTRY PANEL              Page 1 of 5
 Command ===>

 For a Data Set List, Select Source of Generated List  . . 2  (1 or 2)

   1  Generate from a Saved List          Query Name To
        List Name  . .                     Save or Retrieve

   2  Generate a New List from Criteria Below
        Data Set Name . . . *
        Enter "/" to select option    _  Generate Exclusive list
        Specify Source of the new list  . . 2   (1 - VTOC, 2 - Catalog)
        1 Generate list from VTOC
           Volume Serial Number . . .          (fully or partially specified)
           Storage Group Name . . . .          (fully specified)
        2 Generate list from Catalog
           Catalog Name . . .
           Volume Serial Number . . .          (fully or partially specified)
           Acquire Data from Volume . . . . . . . N  (Y or N)
           Acquire Data if DFSMShsm Migrated  . . N  (Y or N)
 Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 19. Page 1 of the Data Set Selection Entry Panel

Here is an overview of each field:

For a Data Set List, Select Source of Generated List
In this mandatory field, indicate whether to create a new list or use a list previously saved with the SAVE command.

Option Meaning

1   Use a list previously saved with the SAVE command. When selecting this option, you must complete the field under `Generate from a Saved List`. See "Saving a Copy of the List" on page 70 for more information.

2   Create a new list. When selecting this option, you must complete the fields under `Generate a New List from Criteria Below`.

1 Generate from a Saved List
Complete the following field if you selected option 1 for `Select Source of Generated List`:

List Name
Enter the name of a list previously saved with the SAVE command. The list name can be up to 8 alphanumeric characters long and must follow naming conventions for members of partitioned data sets.

2 Generate a New List fom Criteria Below
Complete the following fields if you selected option 2 for `Select Source of Generated List`.

Data Set Name
The name entered in this field determines which data sets appear in the list. Enter a fully qualified name and the list contains only that data set. Enter a partially qualified name and the list contains all data sets whose name matches the specified criteria.

Use up to 46 characters, including periods used as delimiters and single quotation marks. If you put single quotation marks around the data set name (for example, 'K665941.CLIST.CLIST'), ISMF uses the name exactly as entered.

To partially qualify a data set name, use asterisks and percent signs as global file-name characters. "Limiting Entries in the List and Partial Qualification" on page 24 explains how to use these.

Use a percent sign, a single asterisk, or a double asterisk to ask ISMF to select multiple data sets. The effect of this request depends on whether you use single quotation marks with the asterisks.

Asterisks used without single quotation marks.
Use single or double asterisks to select data sets with your TSO prefix or userid.

If you enter a single asterisk:

```
Data Set Name   ===> *
```

ISMF uses your TSO prefix or userid as the first qualifier and lists all data sets with two qualifiers. The first qualifier must be your prefix. The second qualifier can be anything.

If you enter a double asterisk:

```
Data Set Name   ===> **
```

ISMF uses your TSO prefix or userid and lists all data sets with your prefix as the first qualifier and any number of additional qualifiers.

Asterisks used with single quotation marks
Use single quotation marks with a single asterisk or double asterisk. You can do this if you generate the list from the VTOC (by selecting option 1 for Specify the Source of the New List) or from a catalog (by selecting option 2 for Specify the Source of the New List and providing a catalog name in the Catalog Name field). Use a single asterisk to take the place of a single qualifier, including a high-level qualifier:

```
Data Set Name   === > '*.LOAD'
```

Use a double asterisk to take the place of any number of qualifiers. Here is an example showing how to specify a double asterisk along with all the other necessary options:

```
Data Set Name   ===> '**'

Specify Source of the New List ===> 2   (1 - VTOC, 2 - Catalog)
⋮
2  Generate List from Catalog
    Catalog Name  ===> SYS1.ICFCAT.ABC0D1
```

If you specify SYS1 as your first data set qualifier and do not use a global file-name character at the end of the qualifier, ISMF checks only the catalog where SYS1 is cataloged. If instead of the character 1 you use an asterisk as a global file-name character at the end of the first data set qualifier, ISMF checks all the catalogs that include data sets starting with the SYS characters. Thus, if you generate a list using 'SYS*.VVDS.*' you may retrieve more entries starting with SYS1 than if you use 'SYS1.VVDS.*'. This is because ISMF supports aliases.

If a 'SYS1' data set is allocated using an indirect volser (*****), any action against it will result in the indirect volser being resolved to the current system sysres volume. This is regardless if the list was generated using a catalog name in another system.

Generate Exclusive List

In this field, indicate whether you want to generate an exclusive list or an inclusive list. The exclusive list has only the criteria entered in the selection entry panel. The inclusive list has those entries that include the values of dash (-), question mark (?), less-than (<), and greater-than (>), along with entries in the exclusive list.

Option Meaning

/ or any non-blank character
Generates exclusive list

Blank   Generates inclusive list

Specify Source of the New List

In this field, indicate where ISMF must gather information about the data sets you specified in the `Data Set Name` field. Refer to Appendix A, "Special Considerations," on page 163 for special considerations about what source you should choose.

Option Meaning

1   ISMF gathers data set names from the volume table of contents (VTOC) without going through the catalog. Also use this option when you want to gather information about uncataloged data sets. When you select this option, you must complete the fields under `Generate List from VTOC`.

2   ISMF goes to the integrated catalog facility catalog to retrieve information. When you select this option, you must complete the fields under `Generate List from Catalog`.

If you want ISMF to access the VTOC in addition to the catalog, enter Y in the `Acquire Data from Volume` field. If you want ISMF to retrieve information about migrated data sets, enter Y in the `Acquire Data if DFSMShsm Migrated` field.

If you choose the catalog as the only source for the list, the following information appears in the data set list:
- Data set name
- Volume serial number
- Device type
- Creation date
- Expiration date
- Whether the data set is multivolume
- Storage Management Subsystem information
- Entry type
- Data set environment
- Owner
- Number of Stripes
- Data set name type
- Whether the data is in compressed format
- Percentage of user data reduction (if in compressed format)
- Whether DDM attributes exist for the data set
- Code Character Set ID description

See Also: For a list of CCSIDs and default LOCALNAMEs, see *z/OS DFSMSdfp Storage Administration*.

1 Generate List from VTOC

Complete **one** of the following fields if you selected option 1 for `Specify the Source of the New List`.

Volume Serial Number

Enter a full or partial serial number of the volume or volumes whose VTOC ISMF must search for information about the data sets specified in the `Data Set Name` field.

Complete the `Volume Serial Number` field with either a full or partial volume serial number of one to six characters. To specify a partial volume serial number, use an asterisk in any position as a global file-name character. For example:

```
1  Generate List from VTOC
     Volume Serial Number  ===> SYS*
```

You can specify six asterisks for the system residence volume (SYSRES):

```
1  Generate List from VTOC
     Volume Serial Number  ===> ******
```

The generated list contains all the data sets on the SYSRES volume that meet your other selection criteria. The actual volume serial number of each data set appears in the volume serial number data column.

Note: Volume Serial Number is not allowed when **Storage Group Name** is specified.

Storage Group Name

Enter the name of a storage group that contains the volume or volumes whose VTOC ISMF must search for information about the data sets specified in the `Data Set Name` field.

The generated list contains all the data sets on the SYSRES volumes specified by the storage group that meet your other selection criteria. The actual volume serial number of each data set appears in the volume serial number data column.

Note: Storage Group Name is not allowed when **Volume Serial Number** is specified.

2 Generate List from Catalog

Complete the following fields if you selected option 2 for `Specify the Source of the New List`.

Catalog Name

In this optional field, enter without quotation marks a fully qualified, integrated catalog facility catalog name of up to 44 characters: If you specify a catalog name, ISMF searches only that catalog for data sets that meet your selection criteria. In the SMS environment, you will need the proper level of directed catalog search authority to access the data sets of this catalog. If not specified, ISMF searches in the standard catalog order of search (usually user catalogs, then master catalog).

Volume Serial Number

Enter a full or partial volume serial number. When generating the list, ISMF includes only those data sets residing on the volumes you choose. The volumes must be mounted in order to be accessed.

You can enter a specific volume serial number of one to six characters:

```
Volume Serial Number ===> SYS001
```

Or enter a partial volume serial number by using a single asterisk as a global file-name character:

```
Volume Serial Number ===> SYS*
```

To specify the system residence volume (SYSRES), use six asterisks:

```
Volume Serial Number ===> ******
```

Or specify the actual SYSRES volume serial number:

```
Volume Serial Number ===> RESI01
```

If you use six asterisks for the SYSRES volume, only data sets cataloged with this notation (instead of a specific volume serial number) appear in the data set list. If you specify the actual SYSRES volume serial number, only data sets cataloged using the actual volume serial number appear in the list.

Use a single asterisk to specify all cataloged data sets that fit your other selection criteria, regardless of the volume they reside on:

```
Volume Serial Number ===> *
```

Acquire Data from Volume

Indicate whether to retrieve information from the volume in addition to information retrieved from the catalog:

Option Meaning

Y   ISMF first accesses the catalog to gather as much information as possible. ISMF then goes to the volume to retrieve additional information for the list. If the data set has not been migrated, you gain the following additional information:

- Amount of allocated space
- Amount of used space
- Data set environment (VSAM data and index component)
- Percentage of allocated space not used (only for non-VSAM data sets)
- Number of extents
- Allocation unit
- Secondary allocation
- Data set organization
- Record format
- Record length
- Block size or control interval size
- Optimal block or control interval size
- Blocks unused
- Last reference date
- Change indicator
- Reblockable indicator
- Last backup date

N   ISMF does not access information in the volume.

Acquire Data if DFSMShsm Migrated
Indicate whether to retrieve information from the migration control data set in addition to information retrieved from the catalog:

Option Meaning

Y ISMF goes to the DFSMShsm migration control data set (MCDS) for information about migrated data sets. The expiration date is also obtained. Gathering information about migrated data sets increases the time it takes to generate the list. For more information about migrated data sets, see "Using ISMF for Migrated Data Sets" on page 164.

N ISMF does not gather information about migrated data sets.

Once you complete page 1 of the Data Set Selection Entry Panel, use the next pages to specify additional selection criteria for your list. You can bypass any or all of the next pages. However, ISMF checks for values on these pages. If values are present from a previous session, ISMF displays the short message OTHER VALUES PRESENT.

Completing Optional Pages of the Data Set Selection Entry Panel

You can limit the number of entries you retrieve by further defining your selection criteria on the optional pages of the application. Please refer to the online help panels for more information.

Final Step: Generating the List

After completing the five pages of the Data Set Selection Entry Panel, you are ready to generate the data set list. Press the ENTER key. ISMF displays the data sets that meet your selection criteria, as shown in Figure 20.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                            DATA SET LIST
 Command ===>                                          Scroll ===> HALF
                                                  Entries 1-13 of 379
 Enter Line Operators below:                      Data Columns 3-5 of 41

     LINE                                  ALLOC      ALLOC    % NOT
   OPERATOR         DATA SET NAME          SPACE      USED     USED
   ---(1)----   ------------(2)----------- ---(3)--- ---(4)--- -(5)-
                SYS1.ADFMAC1               --------- --------- ---
                SYS1.BRODCAST              --------- --------- ---
                SYS1.CBRDBRM               --------- --------- ---
                SYS1.CHSLIB                --------- --------- ---
                SYS1.CLIST                 --------- --------- ---
                SYS1.CMDLIB                --------- --------- ---
                SYS1.COB2LIB               --------- --------- ---
                SYS1.CSSLIB                --------- --------- ---
                SYS1.C90SPAC.PARMLIB       --------- --------- ---
                SYS1.C90SPAC.PROCLIB       --------- --------- ---
                SYS1.DAE                   --------- --------- ---
                SYS1.DBBLIB                --------- --------- ---
                SYS1.DFPSHCDS.PLX2ACT.     --------- --------- ---
                   VCV9PX1
```

Figure 20. Generated Data Set List Panel

Tips:

1. If you limit more than one field on a selection entry panel, the list contains only the data sets meeting *all* of the selection criteria. If ISMF cannot determine whether a data set meets your selection criteria, the data set will be included in the list. Values of dash (-), question mark (?), less-than (<), and greater-than (>) always meet any selection criteria. If the exclusive list field contained in the panel is specified, the list generated will contain only the entries that meet the specified selection criteria. If this field is not specified, the list will be inclusive. You can use the filter command with the same selection criteria to exclude entries with the special characters.

2. When dealing with VSAM data sets, it is best to include all selection criteria because some selection criteria are not in the cluster, causing them to be excluded if exclusive is specified. Few of the line operators will function only against clusters.

   Related Reading: After creating a list, you can sort and tailor it to your needs before beginning storage management tasks. See Chapter 4, "Using the Data Set or Volume List," on page 47.

3. To save a new list that you have generated, enter the SAVE command followed by the name you want to use to identify the list. Read about "Saving a Copy of the List" on page 70.

Generating a DASD Volume List

Select option 2, Volume Application, from the ISMF Primary Option Menu. ISMF then displays the Volume List Selection Menu (Figure 21).

```
  Panel  Help
 ------------------------------------------------------------------------------
                        VOLUME LIST SELECTION MENU
 Enter Selection or Command ===> 1

   1  DASD              - Generate a list of DASD volumes
   2  Mountable Optical - Generate a list of Mountable Optical volumes
   3  Mountable Tape    - Generate a list of Mountable Tape volumes
```

Figure 21. The Volume List Selection Menu

To generate a list of DASD volumes, select option 1, as shown in Figure 21. ISMF then displays the first of three pages of the Volume Selection Entry Panel. Page 1 contains several mandatory fields, and the others contain optional fields. The following sections explain how to fill in each of the pages.

Completing Page 1 of the Volume Selection Entry Panel

Use the fields on page 1 of the Volume Selection Entry Panel to set up your basic selection criteria: the serial numbers of the volumes to include in the list and the source ISMF uses to generate the list.

Figure 22 on page 33 shows page 1 with its default values.

```
   Panel  Defaults  Utilities  Scroll  Help
  ---------------------------------------------------------------------------
                       VOLUME SELECTION ENTRY PANEL              Page 1 of 3
  Command ===>

  Select Source to Generate Volume List  . . 2  (1 - Saved list, 2 - New list)

    1  Generate from a Saved List          Query Name To
         List Name  . .                     Save or Retrieve
    2  Generate a New List from Criteria Below
         Specify Source of the New List  . . 1  (1 - Physical, 2 - SMS)
         Optionally Specify One or More:
         Enter "/" to select option     _   Generate Exclusive list
           Type of Volume List . . . 1         (1-Online,2-Not Online,3-Either)
           Volume Serial Number  . . *         (fully or partially specified)
           Device Type . . . . . . .           (fully or partially specified)
           Device Number . . . . . .           (fully specified)
             To Device Number  . . .           (for range of devices)
           Acquire Physical Data . . N         (Y or N)
           Acquire Space Data  . . . N         (Y or N)
           Storage Group Name  . . .           (fully or partially specified)
           CDS Name . . . . . . .
                                               (fully specified or 'Active')
  Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
  Use HELP Command for Help; Use END Command to Exit.
```

Figure 22. Volume Selection Entry Panel

Here is an overview of each field:

Select Source to Generate Volume List
>In this mandatory field, indicate whether to create a new list or use a list previously saved using the SAVE command.

>**Option Meaning**

>**1**   Use a list previously saved with the SAVE command. When selecting this option, you must complete the field under Generate from a Saved List. See "Saving a Copy of the List" on page 70 for more information.

>**2**   Create a new list. When selecting this option, you must complete the fields under Generate a New List from Criteria Below.

1 Generate from a Saved List
>Complete the following field if you selected option 1 for Select Source to Generate Volume List:

>**List Name**
>>Enter the name of a list previously saved with the SAVE command. The list name can be up to 8 alphanumeric characters long and must follow naming conventions for members of partitioned data sets.

2 Generate a New List from Criteria Below
>Complete the following fields if you selected option 2 for Select Source to Generate Volume List:

>**Specify Source of the New List**
>>Indicate where ISMF must look or go to generate the volume list.

>>**Option Meaning**

>>**1**   Generate the list from volumes physically known (either online or off-line) to the system. To get non-SMS-managed volumes, the storage group name and control data set (CDS) name must be blank.

>>**2**   Generate the list from volumes defined to a storage group of a

specified CDS. The retrieved volumes can be either online or off-line DASD, but only online DASD will contain information.

Generate Exclusive List

In this field, indicate whether you want to generate an exclusive list or an inclusive list. The exclusive list has only the criteria entered in the selection entry panel. The inclusive list has those entries that include the values of dash (-), question mark (?), less-than (<), and greater-than (>), along with entries in the exclusive list.

Option Meaning

/ or any non-blank character
Generates exclusive list

Blank Generates inclusive list

Type of Volume List

Use this optional field to choose online or off-line volumes, or both.

Option Meaning
1   Include only online volumes.
2   Include only offline volumes.
3   Include all volumes, online and offline.

Restriction: An "end user" can generate only online volume lists. Creating offline lists (option 2 or 3) requires "system administrator" mode.

Volume Serial Number

Enter a full or partial serial number of the volume or volumes to include in the list.

Use this optional field to restrict the list to volumes with a specific volume serial number or range of volume serial numbers. To include a single volume, enter a fully qualified volume serial number of one to six characters:

```
Volume Serial Number ===> SYS001
```

To include a range of volumes, enter a partially qualified volume serial number by using a single asterisk as a global file-name character:

```
Volume Serial Number ===> SYS*
```

Use six asterisks to specify the system residence volume (SYSRES):

```
Volume Serial Number ===> ******
```

Use a single asterisk to specify all mounted volumes that fit your other selection criteria:

```
Volume Serial Number ===> *
```

Device Type

Use this optional field to restrict the list to volumes of a particular type. The device type must be between one and eight characters. Use a generic name (such as 3390) or an esoteric name (such as SYSDA). The name can be fully or partially qualified.

To specify a fully qualified name, enter:

```
Device Type        ===> 3390
```

To specify a partial name, use a single asterisk as a global file-name character:

```
Device Type          ===> 33*
```

To indicate all device types, use a single asterisk:

```
Device Type          ===> *
```

Device Number

Use this optional field to restrict the list to volumes on a single device or range of devices. Device number is sometimes called unit address. You must specify each device number in one to four hexadecimal characters.

For a single device number, enter:

```
Device Number        ===> 4CD7
  To Device Number   ===>
```

For a range of device numbers, enter:

```
Device Number        ===> 4CD7
  To Device Number   ===> 4CDF
```

Acquire Physical Data

Use this optional field to add additional information to the volume list. The information consists of the physical characteristics of the DASD on which the volumes reside.

Option Meaning

Y   Include information from the DASD. This option gathers information for the following data columns in your volume list:
- Cache fast write status
- DASD fast write status
- Device type
- Device number
- Duplex status
- MVS™ system status
- Read cache status
- Other device
- Subsystem identifier
- Shared DASD
- Use attributes

N   Do not include information from the DASD.

Acquire Space Data

Use this optional field to add additional information to the volume list. The additional information describes the space characteristics of the volume.

Option Meaning

Y   Include information about the volume space. This option gathers information for the following data columns in your volume list:
- Allocated space
- Fragmentation index
- Free DSCBs
- Free extents
- Free space
- Free VIRs
- Index status
- Largest extent
- Percent free space
- Physical status

> **N** Do not include information about the volume space.

Storage Group Name

Use this optional field to restrict the list to volumes belonging to an SMS storage group.

Enter an asterisk in this field to bring up the volume list and then find a specific storage group name in column 23. Or, ask the storage administrator.

If you specified option 1 for `Specify Source of the New List`, this field is primed with blanks and defaults to blanks.

If you specified option 2 for `Specify Source of the New List`, this field defaults to an asterisk to include volumes associated with all storage group names.

```
Storage Group Name    ===> *
```

CDS Name

Use this optional field in conjunction with the `Storage Group Name` field to limit the list to volumes managed by SMS.

Tip: To get a list of non-SMS-managed volumes, leave the `Storage Group Name` and the `CDS Name` fields blank.

Enter the name of the control data set (CDS) containing the SMS information. A CDS name can be up to 44 characters long. When the name is enclosed in single quotation marks, you can use up to 46 characters. ISMF processes quoted and unquoted data set names using TSO conventions.

If you specified option 1 for `Specify Source of the New List`, this field defaults to blanks.

If you specified option 2 for `Specify Source of the New List`, this field defaults to 'ACTIVE' to list volumes in the active control data set.

```
CDS Name              ===> 'ACTIVE'
```

Completing Optional Pages of the Volume Selection Entry Panel

Pages 2 and 3 of the DASD Volume Selection Entry Panel are optional and enable you to limit the number of entries you retrieve by further defining your selection criteria. Please refer to the online help panels for more information.

Final Step: Generating the List

After entering the information you want on the Volume Selection Entry Panel, you are ready to generate the list. Press the ENTER key. ISMF displays the volumes that meet your selection criteria, as shown in Figure 23 on page 37.

```
   Panel  List  Utilities  Scroll  Help
 -----------------------------------------------------------------------------
                                 VOLUME LIST
 Command ===>                                           Scroll ===> PAGE
                                                  Entries 1-10 of 10
 Enter Line Operators below:                      Data Columns 3-8 of 43


    LINE         VOLUME  FREE       %       ALLOC      FRAG    LARGEST   FREE
    OPERATOR     SERIAL  SPACE     FREE     SPACE      INDEX   EXTENT    EXTENTS
    ---(1)----   -(2)--  ---(3)--- -(4)-    ---(5)---  -(6)-   ---(7)--- --(8)--
                 HSM920  644498K    23      2127002K    356     82174K     31
                 HSM921  752513K    27      2018987K    264    501122K    263
                 HSM922  825336K    30      1946164K    230    406996K     38
                 HSM923  735581K    27      2035919K    207    436158K     45
                 HSM924  860861K    31      1910639K    191    555241K     35
                 HSM925  827604K    30      1943896K    115    659051K     28
                 USER00  288300K    10      2483200K     28    277344K     27
                 USER01  819415K    30      1952085K    307    297984K     51
                 1P0302  835241K    30      1936259K    178    540355K     39
                 1P0303  791913K    29      1979587K    290    298593K     43
```

Figure 23. A Completed Volume List

If you limit more than one field on a selection entry panel, the list contains only
the data sets that meet **all** of the selection criteria. If ISMF cannot determine
whether a data set meets your selection criteria, the data set will be included in the
list. Values of dash (-), question mark (?), less-than (<), and greater-than (>) always
meet any selection criteria.

If the exclusive list field contained in the panel is specified, the list generated will
contain only the entries that meet the specified selection criteria. If this field is not
specified, then the list will be inclusive. You can use the filter command with the
same selection criteria to exclude entries with the special characters.

After creating a list, you can sort and tailor it to your needs before beginning
storage management tasks. See Chapter 4, "Using the Data Set or Volume List," on
page 47 for more information.

Generating a Mountable Optical Volume List

Select option 2, Volume Application, from the ISMF Primary Option Menu. ISMF
displays the Volume List Selection Menu (Figure 24).

```
   Panel   Help
 -----------------------------------------------------------------------------
                        VOLUME LIST SELECTION MENU
 Enter Selection or Command ===> 2

    1  DASD              - Generate a list of DASD volumes
    2  MOUNTABLE OPTICAL - Generate a list of Mountable Optical volumes
    3  MOUNTABLE TAPE    - Generate a list of Mountable Tape volumes
```

Figure 24. The Volume List Selection Menu

To generate a list of mountable optical volumes, select option 2, as shown in
Figure 24. ISMF displays the Mountable Optical Volume Selection Entry Panel.

Completing the Mountable Optical Volume Selection Entry Panel

Use the fields on the Mountable Optical Volume Selection Entry Panel to set up basic selection criteria: the serial numbers of the volumes to include in the list and the source ISMF uses to generate the list.

Figure 25 shows the Mountable Optical Volume Selection Entry Panel with its default values.

```
                MOUNTABLE OPTICAL VOLUME SELECTION ENTRY PANEL
  Command ===>

  Select Source to Generate Volume List  . . 2  (1 - Saved list, 2 - New list)

       1 Generate from a Saved List
           List Name  . .

       2 Generate a New List from Criteria Below
           Volume Serial Number . . . *        (fully or partially specified)
           Library Name . . . . . . . *        (fully or partially specified)
           Storage Group Name . . . . *        (fully or partially specified)
           Optical Media Type . . . . ALL       (See help for valid values)




           Enter "/" to select option   _    Respecify View Criteria
                                        _    Respecify Sort Criteria

  Use ENTER to Perform Selection;
  Use HELP Command for Help; Use END Command to Exit.
```

Figure 25. Mountable Optical Volume Selection Entry Panel

Here is an overview of each field:

Select Source to Generate Volume List
> In this mandatory field, indicate whether to create a new list or use a list previously saved with the SAVE command.

> **Option Meaning**

> **1**   Use a list previously saved with the SAVE command. When selecting this option, you must complete the field under `Generate from a Saved List`. See "Saving a Copy of the List" on page 70 for more information.

> **2**   Create a new list. When selecting this option, you must complete the fields under `Generate a New List from Criteria Below`.

1 Generate from a Saved List
> Complete the following fields if you selected option 1 for `Select Source to Generate Volume List`:

> **List Name**
>> Enter the name of a list previously saved with the SAVE command. The list name can be up to eight alphanumeric characters long and must follow naming conventions for members of partitioned data sets.

2 Generate a New List from Criteria Below
> Complete the following fields if you selected option 2 for `Select Source to Generate Volume List`:

Volume Serial Number

Enter a full or partial serial number of the volume or volumes to include in the list. Use this field to restrict the list to volumes with a specific volume serial number or range of volume serial numbers.

To include a single volume, enter a fully qualified volume serial number of 1 to 6 characters:

```
Volume Serial Number ===> SYS001
```

For a partially qualified name, use asterisks as global file-name characters. See "Limiting Entries in the List and Partial Qualification" on page 24 for more information.

For example, to include a range of volumes, enter a partially qualified volume serial number by using one or two asterisks as global file-name characters:

```
Volume Serial Number ===> SYS*
```

Two asterisks are the maximum number of global file-name characters allowed.

Use a single asterisk to specify all mounted volumes that fit your other selection criteria:

```
Volume Serial Number ===> *
```

Library Name

Enter the one- to eight-character name of an optical disk library. Specify the library name the same way you specify the volume serial number.

Storage Group Name

Enter the one- to eight-character name of an SMS storage group. Specify the storage group name the same way you specify the volume serial number.

All SMS-managed volumes belong to a storage group. Non-SMS volumes do not belong to storage groups.

Optical Media Type

Enter the three- to eight-character type of optical media on which the volume resides. ALL (default) for all available optical media types. ALL is the default value. This field is primed with the last value used. See the *z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support* for valid optical media types.

Respecify View Criteria

In this mandatory field, you can choose to display the Mountable Optical Volume View Entry Panel to select the columns and the order of the columns to display on the list panel. If you specify not to VIEW criteria, leave this field blank, the Mountable Optical Volume List Panel is displayed, using the default VIEW criteria (display all columns in alphabetical order) or the criteria that were last specified to ISMF, if any. This may result in a restricted view.

Option Meaning

/   Display the Mountable Optical Volume View Entry Panel before creating the volume list.

blank   Do not display the Mountable Optical Volume View Entry Panel before creating the volume list. Blank is the default.

Respecify Sort Criteria

In this mandatory field, you can choose to display the Mountable Optical Volume Sort Entry Panel to sort the resulting volume list according to the values in its data columns.

Option Meaning

/   Display the Mountable Optical Volume Sort Entry Panel before creating the volume list.

blank Do not display the Mountable Optical Volume Sort Entry Panel before creating the volume list. Blank is the default.

For example, sort the list by specifying descending order for the values in the volume type column. Specify a secondary sort to arrange the free space column in ascending order. The volumes sort in reverse alphabetic order by volume type. Volumes of the same type sort by their amount of free space, from lowest to highest.

If you specify / for both VIEW and SORT criteria, the Mountable Optical Volume View Entry Panel is displayed, followed by the Mountable Optical Volume Sort Entry Panel.

Final Step: Generating the List

After entering the information you want on the Mountable Optical Volume Selection Entry Panel, you are ready to generate the list. Press the ENTER key. ISMF displays the volumes that meet your selection criteria. Figure 26 shows a completed Mountable Optical Volume List.

```
  Panel  List  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                      MOUNTABLE OPTICAL VOLUME LIST
  Command ===>                                          Scroll ===> PAGE
                                                   ENTRIES 1-14 OF 260
  Enter Line Operators Below:                      Data Columns 3-9 of 21

     LINE        VOLUME  FREE   %     FULL     VOLUME    LIBRARY   SLOT  STORAGE
     OPERATOR    SERIAL  SPACE  USED  STATUS   TYPE      NAME      NAME  GRP NAME
    ---(1)----   -(2)--  -(3)-  (4)-  -(5)--   --(6)---  --(7)---  (8)-  --(9)---
                 VOL007   225      0  NO       SCRATCH   REAL1     003   --------
                 VOL008   264      0  NO       SCRATCH   REAL1     003   --------
                 VOL014   215     78  NO       NONGROUP  REAL1     006   --------
                 VOL013   225     77  NO       NONGROUP  REAL1     006   --------
                 VOL005     0    100  YES      GROUP     REAL1     002   OBJSG
                 VOL006   215     78  NO       GROUP     REAL1     002   OBJSG
                 VOL012   215     78  NO       GROUP     REAL1     005   OBJSG
                 VOL004   225     77  NO       GROUP     REAL1     001   OBJSG
                 VOL009   225     77  NO       GROUP     REAL1     004   OBJSG
                 VOL011   225     77  NO       GROUP     REAL1     005   OBJSG
                 VOL003   264     73  NO       GROUP     REAL1     001   OBJSG
                 VOL010   264     73  NO       GROUP     REAL1     004   OBJSG
                 VOL002   391     60  NO       BACKUP    PSEUD01   ---   OBJBKSG
                 VOL001   489     50  NO       BACKUP    PSEUD01   ---   OBJBKSG
```

Figure 26. A Mountable Optical Volume List

If you entered information in more than one field on a selection entry panel, the list contains only the volumes meeting *all* of the specified parameters.

You can sort and tailor a list to your needs with the View and Sort options on the selection panel. You can also tailor a list after you create it. See Chapter 4, "Using the Data Set or Volume List," on page 47 for more details.

Generating a Mountable Tape Volume List

Select option 3, Volume Application, from the ISMF Primary Option Menu. ISMF displays the Volume List Selection Menu (Figure 27).

```
   Panel  Help
 ------------------------------------------------------------------------------
                          VOLUME LIST SELECTION MENU
 Enter Selection or Command ===> 3

 SELECT ONE OF THE FOLLOWING:

    1  DASD             - Generate a list of DASD volumes
    2  MOUNTABLE OPTICAL  - Generate a list of Mountable Optical volumes
    3  MOUNTABLE TAPE    - Generate a list of Mountable Tape volumes

```

Figure 27. The Volume List Selection Menu

To generate a list of mountable tape volumes, select option 3, as shown in Figure 27. ISMF then displays the Mountable Tape Volume Selection Entry Panel. Refer to Figure 28.

Completing the Mountable Tape Volume Selection Entry Panel

Use the fields on the Mountable Optical Volume Selection Entry Panel to set up basic selection criteria: the serial numbers of the volumes to include in the list and the source ISMF uses to generate the list.

Figure 28 shows the Mountable Tape Volume Selection Entry Panel with its default values.

```
   Panel  Utilities  Help
 ------------------------------------------------------------------------------
                   MOUNTABLE TAPE VOLUME SELECTION ENTRY PANEL
 Command ===>

 Select Source to Generate Volume List  . . 2  (1 - Saved list, 2 - New list)

      1 Generate from a Saved List
         List Name  . .

      2 Generate a New List from Criteria Below
         Volume Serial Number . . . *        (fully or partially specified)
         Library Name . . . . . . . *        (fully or partially specified)
         Storage Group Name . . . . *        (fully or partially specified)

         Enter "/" to select option   _    Respecify View Criteria
                                       _    Respecify Sort Criteria




 Use ENTER to Perform Selection;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 28. Mountable Tape Volume Selection Entry Panel

Here is an overview of each field:

Select Source to Generate Volume List
In this mandatory field, indicate whether to create a new list or use a list previously saved with the SAVE command. Option 2 is the default.

Option Meaning

1 Use a list previously saved with the SAVE command. When selecting this option, you must complete the field under `Generate from a Saved List`. See "Saving a Copy of the List" on page 70 for more information.

2 Create a new list. When selecting this option, you must complete the fields under `Generate a New List from Criteria Below`.

1 Generate from a Saved List

Complete the following fields if you selected option 1 for `Select Source to Generate Volume List`:

List Name

Enter the name of a list previously saved with the SAVE command. The list name can be up to eight alphanumeric characters long and must follow naming conventions for members of partitioned data sets.

2 Generate a New List from Criteria Below

Complete the following fields if you selected option 2 for `Select Source to Generate Volume List`:

Volume Serial Number

Enter a full or partial serial number of the volume or volumes to include in the list. Use this field to restrict the list to volumes with a specific volume serial number or range of volume serial numbers.

Restriction: If the cartridge containing the volume is to be mounted on an IBM® TotalStorage™ Enterprise Automated Tape Library (3495), do not use special characters and national characters to define the volume serial number.

To include a single volume, enter a fully qualified volume serial number of one to six characters:

```
Volume Serial Number ===> SYS001
```

To include a range of volumes, enter a partially qualified volume serial number by using an asterisk or percent sign as a global file-name character. For example:

```
Volume Serial Number ===> SYS*
```

You can use up to two asterisks as global file-name characters. For example, for tape volsers numbered 800100 through 890599, you can enter the following to include only those that end in 430 through 439:

```
Volume Serial Number ===> 8*043*
```

Restriction: Do not use two asterisks next to each other (**).

Use a single asterisk to specify all mounted volumes that fit your other selection criteria:

```
Volume Serial Number ===> *
```

Library Name

Enter the one- to eight-character name of an automated tape library.

Specify the library name the same way you specify the volume serial number, but start the name with a non-numeric character. Do not use special characters.

Storage Group Name

Enter the one- to eight-character name of an SMS storage group. Specify

the storage group name the same way you specify the volume serial number, but start the name with an alphabetic or national character.

To select volumes that belong to a blank storage group, specify ' ' in this field.

Volumes assigned to a blank storage group are in an SMS-managed tape library and should be distinguished from non-SMS-managed tape volumes that are not supported by the Mountable Tape Volume Application.

Respecify View Criteria
In this mandatory field, you can choose to display the Mountable Tape Volume View Entry Panel to select the columns and the order of the columns to display on the list panel. If you leave VIEW criteria blank, the Mountable Tape Volume List Panel is displayed using the default VIEW criteria (display all columns in alphabetical order) or the criteria that were last specified to ISMF, if any. This may result in a restricted view.

Option Meaning

/　　Display the Mountable Tape Volume View Entry Panel before creating the volume list.

blank　Do not display the Mountable Tape Volume View Entry Panel before creating the volume list. Blank is the default.

Respecify Sort Criteria
In this mandatory field, you can choose to display the Mountable Tape Volume Sort Entry Panel to sort the resulting volume list according to the values in its data columns.

Option Meaning

/　　Display the Mountable Tape Volume Sort Entry Panel before creating the volume list.

blank　Do not display the Mountable Tape Volume Sort Entry Panel before creating the volume list. Blank is the default.

For example, sort the list by specifying ascending order for the values in the volume serial column. In the resulting volume list, the volumes sort in numeric order by volume serial number.

If you specify Y for both VIEW and SORT criteria, the Mountable Tape Volume View Entry Panel is displayed, followed by the Mountable Tape Volume Sort Entry Panel.

Final Step: Generating the List

After entering the information you want on the Mountable Tape Volume Selection Entry Panel, you are ready to generate the list. Press the ENTER key. ISMF displays the volumes that meet your selection criteria. Figure 29 on page 44 shows a completed Mountable Tape Volume List.

```
  Panel  List  Utilities  Scroll  Help
 --------------------------------------------------------------------------
                      MOUNTABLE TAPE VOLUME LIST
 Command ===>                                            SCROLL ===> PAGE
                                                    ENTRIES 1-11 OF 11
 Enter Line Operators Below:                        Data Columns 3-7 of 20

    LINE      VOLUME  USE      VOLUME           CHECKPT  LIBRARY  STORAGE
    OPERATOR  SERIAL  ATTR     ERROR STATUS     VOLUME   NAME     GRP NAME
    ---(1)----  -(2)--  --(3)--  -------(4)--------  -- (5)--  --(6)---  --(7)---
              VOL01   PRIVATE  I/O ERROR        NO       SHELF    TAPE1
              VOL02   SCRATCH  UNEXPIRED SCRATCH  ---    SHELF    *SCRTCH*
              VOL101  SCRATCH  NO ERROR         NO       SHELF    *SCRTCH*
              VOL102  SCRATCH  PASSWORD CONFLICT  NO     LIB1     *SCRTCH*
              VOL103  SCRATCH  SECURITY CONFLICT  NO     LIB2     *SCRTCH*
              VOL104  PRIVATE  SCRATCH IN USE   ---      LIB3     TAPE1
              VOL105  PRIVATE  VOLSER MISMATCH  NO       LIB1     TAPE1
              VOL106  SCRATCH  CHKPOINT CONFLICT  YES    LIB2     *SCRTCH*
              VOL107  SCRATCH  WRITE CONFLICT   YES      LIB1     *SCRTCH*
              VOL108  PRIVATE  VOLUME MISPLACED  NO      LIB1     TAPE1
              VOL109  PRIVATE  NO ERROR         NO       LIB1     TAPE1
 ----------  ------  ----------  BOTTOM  OF DATA  --------------  ------  ---
```

Figure 29. A Mountable Tape Volume List

If you entered information in more than one field on a selection entry panel, the list contains only the volumes meeting *all* of the specified parameters.

You can sort and tailor a list to your needs with the View and Sort options on the selection panel. You can also tailor a list after you have created it. See Chapter 4, "Using the Data Set or Volume List," on page 47 for more details.

List Generation Error Messages

ISMF uses short error messages to document errors in generating a list.The short error message appears on the first panel displayed after the error is detected. For more information, use the HELP command to display the long error message. Use the HELP command again to see the help panel associated with the error message.

If ISMF cannot complete the requested list, you may get a partial list to work with.

If ISMF cannot determine whether a data set meets your selection criteria, the data set will be included in the list and the data columns that represent information ISMF could not obtain or calculate will contain a series of special characters.

When ISMF cannot display a value in a data column, it displays a series of special characters instead:

A series of
> **Means**

Dashes (–)
> ISMF cannot obtain information for the data column.

Question marks (?)
> ISMF encountered an error in obtaining the information for the data column.

In addition to the above symbols, less-than and greater-than symbols may appear in data set and DASD volume lists:

A series of
> **Means**

Less-than symbols (<)
    The value is less than one but greater than zero.
Greater-than symbols (>)
    The value is too large to display.

When creating a volume list by collecting information about the device on which the volumes reside (by choosing option Y for `Acquire Physical Data`), your selection criteria may include a dismounted volume. In this case, the volume serial number is not available. ISMF includes the volume in the volume list but leaves question marks in the `Volume Serial`data column.

When ISMF cannot access a volume to gather information for a data set, it displays a message next to the data set name field. The error message in Figure 30 indicates that ISMF cannot access the volume on which data set USER230.ISMF.ROOT.DATA resides. ISMF cannot display any information for that data set.

```
  Panel  List  Dataset  Utilities  Scroll  Help
  -----------------------------------------------------------------------------
                              DATA SET LIST
  Command ===>                                        SCROLL ===> PAGE
                                                      Entries 15-27 of 29
  Enter Line Operators Below:                         Data Columns 3-5 of 41

     LINE                                 ALLOC      ALLOC    % NOT
     OPERATOR         DATA SET NAME       SPACE      USED     USED
   ---(1)----   ------------(2)------------  ---(3)---  ---(4)---  -(5)-
               USER230.ISMF.LKED             93K        93K       0
               USER230.ISMF.MACLIB          185K       185K       0
               USER230.ISMF.OBJ             139K        93K      33
               USER230.ISMF.PLIST          1020K      1020K       0
               USER230.ISMF.PLS3           1020K      1020K       0
               USER230.ISMF.ROOT.DATA  CANNOT ACCESS VOLUME: D64DLB
               USER230.ISMF.SRC          ---------  ---------     ---
               USER230.ISMF.TESTCOPY     ---------  ---------     ---
               USER230.ISMF.TESTHMI1     ---------  ---------     ---
               USER230.ISMF.TESTHMI2     ---------  ---------     ---
               USER230.ISMF.TESTHMI3     ---------  ---------     ---
               USER230.ISMF.TESTJCL         46K        46K       0
               USER230.ISMFA.RELEASE     ---------  ---------     ---
```

Figure 30. Data Set List with Information about a Volume ISMF Cannot Access

Redisplaying a List during a Session

When you return to a selection entry panel from a list panel, the selection entry panel still contains the previously specified values. If you press the ENTER key without changing the selection criteria, ISMF redisplays the original list without reaccessing the data sets or volumes in the list. A message appears in the upper right corner of the list panel to remind you of this:

```
DATA SET LIST                    REDISPLAYED LIST
                                 SCROLL ===> HALF
```

If you do not change the selection criteria, the same list will be displayed during a single ISMF session until you exit from the Data Set or Volume Application used to create the list. On the selection entry panel, press ENTER to regenerate the list. There is no redisplay for the Mountable Optical and the Mountable Tape Volume Lists.

You can use the REFRESH command from the list panel of any application to regenerate the list without exiting the application.

To save a copy of the list, use the SAVE command (see "Saving a Copy of the List" on page 70).

Chapter 4. Using the Data Set or Volume List

Once you have created a list of data sets or volumes, you can use ISMF commands to gather specific information from the list and prepare the list to perform storage management tasks efficiently. This chapter explains the list format and contents. In addition, it shows you how to perform the following tasks:
- View the list
- Tailor the list
  - Tailor the list entries
  - Tailor the data columns
- Save a copy of the list
- Print the list
- List saved lists
- Reuse a previously saved copy of the list
- Modify a data set in the list
- Use line operators and list commands
- Understand list processing rules

Related Reading: Although the descriptions of viewing and tailoring generated lists are directed primarily toward data set and volume lists, most of the commands that are used for these tasks also apply to SMS constructs. Chapter 8, "Using Data Facility Storage Management Subsystem (DFSMS)," on page 119 provides more information about these lists and how to display specific attributes. Table 12 on page 157 and Table 13 on page 159 include a summary of customization commands and their applications.

Understanding the Format and Contents of the Lists

The output generated from the selection entry panels is displayed in a list panel. A list panel displays information about your data sets, volumes, or SMS classes in tabular form. The first column is a **line operator column**. The other columns of information are **data columns**. Each of these columns has a heading (often an abbreviated form of the name) and a number to identify it.

Format of the List Panels

Figure 31 on page 48 shows the format of a typical ISMF list panel.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  ------------------------------------------------------------------------
[1]                              DATA SET LIST
 Command ===>                                             SCROLL ===> DATA
                                                     Entries 1-3 of 3
 Enter Line Operators Below:                         Data Columns 16-19 of 42
[2]     **FILTERED LIST**                                 **ENTRIES HIDDEN*
[3]  LINE                               BLOCK    VOLUME  MULT  DEVICE
     OPERATOR         DATA SET NAME     UNUSED   SERIAL  VOL   TYPE
     ---(1)----  ------------(2)----------- -(16)-- -(17)- (18) -(19)--
                 USER1.DEB.LISTING1         ------- 338001  NO   3380
[4]              USER1.SPFTEMP1.CNTL        ------- 338001  NO   3380
                 USER1.SPF3.LIST            ------- 338001  NO   3380
     ---------- ------ ---------- BOTTOM OF DATA ----------- ------  ----
```

Figure 31. Format of the Data Set List Panel

Every list panel contains five standard elements: a fixed area, a warning line, data column headings, the list area, and one or two instruction lines.

[1] Fixed Area

Information in the fixed area helps you keep track of your location in the list and how you are navigating through the list.

The fixed area contains the following elements:
- The panel title.
- A short message area, which appears in the upper right corner of the screen when ISMF detects an error.
- The command line.
- A scroll field, which shows how far the list entries shift each time you use a scrolling command.
- A long message area, which appears when you use the HELP command to further explain a short error message.
- An entries statement, which shows how many entries are in the list and which ones are currently on display.
- A data columns statement, which shows how many data columns appear in the list panel and the numbers of the data columns currently displayed. Use the LEFT and RIGHT commands to look at columns that extend to the left or right of the columns displayed. The data columns statement is overlaid with a View in Use statement if selected data columns are being displayed.
- A directional line (ENTER LINE OPERATORS BELOW).

[2] Warning Line

The warning line is just above the data column headings. This line indicates any special processing conditions that are in effect. Examples are a list filtered by the FILTER command or a list with entries hidden by the HIDE line operator. "Filtering the List" on page 54 explains the FILTER command. "Using the HIDE Line Operator" on page 60 explains the HIDE line operator.

[3] Data Column Headings

The data column headings identify the type of information presented in a particular column of the list. When using ISMF commands, use the number beneath the heading to reference the individual data columns. For example, to reference the VOLUME SERIAL field on the data set list in Figure 31 on page 48, specify the column tag 17.

Both data set and volume lists have more columns than can be displayed at one time. The data columns statement in the fixed area identifies the subset of data columns currently displayed. "Viewing the List" on page 51 describes the commands used to scroll through all the data columns.

[4] List Area

The list area contains:
- The LINE OPERATOR column (column 1), where you enter line operators to do storage management tasks against individual data sets or volumes. This column is always displayed on the panel.
- The object name column (column 2), which may be called data set name, volume serial number, or some SMS class name depending on the application you are using. The particular objects that you are working with are listed here. For example, the DATA SET NAME column lists the data sets that you are working with. This column is always displayed on the panel.
- The informational columns (the columns to the right of column 2), which describe the data sets or volumes. "Viewing the List" on page 51 describes the commands used to scroll through all the data columns.
- The BOTTOM OF DATA line, which follows the last entry in the list.

Contents of the List Panels

The data columns represent the different categories of information ISMF can gather for the entries in a list. Table 4 shows the data columns included in data set and volume lists.

The attributes **SYSTEM1** through **SYSTEM8** of the DASD Volume Application represent the system name or system group name defined in the active CDS. If there are fewer than eight systems defined, the heading **RESERVED** appears for the unused data columns.

The format used by ISMF to display attribute values might differ from the one used by other products. For example, a fragmentation index of 90 in ISMF is displayed as .090 by DFSMSdss.

Table 4. Data Columns in Data Set, Volume, Mountable Optical Volume, or Mountable Tape Volume Lists.

Data Set List Data Columns	Volume List Data Columns	Mountable Optical Volume List Data Columns	Mountable Tape Volume List Data Columns
LINE OPERATOR (1)	LINE OPERATOR (1)	LINE OPERATOR (1)	LINE OPERATOR (1)
DATA SET NAME (2)	VOLUME SERIAL (2)	VOLUME SERIAL (2)	VOLUME SERIAL (2)
ALLOC SPACE (3)	FREE SPACE (3)	FREE SPACE (3)	USE ATTR (3)
ALLOC USED (4)	% FREE (4)	% USED (4)	VOLUME ERROR STATUS (4)
% NOT USED (5)	ALLOC SPACE (5)	FULL STATUS (5)	CHECKPT VOLUME (5)
COMPRESSED FORMAT (6)	FRAG INDEX (6)	VOLUME TYPE (6)	LIBRARY NAME (6)

Table 4. Data Columns in Data Set, Volume, Mountable Optical Volume, or Mountable Tape Volume Lists. (continued)

Data Set List Data Columns	Volume List Data Columns	Mountable Optical Volume List Data Columns	Mountable Tape Volume List Data Columns
% USER DATA REDUCTION (7)	LARGEST EXTENT (7)	LIBRARY NAME (7)	STORAGE GRP NAME (7)
NUM EXT (8)	FREE EXTENTS (8)	SLOT NAME (8)	MEDIA TYPE (8)
ALLOC UNIT (9)	INDEX STATUS (9)	STORAGE GRP NAME (9)	RECORDING TECHNOLOGY (9)
SEC ALLOC (10)	FREE DSCBs (10)	LAST WRITTEN DATE (10)	COMPACTION (10)
DS ORG (11)	FREE VIRS (11)	VOLUME MOUNT DATE (11)	SPECIAL ATTRIBUTES (11)
REC FMT (12)	DEVICE TYPE (12)	VOLUME EXPIRE DATE (12)	LAST WRITTEN DATE (12)
RECORD LENGTH (13)	DEV NUM (13)	VOLUME LOCATION (13)	LAST MOUNT DATE (13)
BLK SZ CI SIZE (14)	SHR DASD (14)	SHELF LOCATION (14)	LAST ENTRY OR EJECT DATE(14)
OPTIMAL SIZE (15)	USE ATTR (15)	MEDIA TYPE (15)	VOLUME EXPIRE DATE (15)
BLOCK UNUSED (16)	RD CACHE STATUS (16)	VOLUME ERROR STATUS (16)	VOLUME CREATE DATE (16)
VOLUME SERIAL (17)	DASD FW STATUS (17)	CAPACITY (IN MB)(17)	WRITE PROTECT (17)
MULT VOL (18)	CACHE FW STATUS (18)	VOLUME CREATE DATE (18)	VOLUME LOCATION (18)
DEVICE TYPE (19)	DUPLEX STATUS (19)	ENTER OR EJECT DATE (19)	SHELF LOCATION (19)
CREATE DATE (20)	OTHER DEVICE (20)	PSEUDO LIBRARY NAME (20)	OWNER INFORMATION (20)
EXPIRE DATE (21)	SUBSYS ID (21)	OAM INSTANCE MEMBER NAME (21)	
LAST REF DATE (22)	PHYSICAL STATUS (22)		
LAST BACKUP DATE (23)	STORAGE GRP NAME(23)		
CHG IND (24)	CF VOLUME STATUS (24)		
DATA CLASS NAME (25)	SYSTEM1 SMS (25)		
MANAGEMENT CLASS NAME (26)	SYSTEM1 MVS™ (26)		
STORAGE CLASS NAME (27)	SYSTEM2 SMS (27)		
OWNER (28)	SYSTEM2 MVS (28)		
DATA SET ENVIRONMENT (29)	SYSTEM3 SMS (29)		
DATA SET NAME TYPE (30)	SYSTEM3 MVS (30)		
NUM OF STRIPES (31)	SYSTEM4 SMS (31)		
ENTRY TYPE (32)	SYSTEM4 MVS (32)		
REBLK IND (33)	SYSTEM5 SMS (33)		
DDM ATTR (34)	SYSTEM5 MVS (34)		
CCSID DESCRIPTION (35)	SYSTEM6 SMS (35)		
CF STATUS INDICATOR (36)	SYSTEM6 MVS (36)		
CF MONITOR STATUS (37)	SYSTEM7 SMS (37)		
CF CACHE STRUCTURE NAME (38)	SYSTEM7 MVS (38)		
CF CACHE SET NAME (39)	SYSTEM8 SMS (39)		
CF LOCK STRUCTURE NAME (40)	SYSTEM8 MVS (40)		
CF LOCK SET NAME (41)	FREE SPACE TRK-MANAGD (41)		
EATTR (42)	ALLOC SP TRK-MANAGD (42)		
	LARGEST EXT TRK-MANAGED (43)		
	INIT AS RESERVED (44)		
	OWNERID (45)		

Data Set List Data Columns	Volume List Data Columns	Mountable Optical Volume List Data Columns	Mountable Tape Volume List Data Columns

Note: The online help describes each data column attribute in detail. See "Using the Help Panel Index" on page 21 for instructions on how to access these online attribute definitions.

Viewing the List

A data set or volume list may contain more entries and data columns than you can display on one screen. To see all the information contained in a list, use ISMF scrolling commands to move through the list from top to bottom and from side to side.

Scrolling through Data Columns

Use the following commands to control the data columns displayed on the screen:

Command
> **Meaning**

LEFT   Shows data columns that extend to the left of the current screen display.

RIGHT
> Shows data columns that extend to the right of the current screen display.

FIND   Locates a data column that is not currently displayed.

When you use the FIND command, ISMF scrolls to that column and positions the column to the right of column 2, which is the column that identifies the data set or volume. For example, if you want to look at the amount of space allocated when extending an individual data set, enter:

```
Command ===> find 16
```

ISMF locates column 16 and positions it next to the data set names in column 2. The LEFT, RIGHT, and FIND commands reposition the data columns but columns 1 and 2 always appear on the left side of the list panel. Scrolling commands do not affect the position of these two columns when you display a list. Figure 32 shows the result.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ----------------------------------------------------------------------------
                          DATA SET LIST
 Command ===>                                          SCROLL ===> DATA
                                                   Entries 1-3 of 3
 Enter Line Operators Below:                       Data Columns 16-19 of 42

    LINE                              BLOCK    VOLUME  MULT  DEVICE
    OPERATOR         DATA SET NAME    UNUSED   SERIAL  VOL   TYPE
    ---(1)----   ------------(2)----------- -(16)--  -(17)-  (18)  -(19)--
             USER1.DEB.LISTING1        -------  338001  NO    3380
             USER1.SPFTEMP1.CNTL       -------  338001  NO    3380
```

Figure 32. Using the FIND Command to Locate Data Column 16

If the column you specify with the FIND command is already displayed on the screen, the column is not repositioned. Specifying the parentheses is optional.

Scrolling through List Entries

The following commands control the entries displayed on the screen:

Command
>**Meaning**

UP Shows list entries that extend above the current screen display.

DOWN
>Shows list entries that extend below the current screen display.

TOP Scrolls to the first page of a list of entries. Using the TOP command is the same as using the UP MAX command.

BOTTOM
>Scrolls to the last page of a list of entries. Using the BOTTOM command is the same as using the DOWN MAX command.

Scrolling Amounts

You can specify the following scrolling amounts:

Amount
>**Meaning**

nnnn A number from 1 to 9999—scrolls the number of list entries or data columns you specify.

PAGE Scrolls a screen of data, either list entries or data columns.

HALF Scrolls a half page of list entries or data columns.

MAX Displays the first or last list entry or data column.

CSR Positions the list entry pointed to by the cursor at the top, bottom, left or right of the screen.

DATA Scrolls one entry or one column less than a full page of data. Entering DATA as a scrolling amount is the same as entering PAGE when there is only one data column other than columns 1 and 2 displayed on the screen.

You can abbreviate the PAGE, HALF, MAX, CSR, and DATA amounts by entering the first letter in the scroll field on a panel.

```
     SCROLL ===> PAGE
Entries 901-914 of 999
Data Columns 16-19 of 42
```

Enter scrolling amounts in one of the following ways:
* Enter the amount in the scroll field. This new scrolling amount remains in effect until you change the amount in the scroll field again.

  Exception: Following a MAX scroll, the scroll field reverts to its previous value.
* Enter LEFT, RIGHT, UP, or DOWN on the command line followed by the scrolling amount. This results in a one-time override of the scrolling amount.
* Enter the scrolling amount on the command line and press a PF key previously set to a scrolling command. This results in a one-time override of the scrolling amount.

Folding the Data Set List

Use the FOLD command to maximize the number of entries or data columns displayed on a single screen.

You can use FOLD only in the Data Set Application. FOLD controls the width of the DATA SET NAME data column on the Data Set List Panel.

Enter FOLD on the command line of the Data Set List Panel. This command lets you toggle between a list in folded mode or unfolded mode. For example, when you enter the FOLD command on a list in folded mode, ISMF redisplays the list in unfolded mode. To see the list in its original mode, enter FOLD again.

When your list is in folded mode, the DATA SET NAME data column is 27 characters wide. If the data set names of your list entries have more than 27 characters, a second screen line is used to accommodate each entry. When your list is in unfolded mode, the DATA SET NAME data column increases to 44 characters. This increase in size lets long data set names fit on a single line instead of two.

Your list in unfolded mode may contain more list entries on a single screen than when it is in folded mode. However, the list in folded mode accommodates more data columns.

Figure 33 shows a data set list in folded mode with the FOLD command specified on the command line. Some of the entries in this list have a data set name that is too long to fit on a single line of the DATA SET NAME data column.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 -----------------------------------------------------------------------------
                           DATA SET LIST
 Command ===> fold                                    SCROLL ===> DATA
                                                  Entries 1-11 of 14
 Enter Line Operators Below:                      Data Columns 3-5 of 42

    LINE                               ALLOC     ALLOC    % NOT
    OPERATOR         DATA SET NAME     SPACE     USED     USED
  ---(1)----   ------------(2)------------  ---(3)---  ---(4)---  -(5)-
            USER1.ARCH.LISTING1.PGM           67K       67K       0
            USER1.BKUP.PGM.STATLINK          132K      132K       0
            USER1.DEB.LISTING1            ---------  ---------    ---
            USER1.FE0626.SCRPTEDT.            89K       89K       0
               FEMRQ
            USER1.FITMS.MSGFL.LIST          435K      435K       0
            USER1.ISMF.SYSIN.D880125.        46K       40K      13
               T105441
            USER1.ISPFILE                   139K      139K       0
            USER1.ISPFILE.D32545             32K       32K       0
            USER1.ISPPROF                   185K      185K       0
            USER1.PT99.RECVBLS.021489.      1066K     1066K       0
               LIST
            USER1.SPFTEMP1.CNTL          ---------  ---------    ---
```

Figure 33. Data Set List Panel in Folded Mode

The Data Set List Panel in Figure 33 shows 11 data sets on the screen. This list displays six data columns. After the FOLD command is executed, this list looks like the one shown in Figure 34 on page 54, which displays all 14 data set entries but only four data columns.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  --------------------------------------------------------------------------
                               DATA SET LIST
  Command ===>                                          SCROLL ===> DATA
                                                   Entries 1-14 of 14
  Enter Line Operators Below:                      Data Columns 3-4 of 42

     LINE                                          ALLOC      ALLOC
     OPERATOR               DATA SET NAME          SPACE      USED
     ---(1)----   --------------------(2)--------------------  ---(3)---  ---(4)---
              USER1.ARCH.LISTING1.PGM                 67K        67K
              USER1.BKUP.PGM.STATLINK                132K       132K
              USER1.DEB.LISTING1                 ----------  ---------
              USER1.FE0626.SCRPTEDT.FEMRQ             89K        89K
              USER1.FITMS.MSGFL.LIST                 435K       435K
              USER1.ISMF.SYSIN.D880125.T105441        46K        40K
              USER1.ISPFILE                          139K       139K
              USER1.ISPFILE.D32545                    32K        32K
              USER1.ISPPROF                          185K       185K
              USER1.PT99.RECVBLS.021489.LIST        1066K      1066K
              USER1.SPFTEMP1.CNTL                ----------  ---------
              USER1.SPF3.LIST                        572K       572K
              USER1.TMPFIL.071788                    329K       329K
              USER1.USANC.SYSIN.253995.DGTTLIB       545K       545K
```

Figure 34. Data Set List Panel in Unfolded Mode

If you enter the FOLD command again but from the list panel shown in Figure 34, ISMF displays the list shown in Figure 33 on page 53.

Tailoring the List Entries

ISMF allows you to tailor your list to include only the entries you want, displayed in the order you want. Usually, you will need to customize your list entries before attempting to execute a command against all the entries in your list (list processing). To tailor the list entries, use the FILTER command, the HIDE line operator, or the SORT command.

Filtering the List

With the **FILTER** command, you use the data columns to set up filter criteria that identify a subset of your list. ISMF then displays the modified list with only those entries that meet your filter criteria.

Once you have used the FILTER command to define a subset of the list, the commands you specify are performed against only the entries in the subset, without affecting the other entries in the original list.

Like the list you originally selected, the subset of the list that you create with the FILTER command can be many pages long. You can use the scroll commands to move through it. FILTER is active only in the Data Set, DASD Volume, and List Applications.

For example, you might want to compress all partitioned data sets in a data set list. Using data column 9, DS ORG, on the data set list, you can set up filter criteria to create a subset of the list that contains only partitioned data sets. Then, if you enter the COMPRESS list command, it affects only the subset containing partitioned data sets.

Filtering and performing tasks against a subset of the list does not alter the makeup of the list that you originally selected. The original list remains intact,

with the original values in all of the data columns, regardless of the tasks that might be performed against some of the data sets in the list. You can filter many times with different filter criteria and use each subset you construct for a different task. However, keep in mind that each time you specify new filter criteria, ISMF filters the data sets and values that are in the original list.

Entering the FILTER Command

There are several ways to enter the FILTER command:

* You can enter the FILTER command without parameters on the command line of a list panel.
* You can enter the FILTER command with parameters on the command line of a list panel. This sets up a single value and data column as filter criteria. ISMF filters the list and displays a new list made up of only those entries that meet the filter criteria you specified.
* You can enter the FILTER CLEAR command (with or without other parameters) on the command line of a list panel to clear all or some of the existing filter criteria.

Using the FILTER Command without Parameters

When you enter the FILTER command without parameters, ISMF displays the Filter Entry Panel for the list you are viewing. The Data Set Filter Entry Panel has four pages of input fields. The DASD Volume Filter Entry Panel has four pages of input fields. The Saved List Filter Entry Panel has only one page. The fields correspond to the data columns on the list panel.

On the Filter Entry Panel, you use relational operators for each field you want to limit. You can specify a single value, a list of values, or a range of values a particular data column must have, in order to include the list entry in the filtered list.

The following example creates a subset of a data set list that contains only data sets that have been referred to since September 10, 1992, and were created on or after May 29, 1992. You can filter a DASD volume list in a similar manner by using the Volume Filter Entry Panel.

To display the Data Set Filter Entry Panel, enter FILTER on the command line of the data set list, as shown in Figure 35 on page 56.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                              DATA SET LIST
 Command ===> filter                                     SCROLL ===> PAGE
                                                    Entries 1-5 of 5
 Enter Line Operators Below:                        Data Columns 20-22 of 42

     LINE                                  CREATE      EXPIRE     LAST REF
    OPERATOR       DATA SET NAME           DATE        DATE        DATE
   ---(1)----  ------------(2)-----------  ---(20)---  ---(21)---  ---(22)---
             USER230.ISMF.ALIST           1998/09/08  0000/00/00  1998/09/10
             USER230.ISMF.CLIST           1996/04/29  NEVER       1998/09/11
             USER230.ISMF.DGTLLIB         1998/04/12  NEVER       1998/09/11
             USER230.ISMF.DGTMLIB         1998/05/08  NEVER       1998/09/11
             USER230.ISMF.DGTPLIB         1998/04/05  NEVER       1998/09/11
 ----------  ------  -----------  BOTTOM OF  DATA  -----------  ------  ---------
```

Figure 35. Filtering a List Using the Filter Entry Panel

ISMF displays page 1 of the Data Set Filter Entry Panel (Figure 36). Use the
relational operators *EQ* or *NE* for a single value or a list of values to complete the
fields on this panel. To include only changed data sets in the filtered list, use the
relational operator EQ to complete the CHANGE INDICATOR field, as shown in
Figure 36.

```
   Panel  Defaults  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                      DATA SET FILTER ENTRY PANEL              Page 1 of 4
 Command ===>

 To limit the List, Specify a value or range of values in any of the following:
                                 Rel Op    Value    AND/OR  Rel Op    Value
                                 ------  ----------  ------  ------  ----------
     Allocated Space . . . . . .
     Block/CI Size . . . . . . .
     Block Unused  . . . . . . .
     Creation Date . . . . . . . gt      1995/05/29
     Expiration Date . . . . . .
     Last Backup Date  . . . . .
     Last Reference Date . . . . ge      1995/09/10
     Number of Extents . . . . .
     Number of Stripes . . . . .
     Optimal Block/CI Size . . .
     % Space not Used  . . . . .
     % User Data Reduction . . .
     Record Length . . . . . . .
     Secondary Allocation  . . .
 Use ENTER to Perform Filtering; Use DOWN Command to View Next Panel;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 36. Completing page 1 of the Data Set Filter Entry Panel

Next, use the DOWN command to scroll to page 3 of the Filter Entry Panel.
Complete the fields on page 3 of the panel (Figure 37 on page 57) using the
relational operators EQ and NE to specify a single value,or the relational operators
GT, GE, LT, and LE to specify a range of values.

Related Reading: More information about relational operators is available in the
online help panels. See "Navigating Through Help Panels" on page 15 to find out

how to use the help panels.

```
   Panel  Defaults  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                        DATA SET FILTER ENTRY PANEL             Page 3 of 4
 Command ===>

 To further limit the List, Specify a single value or list of values
 in the following fields:
                                Rel Op   Value      Value      Value     Value
                                ------  --------   --------   --------  --------
     Allocation Unit  . . . .
     CF CACHE Set Name  . . .
     CF LOCK Set Name . . . .
     CF Monitor Status  . . .
     CF Status Indicator  . .
     Change Indicator . . . . eq      yes
     Compressed Format  . . .
     Data Class Name  . . . .
     Data Set Environment . .
     Data Set Name Type . . .
     Data Set Organization
     (1 to 8 Values)
     DDM Attributes . . . . .
 Use ENTER to Perform Filtering; Use UP/DOWN Command to View other Panels;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 37. Completing page 3 of the Data Set Filter Entry Panel

To filter the data set list based on the creation date and the last reference date, enter the relational operators and values as shown in Figure 36 on page 56 and Figure 37. For this example you do not need to enter anything on pages 2 or 4.

When you press the ENTER key, ISMF filters the list using the filter criteria you chose. Figure 38 shows the result. Only changed data sets referenced on and after September 10, 1995, and created after May 29, 1995, appear in the filtered list.

The message on the warning line,**FILTERED LIST**, reminds you that you now have a subset of the original list.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                              DATA SET LIST
  Command ===>                                           Scroll ===>
                                                    Entries 1-7 of 7
  Enter Line Operators below:                       Data Columns 3-4 of 42
  **FILTERED LIST**
     LINE                                  CREATE     EXPIRE     LAST REF
     OPERATOR         DATA SET NAME         DATE       DATE        DATE
     ---(1)----  -----------(2)-----------  ---(20)--- ---(21)--- ---(22)---
                 USER230.ISMF.ALIST        1997/09/08 0000/00/00 1998/09/10
                 USER230.ISMF.DGTSLIB      1996/05/29 NEVER      1998/09/10
                 USER230.ISMF.DGTTABL      1997/05/29 NEVER      1998/09/11
                 USER230.ISMF.JCL          1996/07/26 NEVER      1998/09/18
                 USER230.ISMF.LKED         1998/09/08 0000/00/00 1998/09/19
                 USER230.ISMF.OBJ          1997/09/08 0000/00/00 1998/09/11
                 USER230.ISMF.PLIST        1997/09/08 0000/00/00 1998/09/12
     ----------  ------  ----------  BOTTOM  OF DATA  ----------  ------  ----
```

Figure 38. Example of a Filtered List

Specifying and Clearing Filter Input Fields

When you use the FILTER command without parameters, you work with the Filter Entry Panel. The Filter Entry Panel retains all the filter criteria that you specified the last time you used the FILTER command. These previously specified values remain on the Filter Entry Panel whether you specified them using FILTER without parameters from the Filter Entry Panel or you specified them using FILTER with parameters from the list panel.

ISMF uses all the filtering criteria to limit your list even when the values are from a previous session. ISMF reminds you when there are values already specified on the Filter Entry Panel by displayingan OTHER VALUES PRESENT warning in the top right corner of the panel. If you do not want to use these values as criteria for filtering, you must change or erase the input fields.

You can use the CLEAR command to set all the input fields to blanks. CLEAR is entered from the command line on any page of the Filter Entry Panel. There are three different ways to use CLEAR:

CLEAR PAGE
: Sets all the input fields to blanks on the page where you enter the command.

CLEAR PAGE*x*
: Sets all the input fields to blanks on the page specified by x.

CLEAR ALL
: Sets all the input fields to blanks on every page of the Filter Entry Panel.

Filter parameters can also be cleared from the list panel by entering the following command:

FILTER CLEAR
: Sets either some or all the input fields to blanks depending on the parameters you specify with the command. For more information about FILTER CLEAR, see "Using the FILTER CLEAR Command" on page 59.

Using the FILTER Command with Parameters

If you have a single value and data column that you want to use as filter criteria, you can use the FILTER command with parameters to perform the filter without leaving the displayed list. Enter the FILTER command from the command line of the list panel. The syntax of the FILTER command is:

FILTER [*column-tag* {**EQ**|**NE**|**LT**|**LE**|**GT**|**GE**}*value*]

where:

FILTER
: is the command name.

column-tag
: is the tag associated with a particular data column (for example, 20 would provide the CREATE DATE information in Figure 38 on page 57).Specifying the parentheses is optional.

EQ|NE|LT|LE|GT|GE
: indicates the relationship between the value in the specified data column and the value specified in the *value* parameter.

value
indicates the value to be compared to the value in the data column to determine if an entry should be included in the list.

Restriction: Not all relational operators are valid for all data columns. For instance, the only valid relational operators for the VOLSER data column are 'EQ' and 'NE'. The online help panels give a complete listing of the valid relational operators for each data column.

An example of the FILTER command with parameters is shown in Figure 39. This example filters the list and displays a new list made up of data set names that have expiration dates equal to NEVER.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  -------------------------------------------------------------------------------
                            DATA SET LIST
  Command ===> filter 21 eq never                          SCROLL ===> PAGE
                                                    Entries 1-14 of 29
  Enter Line Operators Below:                       Data Columns 18-20 of 42

     LINE                                 CREATE      EXPIRE     LAST REF
    OPERATOR          DATA SET NAME        DATE        DATE        DATE
   ---(1)----   ------------(2)------------  ---(20)---  ---(21)---  ---(22)---
               USER230.ISMF.ROOT.DATA     CANNOT ACCESS VOLUME: D64DLB
               USER230.ISMFDCR9.SCRIPT    1996/09/09  0000/00/00  1998/09/09
               USER230.ISMF.PLS3          1997/09/08  0000/00/00  1998/09/11
               USER230.ISMF.PLIST         1997/09/08  0000/00/00  1998/09/11
               USER230.ISMF.OBJ           1997/09/08  0000/00/00  1998/09/11
               USER230.ISMF.ALIST         1997/09/08  0000/00/00  1998/09/11
               USER230.ISMF.LKED          1997/09/08  0000/00/00  1998/09/11
               USER230.ISMF230.DGTPLIB    1997/08/21  0000/00/00  1998/09/11
               USER230.ISMF.TESTHMI3      1996/08/08  NEVER       ----------
               USER230.ISMF.TESTHMI2      1996/08/08  NEVER       ----------
               USER230.ISMF.TESTHMI1      1996/08/08  NEVER       ----------
               USER230.ISMF.TESTCOPY      1996/08/08  NEVER       ----------
               USER230.ISMF.JCL           1997/07/26  NEVER       1998/09/08
               USER230.ISMF.TESTJCL       1997/07/01  NEVER       1998/09/04
```

Figure 39. Filtering a List Using the FILTER Command

If the Filter Entry Panel is primed with values from the last time you used the FILTER command, these values are used as filter criteria along with the parameters you specify with the FILTER command. The message, OTHER VALUES ALSO USED, is displayedto remind you that ISMF filtered the list using values from the entry panel as well as those you specified from the list panel.

Using the FILTER CLEAR Command

If you want to clear or blank out some or all the filter criteria without going to the Filter Entry Panels, you can specify FILTER CLEAR from the list panel. The syntax of FILTER CLEAR is:

FILTER CLEAR [ALL| (*column-tag column-tag...***)]**

where:

FILTER CLEAR
is the command

ALL
tells ISMF to clear all entry fields. ALL is the default and does not need to be specified.

column-tag column-tag ...
    corresponds to data columns, for example 5. You can clear the filter criteria
    (operands and values) associated with one or more data columns. Specifying
    the parentheses is optional.

Unfiltering the List

To redisplay the original list, enter the **CLEAR ALL** command from any page of
the Filter Entry Panel to clear all input fields. (You can also use FILTER CLEAR to
blank out some or all of the filter criteria.)

The line operators and list commands you used appear with a history symbol in
column 1 for the data set or volume affected by the line operator or list command.
If you filter the list many times and use it to perform many tasks, the history
symbol becomes a valuable tracking tool. When you redisplay the original list, you
have a record of what you have done to the individual entries. Figure 40 shows a
redisplayed list with history symbols. History symbols are lost when you exit or
refresh a list.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 --------------------------------------------------------------------------------
                             DATA SET LIST
 Command ===>                                            SCROLL ===> PAGE
                                                  Entries 2-15 of 29
 Enter Line Operators Below:                      Data Columns 20-22 of 42

    LINE                                 CREATE     EXPIRE     LAST REF
    OPERATOR        DATA SET NAME         DATE       DATE        DATE
   ---(1)----  ------------(2)------------ ---(20)--- ---(21)--- ---(22)---
   *COPY       USER230.ISMFDCR9.SCRIPT   1997/09/09 0000/00/00 1998/09/09
               USER230.ISMF.PLS3         1997/09/08 0000/00/00 1998/09/11
               USER230.ISMF.PLIST        1997/09/08 0000/00/00 1998/09/11
   *DELETE     USER230.ISMF.OBJ          1997/09/08 0000/00/00 1998/09/11
               USER230.ISMF.ALIST        1997/09/08 0000/00/00 1998/09/10
               USER230.ISMF.LKED         1997/09/08 0000/00/00 1998/09/11
   *HRECALL    USER230.ISMF230.DGTPLIB   1997/08/21 0000/00/00 1998/09/11
               USER230.ISMF.TESTHMI3     1997/08/08 NEVER      ----------
               USER230.ISMF.TESTHMI2     1997/08/08 NEVER      ----------
               USER230.ISMF.TESTHMI1     1997/08/08 NEVER      ----------
               USER230.ISMF.TESTCOPY     1997/08/08 NEVER      ----------
   *EDIT       USER230.ISMF.JCL          1997/07/26 NEVER      1998/09/08
               USER230.ISMF.TESTJCL      1997/07/01 NEVER      1998/09/04
               USER230.ISMF.DGTTABL      1997/05/29 NEVER      1998/09/11
```

Figure 40. An Unfiltered Data Set List with History Symbols

Using the HIDE Line Operator

The HIDE line operator allows you to temporarily exclude one or more entries
from the list.Once the HIDE line operator has been performed, the warning line
contains the reminder **ENTRIES HIDDEN**.Hidden entries are not affected by list
commands.

Depending on the number of entries you want to hide, there are two ways you can
specify the HIDE line operator:

HIDE   Hides an individual list entry. Enter HIDE in the line operator field,
           column 1, of the entry you want to hide. H, HI, and HID are acceptable
           abbreviations.

H*nnnnn*
           Hides a number of list entries, starting with the entry against which you

entered H. You can enter a number from 1 to 99999. Enter H and the number of entries you want to hide (for example, H9) in column 1 of the first list entry you want to hide.

Restriction: Do not add a blank space between H and the number of entries you want to hide. ISMF interprets a blank as the end of the HIDE line operator and hides only one entry.

Reshowing Hidden Entries

Specify **RESHOW** on the command line when you want to redisplay all the data sets or volumes you have hidden. The line operator history for hidden entries is also redisplayed.

If you sorted the list while entries were hidden, the entries appear in the appropriate order when you reshow the list. If you filtered the list while entries were hidden, hidden entries that do not meet the filter criteria are not included in the list when you reshow it.These entries are not redisplayed until you either unfilter the list, specify new selection criteria on the selection entry panel, or refresh the list using the REFRESH command.

Sorting the List

The **SORT** command reorders list entries in the desired sequence in a specific data column. To sort a list, you must follow these steps:
1. Identify the data columns that you want to use for sort criteria.
2. Specify the sorting order as either ascending or descending. (Ascending order is the default.)

Restriction: You can only sort columns that are displayed in the current view.

The list entries are sorted first by the major field. If two or more entries have the same value in the data column you used as a major sort field, ISMF uses the minor fields to complete the sort.

For example, when sorting a group of data sets according to ALLOC SPACE (3), some data sets might have the same amount of allocated space. You can sort these data sets further by specifying ALLOC USED (4) as the first minor field. To sort even further, you can specify COMPRESSED FORMAT (6) as the second minor field.

```
 Panel  Utilities  Scroll  Help
 ---------------------------------------------------------------------------
                         DATA SET SORT ENTRY PANEL            Page 1 of 2
 Command ===>

 Specify one or more Attribute Numbers for Sort Sequence:
   Major Field  . . . 2    Minor Field 1 . . .      Minor Field 2 . . .__
 Specify A for Ascending or D for Descending Sort Order:
   Major Field  . . . A    Minor Field 1 . . .      Minor Field 2 . . ._
```

Thus, if two data sets have the same amount of allocated space, they are sorted by allocated used space. If they also have the same amount of allocated used space, they are sorted by the number of extents.

Entering the SORT Command

There are two ways to enter the SORT command:

- Enter the SORT command without parameters on the command line of the list panel to display the ISMF Sort Entry Panel for the application you are using. Completing the Sort Entry Panel is discussed in "Using the SORT Command without Parameters."

- Enter the SORT command with parameters on the command line of the list panel. ISMF copies the parameters to the Sort Entry Panel without displaying the panel. The list entries are sorted in the order specified.

  If you know the parameters you want to use, you can use this method as a fast path to perform the sort. Entering the SORT command with parameters is discussed in "Using the SORT Command with Parameters" on page 64.

Tip: Refer to ISMF help panels for details about sort order.

Using the SORT Command without Parameters

When you enter the SORT command without parameters on an ISMF list, ISMF displays the Sort Entry Panel. On the Sort Entry Panel, you enter values for major and minor sort fields and specify whether you want the list entries sorted in ascending or descending order.

The following example shows how to use the Sort Entry Panel to reorder a data set list using two levels of sort criteria: one major field and one minor field. You use the same process to sort a volume list from all the other lists.

To display the Sort Entry Panel, enter SORT on the command line of the Data Set List, as shown in Figure 41. Press the ENTER key.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 --------------------------------------------------------------------------
                           DATA SET LIST
 Command ===> sort                                      SCROLL ===> PAGE
                                                 Entries 1-14 of 18
 Enter Line Operators Below:                     Data Columns 20-22 of 42
      **FILTERED LIST**                             **ENTRIES HIDDEN**
    LINE                                   CREATE     EXPIRE    LAST REF
   OPERATOR        DATA SET NAME            DATE       DATE       DATE
   ---(1)----  ------------(2)------------  ---(20)---  ---(21)---  ---(22)---
             USER230.ISMF.ALIST       1998/09/08  0000/00/00  1998/09/10
             USER230.ISMF.CLIST       1996/04/29  NEVER       1998/09/11
             USER230.ISMF.DGTLLIB     1998/04/12  NEVER       1998/09/11
             USER230.ISMF.DGTMLIB     1998/05/08  NEVER       1998/09/11
             USER230.ISMF.DGTPLIB     1998/04/05  NEVER       1998/09/11
```

Figure 41. Sorting a List Using the SORT Command

ISMF displays page 1 of 2 of the Data Set Sort Entry Panel, as shown in Figure 42 on page 63.

Tip: If any of the columns on your list are not in the current view, their tag numbers will not appear on the Sort Entry Panels.

```
    Panel  Utilities  Scroll  Help
-------------------------------------------------------------------------------
                         DATA SET SORT ENTRY PANEL              Page 1 of 2
Command ===>

Specify one or more Attribute Numbers for Sort Sequence:
  Major Field  . . . 2    Minor Field 1 . . .      Minor Field 2 . . .
Specify A for Ascending or D for Descending Sort Order:
  Major Field  . . . A    Minor Field 1 . . .      Minor Field 2 . . .

  (1)   Line Operator              (36)   CF Status Indicator
  (2)   Dataset Name               (24)   Change Indicator
  (3)   Allocated Space             (6)   Compressed Format
  (9)   Allocation Unit            (20)   Creation Date
  (14)  Block/CI Size              (25)   Data Class Name
  (16)  Block Unused               (30)   Data Set Name Type
  (35)  CCSID Description          (34)   DDM Attributes
  (39)  CF CACHE Set Name          (19)   Device Type
  (38)  CF CACHE Structure Name    (29)   DS Environment
  (41)  CF LOCK Set Name           (11)   DS Organization
  (40)  CF LOCK Structure Name     (42)   EATTR
  (37)  CF Monitor Status
Use ENTER to Perform Sort; Use DOWN Command to View next Panel;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 42. Using the Sort Entry Panel

Enter DOWN on the command line to view page 2 of the Data Set Sort Entry Panel, as shown in Figure 43.

```
    Panel  Utilities  Scroll  Help
-------------------------------------------------------------------------------
                         DATA SET SORT ENTRY PANEL              Page 2 of 2
Command ===>

Specify one or more Attribute Numbers for Sort Sequence:
  Major Field  . . . 2    Minor Field 1 . . .      Minor Field 2 . . .
Specify A for Ascending or D for Descending Sort Order:
  Major Field  . . . A    Minor Field 1 . . .      Minor Field 2 . . .

  (32)  Entry Type                  (7)   % User Data Reduction
  (21)  Expiration Date            (33)   Reblockable Indicator
  (23)  Last Backup Date           (12)   Record Format
  (22)  Last Ref Date              (13)   Record Length
  (26)  MGMNT Class Name           (10)   Secondary Allocation
  (18)  Multi-vol Data Set         (27)   Storage Class Name
   (8)  Number of Extents           (4)   Used Space
  (31)  Number of Stripes          (17)   Volume Serial Number
  (15)  Opt Block Size
  (28)  Owner
   (5)  % Space not Used

Use ENTER to Perform Print; Use UP Command for previous Panel;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 43. Page 2 of the Data Set Sort Entry Panel

You can specify the major and minor sort fields, in ascending or descending order on either page 1 or page 2 of the Data Set Sort Entry Panel. The major sort field on the Sort Entry Panel in Figure 43 is the CREATION DATE (20). The minor sort field 1 is the LAST REF DATE (22). The minor sort field 2 is the DATA SET NAME (2).

When you press ENTER, ISMF reorders the entire list using the sort criteria you chose. The SORT command sorts the entire list, including entries that extend beyond the screen and those that have been hidden or excluded. Hidden or excluded entries remain hidden or excluded.

In this example, the major field, 20, and the first minor field, 22, are sorted in descending order. The second minor field, 2, is sorted in ascending order. The data set with the most recent creation date appears first on the sorted list. When two data sets have the same creation date, the data set with the most recent last reference date appears first. When two data sets have the same creation date and last reference date, the sort is alphabetical by data set name. The sorted list appears as shown in Figure 44.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                           DATA SET LIST              SORT WAS SUCCESSFUL
 Command ===>                                              SCROLL ===> PAGE
                                                      Entries 1-14 of 18
 Enter Line Operators Below:                          Data Columns 20-22 of 42
      **FILTERED LIST**                               **ENTRIES HIDDEN**
    LINE                               CREATE      EXPIRE     LAST REF
   OPERATOR        DATA SET NAME        DATE        DATE        DATE
  ---(1)----  ------------(2)------------  ---(20)---  ---(21)---  ---(22)---
              USER230.ISMFDCR9.SCRIPT   1998/09/09  0000/00/00  1998/09/09
              USER230.ISMF.PLS3         1998/09/08  0000/00/00  1998/09/13
              USER230.ISMF.PLIST        1998/09/08  0000/00/00  1998/09/12
              USER230.ISMF.OBJ          1998/09/08  0000/00/00  1998/09/11
              USER230.ISMF.ALIST        1998/09/08  0000/00/00  1998/09/10
              USER230.ISMF.LKED         1998/09/08  0000/00/00  1998/09/09
              USER230.ISMF230.DGTPLIB   1998/08/21  0000/00/00  1998/09/11
              USER230.ISMF.JCL          1998/07/26  NEVER       1998/09/08
              USER230.ISMF.TESTJCL      1998/07/01  NEVER       1998/09/04
              USER230.ISMF.DGTTABL      1998/05/29  NEVER       1998/09/11
              USER230.ISMF.DGTSLIB      1998/05/29  NEVER       1998/09/10
              USER230.ISMF.DGTMLIB      1998/05/08  NEVER       1998/09/11
              USER230.ISMF.DGTLLIB      1998/04/12  NEVER       1998/09/11
              USER230.ISMF.DGTPLIB      1998/04/05  NEVER       1998/09/11
```

Figure 44. Example of a Sorted List

Using the SORT Command with Parameters

You can use the SORT command with parameters to sort yourlist without leaving the list display. The syntax of the SORT command is:

SORT [*column-tag* [**IN** {**A**|**D**}]] [*column-tag* [**IN** {**A**|**D**}]] [*column-tag* [**IN** {**A**|**D**}]]

where:

SORT
> is the command name.

column-tag
> is the tag associated with a particular data column, for example, 18. You can specify up to three levels of sort order.The first data column is the major field value. The second data column is the first minor field value. The third data column is the second minor field value.

IN {A|D}

> indicates ascending or descending sort order. The default is ascending order. The IN keyword is required if you specify sort order.

An example of the SORT command is shown in

```
   Panel  List  Dataset  Utilities  Scroll  Help
  ---------------------------------------------------------------------------
                              DATA SET LIST
  Command ===> sort 20 in d 22 in d                        SCROLL ===> PAGE
                                                    Entries 1-14 of 18
  Enter Line Operators Below:                       Data Columns 20-22 of 42
        **FILTERED LIST**                              **ENTRIES HIDDEN**
     LINE                                     CREATE     EXPIRE    LAST REF
    OPERATOR           DATA SET NAME            DATE      DATE       DATE
    ---(1)----   ------------(2)------------  ---(20)---  ---(21)---  ---(22)---
                 USER230.ISMF.ALIST           1998/09/08 0000/00/00 1998/09/11
                 USER230.ISMF.CLIST           1996/04/29 0000/00/00 1998/09/11
```

Figure 45. Sorting a List Using the SORT Command with Parameters

This command reorders the list with two levels of sort criteria. The major field
(column 20) and the minor field (column 22) will be sorted in descending order.

When you enter the SORT command with parameters, ISMF saves the values you
specify. The next time you invoke the Sort Entry Panel, the panel is primed with
these values. For more information on the concept of priming, see Chapter 5,
"Understanding How Data Entry Panels Work," on page 87.

Tip: SORT criteria are saved only while you are in an application. Default values
are reset upon each entry to an application.

Refreshing the List

To see an updated version of your list without going back to the selection panel,
enter **REFRESH** on the command line of any list panel. When you specify
REFRESH, ISMF lets you know that a new list is being generated from your
current selection criteria. REFRESH cancels your current tailoring operations for list
entries. If you have sorted the list, hidden entries from the list, or filtered out list
entries, the new list reinstates these list entries in the default order. Upon
completion of the command, ISMF displays the list panel with the updated list and
a message indicating that the list is refreshed.

Tailoring the Data Columns

ISMF allows you to tailor your list to display only the data columns you want, in
the order you want. To tailor the list data columns, use the VIEW command. View
names and Views in use are unique to the application in which they are defined.

Selecting List Display Columns

The VIEW command lets you select and reorder the columns of application
attributes to display on any application list panel by specifying a sequence of
column (tag) numbers. VIEW is available in any ISMF application with a list. You
can use the VIEW command in two ways:

- Enter the VIEW command directly on a list panel. VIEW can be abbreviated to
  VI. See "Entering the VIEW Command" on page 66.
- Choose the Y option for RESPECIFY VIEW CRITERIA on a mountable optical
  volume, mountable tape volume, or SMS class application selection panel. See
  page 39 of Chapter 3, "Generating Lists," on page 23 for a description of the
  option. The Data Set and DASD Volume Applications do not include the VIEW
  option on their selection panels. Therefore, you can only build a VIEW after
  creating a list from these applications.

You can name and save a VIEW, select a VIEW, and delete a VIEW on a View Entry Panel. You can save VIEW across ISMF sessions and manage it on the View Entry Panel List of Saved Views. When you invoke the VIEW command, you see the last VIEW that you used for each list. See "Using the VIEW Command without Parameters" for more information on how to display and use the View Entry Panel.

Entering the VIEW Command

There are two ways to enter the VIEW command:

- Enter the VIEW command without parameters on the command line of the list panel to display the View Entry Panel. See "Using the VIEW Command without Parameters" to find out how to complete the View Entry Panel.
- Enter the VIEW command with parameters on the command line of the list panel. ISMF copies the parameters to the View Entry Panel without displaying the panel. The selected columns are displayed in the order specified by the VIEW parameters.

  If you know the parameters you want to use, you can use this method as a fast path to get the specific view that you want. See "Using the VIEW Command with Parameters" on page 68 for more information.

The view criteria that you specify either on the View Entry Panel or directly on the list panel with parameters are saved for the next time you use the VIEW command. To recover the default view, simply specify **VIEW *** on the command line of the application list or specify an asterisk on the View Entry Panel in the field in which you would normally enter column numbers. See the ISMF help panels for details about the VIEW command.

Using the VIEW Command without Parameters

When you enter the VIEW command without parameters on the data set or volume list, ISMF displays the View Entry Panel. On the View Entry Panel, you specify a series of column tags or an asterisk for the VIEW that you want to see.

The order in which the tags are entered is the order in which the columns appear on the list panel. If a column tag is not entered, the column will not appear on the list panel.

Exception: You cannot specify the LINE OPERATOR (1) and DATA SET NAME (2) columns on the SPECIFY TAGS field because they always appear as the first two columns on a list panel.

You can reference column names and their tags on an entry panel, as shown in Figure 46 on page 67, the Data Set View Entry Panel.

```
   Panel  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                        DATA SET VIEW ENTRY PANEL              Page 1 of 2
 Command ===>

 If Desired, Select option . .          (1 - SELECT, 2 - SAVE, 3 - DELETE)
               View Name . .            (1 to 8 characters, * to Delete all,
                                         or blank for List of Saved Views)
 Specify Tags in Sequence Desired:
 ===>  *

        Line Operator                 (40)  CF LOCK Structure Name
        Data Set Name                 (36)  CF Status Indicator
  (3)   Allocated Space               (24)  Change  Indicator
  (9)   Allocation Unit                (6)  Compressed Format
 (14)   Block/CI Size                 (20)  Creation Date
 (16)   Block Unused                  (25)  Data Class Name
 (35)   CCSID Description             (30)  Data Set Name Type
 (39)   CF CACHE Set Name             (34)  DDM Attributes
 (38)   CF CACHE Structure Name       (19)  Device Type
 (37)   CF Monitor Status             (29)  DS Environment
 (41)   CF LOCK Set Name              (11)  DS Organization
 Use ENTER to Perform Selection or Display List in VIEW Sequence;
 Use DOWN for next Panel; Use HELP Command for Help; Use END Command to Exit.
```

Figure 46. The Data Set View Entry Panel

Enter DOWN on the command line to see page 2 of the Data Set View Entry Panel, as shown in Figure 47.

```
   Panel  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                        DATA SET VIEW ENTRY PANEL              Page 2 of 2
 Command ===>

 If Desired, Select option . .          (1 - SELECT, 2 - SAVE, 3 - DELETE)
               View Name . .            (1 to 8 characters, * to Delete all,
                                         or blank for List of Saved Views)
 Specify Tags in Sequence Desired:
 ===>  *

 (42)   EATTR                          (5)  % Space not Used
 (32)   Entry Type                     (7)  % User Data Reduction
 (21)   Expiration Date               (33)  Reblockable Indicator
 (23)   Last Backup Date              (12)  Record Format
 (22)   Last Ref Date                 (13)  Record Length
 (26)   Mgmnt Class Name              (10)  Secondary Allocation
 (18)   Multi-vol Data Set            (27)  Storage Class Name
  (8)   Number of Extents              (4)  Used Space
 (31)   Number of Stripes             (17)  Volume Serial Number
 (15)   Opt Block Size
 (28)   Owner
 Use ENTER to Perform Selection or Display List in VIEW Sequence;
```

Figure 47. Page 2 of the Data Set View Entry Panel

When the View Entry Panel is first displayed, the SPECIFY TAGS field is primed with an asterisk, indicating that all columns are to display in the ISMF default order.

If you enter an asterisk at the end of a sequence of tags, the columns you specify appear in the order you choose followed by all remaining columns in their default order.

For example, enter 19 6 8 * in the SPECIFY TAGS field. Press the ENTER key. The list panel displays columns 1, 2, 19, 6, and 8, followed by the remaining columns in the ISMF default order (3, 4, 5, 7, 9,...).

The criteria on the View Entry Panel are saved between uses of the command.

You can save, select, or delete views on the View Entry Panel by choosing one of the following options:

Option Meaning

1   The SELECT option retrieves criteria from the view specified in the VIEW NAME field. You do not have to choose this option to specify view criteria in the SPECIFY TAGS field.

2   The SAVE option saves the criteria from the SPECIFY TAGS field of the current view using the view name you specify. If the view already exists, it is replaced by the criteria that you specify the SAVE option for. A message is displayed to tell you that the previous view has been replaced with the view you specified.

3   The DELETE option deletes the view that you specify from the list of saved views. If you select the DELETE option and enter an asterisk in the VIEW NAME field, all saved views are deleted.

If you specify an option but leave the VIEW NAME field blank or the view you specify does not exist, a List of Saved Views is displayed with saved view names and tag sequence information. Figure 48 shows an example of the List of Saved Views format for the View Entry Panel.

```
  Panel  Utilities  Scroll  Help
 -----------------------------------------------------------------------------
                        DATA SET VIEW ENTRY PANEL
 Command ===>

 If Desired, Select Option ===> 1          (1 - SELECT, 2 - SAVE, 3 - DELETE)
               View Name ===>              (1 to 8 characters, * to Delete All,
                                            or blank for List of Saved Views)
 Specify Tags In Sequence Desired:
 ===> *

                          LIST OF SAVED VIEWS
   VIEWNAME  TAG SEQUENCE
   --------  ----------------------------------------------------------------
   FIRSTVW   4 6 9 8 10 7 11 14 13 12 17 16 15 18 19 20 25 24 23 22 21 3 5...
   LONGVW    25 3 16
   MODCOL    18 4 12 16 19
   ONECOL    22 30 14 3
   SECONDVW  12 14 5 9 8 7 15 18
   STARVW    5 7 9 *
   --------  ----------  ------  BOTTOM  OF  DATA  ------  ----------  --------



 Use Enter To Perform Selection; Use UP/DOWN to Scroll List of Saved Views;
```

Figure 48. Data Set View Entry Panel List of Saved Views Format

For more details about managing your saved views, refer to the ISMF online help panels.

Using the VIEW Command with Parameters

Use the VIEW command with parameters to select and reorder thecolumns to appear on your list panel without leaving the list display. The VIEW command can be followed by a series of tags or an asterisk. This causes the list panel to be redisplayed in the order specified by the view criteria.

You can enter the VIEW command with the following optional parameters:

VIEW *column tags*

    Enter the VIEW command followed by a sequence of tags, separated by blanks. Column tags or an asterisk are used as new view criteria to reorder the list on the list panel display.

VIEW DELETE *viewname*

    Enter this parameter to delete a previously saved view. The DELETE parameter can be abbreviated as DE. *Viewname* must be one to eight alphanumeric characters and must begin with an alphabetic, $, @, or # character.

VIEW SELECT *viewname*

    Enter this parameter to retrieve a previously saved view. The SELECT parameter can be abbreviated as SE. *Viewname* must be one to eight alphanumeric characters and must begin with an alphabetic, $, @, or # character.

VIEW SAVE *viewname*

    Enter this parameter to save the current view criteria using the specified view name. The SAVE parameter can be abbreviated as SA. The *viewname* must be one to eight alphanumeric characters and must begin with an alphabetic, $, @, or # character. If the specified view name already exists, it is replaced and a display message indicates that the previously saved view is replaced.

Press the ENTER key after specifying the VIEW command parameters. Without displaying the View Entry Panel first, the list panel displays with the columns appearing in the order specified by your view criteria. When you enter the VIEW command with parameters, ISMF saves the values you specify. The next time you invoke the View Entry Panel with the VIEW command, the panel is primed with these values. The view criteria are saved across ISMF sessions.

You can enter existing line operators and commands for all list panels with some changes when VIEW is in use:

- The SORT command only sorts columns in the current view.
- The FIND command only locates columns in the current view.
- Entering the FILTER command first determines which entries are to appear on the filtered list panel using the ISMF list of columns. The resulting list is selected and reordered according to the current view criteria. All columns are used in the filter process but may not display on the list panel.

Error Handling during the Tailoring of a List

ISMF uses short and long error messages to document errors in tailoring a data set or volume list. ISMF informs you of errors by displaying a short error message describing the problem. You can still continue working with the displayed list, but the list might contain some entries that do not meet your filter or sort criteria. If the short error message does not give you enough information, use the HELP command to display the long error message. Use the HELP command again to see the message help panel.

If an error in sorting or filtering makes it impossible to redisplay the list, ISMF displays the selection entry panel. The panel is primed with the selection criteria you chose when you built the list. If you press the ENTER key, the list you originally created is displayed and you can continue working with it.

Saving a Copy of the List

The **SAVE** command allows you to save a copy of the list for future use. The saved list contains as many entries as the currently displayed list. Any tailoring you do with the SORT command, FILTER command, VIEW command, and the HIDE line operator determines the content of the saved list.

For example, if the entries statement reads as follows, the saved list will have 85 entries and 39 data columns:

```
        SCROLL ===> PAGE
Entries 1-14 of 85
Data Columns 16-19 of 42
```

To save a list, enter SAVE on the command line followed by the name you want to use to identify the list (see Figure 49). Do not use a name that begins with DGT, ISP, or ISR. These prefixes are reserved for ISMF and ISPF tables. If you use other dialogs under ISPF, do not choose a list name that duplicates the name of any table used by the dialog.

```
   Panel List Dataset Utilities Scroll Help
  -------------------------------------------
                                 DATA SET LIST
Command ===> save thislist

Enter Line Operators Below:

    LINE
    OPERATOR         DATA SET NAME
  ---(1)----  ------------(2)------------
              USER230.ISMF.LKED
              USER230.ISMF.MACLIB
              USER230.ISMF.NEWNAME
```

Figure 49. Entering the SAVE Command

If a saved list or any other ISPF table you specify already exists, you have two options: you can choose another name or specify the REPLACE option with the SAVE command. With the REPLACE option, the SAVE command looks like this:

```
COMMAND ===> save thislist replace
```

Once you have saved a list, you can use ISPF services against it. For example, using ISPF file tailoring and table services, you can read, scan, and update the list. You can also format the list for printing. The list can be accessed in both the foreground and the background.

Related Topic: That the variable names used in saved lists are the same as the ones used for CLISTs and user commands. For more information on CLIST variables, see "Contents of the List Panels" on page 49 and Appendix B, "Acquiring Data for a User-Created CLIST," on page 169. However, the first character of a variable name is changed when it occurs in a saved list:
- The first character for data set list variables is **X**.
- The first character for DASD volume list variables is **Y**.
- The first character for mountable optical volume list variables is **K**.
- The first character for mountable tape volume list variables is **J**.
- The first character for management class variables is **R**.
- The first character for data class variables is **Q**.
- The first character for storage class variables is **U**.

Printing a List

To print a copy of a list being viewed or a copy of a saved list, use the ISMF LISTPRT command. With LISTPRT, you can generate the list in standard format or in roster format, store the list in a new or existing data set, and specify which columns are printed.

You can also use ISPF PRINT or PRINT–HI to print what is currently being displayed. See "Printing a List Using the ISPF PRINT or PRINT-HI Command" on page 75 for information on how to use these commands.

Printing a List Using the LISTPRT Command

With LISTPRT, you can print lists generated by various ISMF applications. You can print saved lists or lists that are currently being displayed.

There are two ways to use the LISTPRT command:
- You can enter LISTPRT without parameters on the command line of a list panel.
- You can enter LISTPRT with parameters on the command line of a list panel.

Using the LISTPRT Command without Parameters

From the Data Set or Volume List panels enter LISTPRT on the command line to display the Print Entry panel, as shown in Figure 50.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 -------------------------------------------------------------------------------
                              DATA SET LIST
 Command ===> listprt                                       SCROLL ===> PAGE
                                                   Entries 1-5 of 5
 Enter Line Operators Below:                       Data Columns 20-22 of 42

    LINE                                 CREATE       EXPIRE      LAST REF
   OPERATOR         DATA SET NAME         DATE         DATE         DATE
   ---(1)----  ------------(2)------------  ---(20)---  ---(21)---  ---(22)---
             USER230.ISMF.ALIST         1998/09/08  0000/00/00  1998/09/10
             USER230.ISMF.CLIST         1996/04/29  NEVER       1998/09/11
             USER230.ISMF.DGTLLIB       1998/04/12  NEVER       1998/09/11
             USER230.ISMF.DGTMLIB       1998/05/08  NEVER       1998/09/11
             USER230.ISMF.DGTPLIB       1998/04/05  NEVER       1998/09/11
 ----------  ------  ----------- BOTTOM OF  DATA  -----------  ------ ---------
```

Figure 50. Printing a List Using the LISTPRT Command

From the Print Entry panel, you can specify the report format, the columns that should be printed, the number of lines to be printed on each page, and the data set in which the output should be stored.

Rule: If you specify an existing output data set, you must also specify whether or not the contents should be replaced by the new list.

Specify one or more of the following options:

Parameter
>**Description**

Select Format Type
>Enter this parameter to specify the format of the report as either STANDARD or ROSTER. If you specify STANDARD, information for each entry in the list is printed by column, just as it is in the list panel. If you specify ROSTER, information for each list entry printed one after the other, by row.

Report Data Set Name
>Enter this parameter to specify the name of the data set in which the report should be stored. If you enter a data set name you must also enter Y or N in the Replace Report Contents field. If you enter a new data set name, the system will create a data set with that name along with these characteristics:
>
>* Physical sequential
>* LRECL=133
>* RECFM=FBA
>
>**Requirement:** If you specify an existing data set name, you must also use the Replace Report Contents parameter to specify whether or not the contents should be replaced by the new list.

Replace Report Contents
>Enter this parameter to specify whether or not you want the existing contents of the named data set to be replace by the new list. Entry in this field is required if you specify a data set name in the Report Data Set Name parameter. A value of **Y**, yes, replaces the contents. A value of **N**, no, does not replace the contents. The default is **N**.

Lines/Page
>Use this parameter to specify the number of lines that should be printed on each page of the report. The header information occupies the first eleven lines. The default value is 55 lines.

Specify Tags to be Printed
>Enter column numbers in the order you want them printed. The * character represents the column tags in default order. Place an * as the final element in your tag sequence to print all remaining columns in default order (19 6 8 *).
>
>**Exception:** You cannot specify the LINE OPERATOR (1) and DATA SET NAME (2) columns on the Specify Tags field because they always appear as the first two columns on a list panel.

Enter DOWN on the command line to display page 2 of the Data Set Print Entry Panel, as shown in Figure 51 on page 73.

```
   Panel  Utilities  Scroll  Help
--------------------------------------------------------------------------------
                         DATA SET PRINT ENTRY PANEL              Page 2 of 2
Command ===>

Select Format Type  . . . . . 1  (1 - Standard, 2 - Roster)
Report Data Set Name  . . . .
Replace Report Contents . . . N  (Y or N)  Lines/Page . . . 55  (12 to 99)
Specify Tags to be Printed:
===>  *

 (42)  EATTR                           (5)  % Space not Used
 (32)  Entry Type                      (7)  % User Data Reduction
 (21)  Expiration Date                (33)  Reblockable Indicator
 (23)  Last Backup Date               (12)  Record Format
 (22)  Last Ref Date                  (13)  Record Length
 (26)  Mgmnt Class Name               (10)  Secondary Allocation
 (18)  Multi-vol Data Set             (27)  Storage Class Name
  (8)  Number of Extents               (4)  Used Space
 (31)  Number of Stripes              (17)  Volume Serial Number
 (15)  Opt Block Size
 (28)  Owner
Use ENTER to Perform Print; Use UP Command for previous Panel;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 51. Page 2 of the Data Set Print Entry Panel

Press ENTER to display the Job Submission Entry panel, as shown in Figure 52.

```
  Panel  Utilities  Help
--------------------------------------------------------------------------------
                       PRINT JOB SUBMISSION ENTRY PANEL       REPORT GENERATED
Command ===>

Select one of the following:
  1  1. Submit Job for Background Processing
     2. Save Generated Job in a Data Set

If Save Option is Selected, Specify:
  Data Set Name . . .
  Replace Contents  . . N         (Y or N)
Job Statement Information:      (verify before proceeding)
  ===> //USER10B  JOB  (ACCOUNT),'NAME'
  ===> //*
  ===> //*
  ===> //*
  ===> //*
  ===> //*
  ===> //*

Enter "/" to select option   /  View or Change Execute Stmts from Profile
Use ENTER to Continue;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 52. Print Job Submission Entry Panel

Press ENTER to display the Print Execute Statement Entry panel, as shown in
Figure 53 on page 74.

```
    --------------------------------------------------------------------------------
                 ISMF DATA SET PRINT EXECUTE STATEMENT ENTRY PANEL
Command ===>

Specify Data Set Print Execute Statement Information:

  ===> //*
  ===> //*
  ===> //*
  ===> //STEP1  EXEC  PGM=IEBPTPCH
  ===> //*
  ===> //SYSPRINT  DD  SYSOUT=*
  ===> //SYSUT2    DD  SYSOUT=*,DCB=(LRECL=133,RECFM=FBA)




Use ENTER to Continue;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 53. Data Set Print Execute Statement Entry Panel

Press ENTER to submit the batch job.

When you are done, you have printed the list.

Using the LISTPRT Command with Parameters

When you use LISTPRT with parameters, you bypass the Print Entry Panel.

Enter LISTPRT from the command line of the list panel, using the following syntax:

LISTPRT [*listname format tags*]

where:

LISTPRT
>   is the command name.

listname
>   is the name of a saved list (for example, SAMPLIST).

format
>   format STANDARD (STD) or ROSTER (RST).

tags
>   can specify column order or * for default order.

Figure 54 on page 75 shows an example the LISTPRT command with parameters:

```
   Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                              DATA SET LIST
 Command ===> listprt samplist std *                       SCROLL ===> PAGE
                                                  Entries 1-13 of 29
 Enter Line Operators Below:                      Data Columns 18-20 of 42

    LINE                                 CREATE      EXPIRE     LAST REF
    OPERATOR        DATA SET NAME         DATE        DATE        DATE
  ---(1)----   ------------(2)------------ ---(20)--- ---(21)--- ---(22)---
               USER230.ISMFDCR9.SCRIPT    1998/09/09 0000/00/00 1998/09/09
               USER230.ISMF.PLS3          1998/09/08 0000/00/00 1998/09/11
               USER230.ISMF.PLIST         1998/09/08 0000/00/00 1998/09/11
               USER230.ISMF.OBJ           1998/09/08 0000/00/00 1998/09/11
               USER230.ISMF.ALIST         1998/09/08 0000/00/00 1998/09/11
               USER230.ISMF.LKED          1998/09/08 0000/00/00 1998/09/11
               USER230.ISMF230.DGTPLIB    1998/08/21 0000/00/00 1998/09/11
               USER230.ISMF.TESTHMI3      1998/08/08 NEVER      ----------
               USER230.ISMF.TESTHMI2      1998/08/08 NEVER      ----------
               USER230.ISMF.TESTHMI1      1998/08/08 NEVER      ----------
               USER230.ISMF.TESTCOPY      1998/08/08 NEVER      ----------
               USER230.ISMF.JCL           1998/07/26 NEVER      1998/09/08
               USER230.ISMF.TESTJCL       1998/07/01 NEVER      1998/09/04
```

Figure 54. Printing a List Using the LISTPRT Command

If the Print Entry Panel is primed with values from the last time you used the
LISTPRT command, these values are used as print criteria along with the
parameters you specify with the LISTPRT command. The message OTHER VALUES
ALSO USED is displayed to remind you that ISMF filtered the list using values from
the entry panel as well as those you specified from the list panel.

Printing a List Using the ISPF PRINT or PRINT-HI Command

If you want to print only the portion of the list that is currently displayed on the
screen, you can use the ISPF commands **PRINT** or **PRINT-HI**.

Enter the PRINT command on the command line of the list panel to print the
screen without highlighting any of the fields. If you enter the PRINT-HI command,
overstriking simulates the highlighted fields. When you enter either the PRINT or
PRINT-HI command, the screen display is formatted for output and placed in the
ISPF list data set.

For more information on PRINT and PRINT-HI, see *ISPF and ISPF/PDF Reference
Summary*.

Listing Saved Lists

The List Application lets you manage saved ISMF lists. An application selection on
the ISMF Primary Option Menu, LIST displays a comprehensive list of the names
of the lists saved from other applications.

When you choose the List Application, the Saved ISMF Lists Panel is displayed if
there are any saved ISMF lists. Figure 55 on page 76 shows an example of the
Saved ISMF Lists Panel.

```
   Panel  List  Utilities  Scroll  Help
  -------------------------------------------------------------------------
                             SAVED ISMF LISTS
  Command ===>                                            SCROLL ===> PAGE
                                                        Entries 1-14 of 15
  Enter Line Operators Below:                           Data Columns 3-7 of 8

     LINE        LIST        LIST    LAST DATE   LAST TIME  LAST MOD  LIST ROW
    OPERATOR     NAME        TYPE    MODIFIED    MODIFIED   USERID    COUNT
    ---(1)----  --(2)---   --(3)---  ---(4)----  ---(5)---  --(6)---  --(7)---
                $DSVLST3   DASDVOL   1998/01/04   10:16     USRT005        14
                @DS1       DATASET   1998/09/27   16:46     USRT005        19
                BAK#FFTN   OPTVOL    1998/11/12   09:33     MAINT         101
                EDS12      OPTLIB    1998/01/04   09:16     USRT005        23
                JIMS#MCL   MGMTCLAS  1998/04/01   15:26     JIMT004         0
                LISTELVN   DRIVE     1998/05/28   11:16     USRT006        51
                LISTFI@E   DATASET   1998/02/23   14:26     USRT010        73
                LISTFOU-   STORCLAS  1998/03/04   08:56     USRT005        34
                LISTFRTN   OPTVOL    1998/02/05   10:01     L94VMJ0        14
                LISTHR-A   DATACLAS  1998/01/12   13:16     DAVID          17
                LISTNINE   DASDVOL   1998/01/17   10:16     MICHAEL        45
                LISTSEVN   STORGRP   1998/03/22   08:19     USRT005         1
                PAMSLST    AGGRGRP   1998/01/04   17:36     PAMT003        32
                TVLIST     TAPEVOL   1998/05/26   10:50     TST007          6
```

Figure 55. Example of the Saved ISMF Lists Panel

If no saved lists are found, the Primary Option Menu is redisplayed with the
message that the list is empty.

ISMF line operators and commands can be used in the List Application to help you
manage your saved lists. You can sort columns on the Saved ISMF Lists Panel with
the SORT command or reorder the display columns with the VIEW command. The
FILTER command can be used to select list entries from the displayed list. Any of
the currently displayed columns, except for the LINE OPERATOR column, can be
used for filtering. You can also delete a saved list from the Saved ISMF Lists Panel
using the DELETE line operator.

For a complete list of line operators and commands that you can use to perform
operations on the Saved ISMF Lists Panel, see Table 12 on page 157 and Table 13
on page 159.

Reusing a Previously Saved List

To reuse a previously saved data set list or volume list, enter the name of the
saved list on the selection entry panel. The saved list is displayed and becomes the
current list.

If the list being reused was saved in a previous release of ISMF, any new data
columns on the Data Set List Panel display nulls (-------).

If you are in the List Application, the LIST line operator displays the saved list as
if list reuse was selected from the corresponding application. The appropriate list is
displayed using the saved information.

Restriction: Saved SMS class lists are not reusable.

Modifying a Data Set in the List

ISMF uses the ISPF/PDF browse and edit facilities and DFSORT sort facilities to allow you to look at or change the contents of a data set from the data set list. The data set must be sequential, partitioned, or partitioned extended.

Browsing or Editing a Data Set

To use browse or edit, enter the BROWSE or EDIT line operator in the line operator column next to the data set you want to display. Figure 56 shows an example of entering the BROWSE line operator.

```
  Panel List Dataset Utilities Scroll Help
 -------------------------------------------
                              DATA SET LIST
 Command ===>

 Enter Line Operators Below:

    LINE
    OPERATOR        DATA SET NAME
   ---(1)----  ------------(2)------------
               USER230.ISMF.ALIST
     BROWSE    USER230.ISMF.CLIST
               USER230.ISMF.DGTLLIB
```

Figure 56. Entering the BROWSE Line Operator

When you enter either BROWSE or EDIT, ISMF transfers control to ISPF/PDF to display the data set. Using BROWSE, you can look at the data set without altering it. With EDIT, you can also make changes to the data set.

When you have finished working with the data set, use the END command to return to the list. Any changes you make to the data set using the EDIT line operator are saved.

For more information on BROWSE and EDIT, refer to *ISPF and ISPF/PDF Reference Summary*.

Tip: If your list is generated from the catalog, the BROWSE or EDIT line operator forces a recall of the data set.

Using Line Operators and List Commands

This section provides information on how to use line operators and list commands.

Entering Line Operators and List Commands

Whereas line operators work with the individual entries in a data set or volume list, list commands allow you to perform an operation against all the entries in a list at one time. Enter line operators in the line operator field and list commands on the command line.

Line Operators

Line operators work with the individual entries in a data set or volume list. You enter line operators in the line operator field, column 1, next to the data set or volume entries you want to affect. For example, to tailor your list and exclude a data set from the list, enterthe HIDE line operator next to the name of the data set you want to exclude (see Figure 57 on page 78). The entry is hidden, and the

warning line contains the reminder **ENTRIES HIDDEN**. A hidden entry is not affected by list commands.

```
   Panel List Dataset Utilities Scroll Help
   ---------------------------------------------------------------------------
                                 DATA SET LIST
   Command ===>                                          Scroll ===> HALF
                                                         Entries 1-14 of 389
   Enter Line Operators below:                           View in Use
                                                        **ENTRIES HIDDEN**
       LINE                                              DEVICE  COMPRESSED
       OPERATOR                 DATA SET NAME            TYPE    FORMAT
       ---(1)----   --------------------(2)-------------------- -(19)-- -------
                 SYS1.ABUSBINR                            ??????? ???
```

Figure 57. Entering the HIDE Line Operator

If you have entered a storage management command, such as the COMPRESS line operator, ISMF then displays the COMPRESS Entry Panel, which lets you display and change processing options for the COMPRESS line operator.

List Commands

List commands allow you to perform an operation against all the entries in a list at one time. You enter list commands on the command line of the list panel. For example, if you want to build a job to compress all the data sets in the list instead of a single data set, you can use COMPRESS as a list command (see Figure 58).

```
   Panel List Dataset Utilities Scroll Help
   -----------------------------------------------
                                 DATA SET LIST
   Command ===> compress

   Enter Line Operators Below:

       LINE
       OPERATOR          DATA SET NAME
       ---(1)----   ------------(2)------------
                 USER230.ISMF.ALIST
                 USER230.ISMF.CLIST
                 USER230.ISMF.DGTLLIB
```

Figure 58. Entering the COMPRESS List Command

When you enter a list command, ISMF displays the entry panel associated with the list command. Like the entry panels for line operators, the entry panels for storage management list commands allow you to display and change the processing options for executing the command. The entry panels for list customization commands such as FILTER, VIEW, or SORT, for example, allow you to change the selection criteria for the command.

Each time you enter a storage management list command, ISMF scans the entire list to make sure that each entry is correct before attempting to process the command. For example, when you issue the COMPRESS list command, ISMF checks to make sure that the list consists of only partitioned data sets before displaying the entry panel associated with COMPRESS. The list command is not executed if there are any entries in error or if you try to use a list command and line operator at the same time.

Abbreviating Line Operators and List Commands

When you enter a line operator or a list command, you can use the full word or you can abbreviate it by specifying enough of the word to make the command

identifiable. ISMF scans from left to right in the line operator field or on the command line until any ambiguity is resolved. You can enter COP for COPY, COM for COMPRESS, REST for RESTORE, and REL for RELEASE.

Table 12 on page 157 and Table 13 on page 159, lists the minimum abbreviations for line operators and list commands. TSO CLIST names, such as CATLIST, cannot be abbreviated.

Short Ways of Entering Line Operators

This section applies to line operators only.

Entering More Than One Line Operator on an Entry

If you want to perform several operations on one data set or volume, you can do so by entering the new line operator, or abbreviation, followed by a single blank space. ISMF recognizes the new line operator even if you do not blank out the remaining characters of the previous line operator.

For example, if you want to replace COMPRESS with DUMP, you do not need to erase the remaining characters in COMPRESS. Just enter DUMP (or DU) followed by one or more blank spaces (see Figure 59).

```
   Panel List Dataset Utilities Scroll Help
  --------------------------------------------
                                   DATA SET LIST
Command ===>

Enter Line Operators Below:

    LINE
    OPERATOR          DATA SET NAME
    ---(1)----   ------------(2)------------
    DUMP ESS    USER230.ISMF.PLS3
```

Figure 59. Reusing the Line Operator Field

Repeat Line Operator

Use the repeat line operator to respecify a line operator against an entry that follows later in the list. ISMF repeats the last line operator executed when it finds an equal sign (=) in the line operator column. By using the equal sign, you do not have to reenter the same line operator for each list entry.

For example, Figure 60 on page 80 shows how you can execute the same line operator over a number of data sets with the repeat line operator. A line operator is entered against all but one of the list entries. ISMF processes the COMPRESS line operator against the first, second and fourth list entries and the DELETE line operator against the next four entries.

```
   Panel List Dataset Utilities Scroll Help
 --------------------------------------------
                               DATA SET LIST
 Command ===>

 Enter Line Operators Below:

    LINE
    OPERATOR          DATA SET NAME
    ---(1)----  ------------(2)------------
    compress    USER230.ISMF.PLS01
    =           USER230.ISMF.PLS02
                USER230.ISMF.PLS03
    =           USER230.ISMF.PLS04
    delete      USER230.ISMF.PLS05
    =           USER230.ISMF.PLS06
    =           USER230.ISMF.PLS07
    =           USER230.ISMF.PLS08
```

Figure 60. Using the Repeat Line Operator

The repeat line operator can be used in last-use mode. See "Repeat Line Operator in Last-Use Mode" on page 81.

Line Operator Mode

There are two ways to enter line operators: normal mode and last-use mode. List commands can only be entered in normal mode.

In **normal mode**, enter the line operator by itself in the line operator field (for example, COMPRESS in Figure 60). ISMF displays the entry panel associated with the line operator you specify. You can then display or change the processing options on the entry panel.

In **last-use mode**, enter the line operator followed by an equal sign in the line operator field. ISMF does not display the entry panel for the line operator. Instead, the line operator is processed with the values present on the entry panel the last time the line operator was executed. In Figure 61, COMPRESS is specified in last-use mode.

```
   Panel List Dataset Utilities Scroll Help
 --------------------------------------------
                               DATA SET LIST
 Command ===>

 Enter Line Operators Below:

    LINE
    OPERATOR          DATA SET NAME
    ---(1)----  ------------(2)------------
    com=        USER230.ISMF.DGTTABL
```

Figure 61. Specifying a Line Operator in Last-Use Mode

Instead of displaying the COMPRESS Entry Panel and the background job submission panels, ISMF uses the processing options that you specified the last time you used the COMPRESS line operator.

If you chose to submit the last job immediately, the new job is sent to the job queue. If you chose to save the job stream in a data set the last time you submitted a background job, the new job is also saved. However, the new job is added to the end of the data set regardless of the option you specified the last time you used the Job Submission Entry Panel.

Repeat Line Operator in Last-Use Mode

You can use the repeat line operator in last-use mode.Two equal signs together in the line operator column repeat the previous line operator in last-use mode. Figure 62 shows an example of the repeat line operator.

```
  Panel List Dataset Utilities Scroll Help
 --------------------------------------------
                              DATA SET LIST
 Command ===>

 Enter Line Operators Below:

    LINE
    OPERATOR           DATA SET NAME
   ---(1)----    ------------(2)------------
   com=          USER230.ISMF.DGTTABL1
   ==            USER230.ISMF.DGTTABL2
   ==            USER230.ISMF.DGTTABL3
   com           USER230.ISMF.DGTTABL4
   =             USER230.ISMF.DGTTABL5
   =             USER230.ISMF.DGTTABL6
```

Figure 62. Specifying a Repeat Line Operator in Last-Use Mode

In Figure 62, the first three data sets are compressed using last-use mode. The last three data sets are compressed using normal mode. The COMPRESS Entry Panel is displayed for the last three data sets. For information on the repeat line operator, see "Repeat Line Operator" on page 79.

Using Parameters with Line Operators and List Commands

You can use TSO commands and CLISTs as line operators to perform functions against single list entries, and as list commands to perform functions against all entries in the list. These commands often require parameters. You can specify TSO commands and CLISTs with parameters from any application. Refer to "Invoking TSO Commands and CLISTs" on page 103 for more information.

Line Operator and List Command Feedback and Fixes

ISMF provides feedback for both successful completion or submission of line operators and for error conditions.

Getting Feedback

ISMF informs you upon successful or unsuccessful completion of a command.

Successful Completion of Line Operators and List Commands

When a line operator is successful, ISMFinserts an asterisk before the line operator in the line operator field. When a list command is successful, all the entries in the list are preceded with an asterisk and the command. In both cases, a short message in the upper right corner of the screen indicates that the operation has completed successfully. Abbreviations are replaced with the full word. Figure 63 on page 82 shows the feedback for the DUMP line operator entered in Figure 59 on page 79. The asterisk represents a return code of 0.

```
   Panel List Dataset Utilities Scroll Help
  -------------------------------------------
                                DATA SET LIST
  Command ===>

  Enter Line Operators Below:

     LINE
     OPERATOR           DATA SET NAME
     ---(1)----    ------------(2)-----------
     *DUMP         USER230.ISMF.PLS3
```

Figure 63. Asterisk Symbol Showing Successful Completion of a Line Operator

If the COMPRESS command issued in Figure 58 on page 78 is successful, the data set list will contain the asterisk history symbols next to each data set entry and the short message shown in Figure 64.

```
   Panel List Dataset Utilities Scroll Help
  ---------------------------------------------------------------------------
                              DATA SET LIST              COMPRESS JOB CREATED
  Command ===>                                               SCROLL ===> PAGE
                                                         Entries 1-14 of 18
  Enter Line Operators Below:                            Data Columns 3-5 of 42

     LINE                                 ALLOC      ALLOC    % NOT
     OPERATOR           DATA SET NAME     SPACE      USED     USED
     ---(1)----    ------------(2)-----------  ---(3)---  ---(4)---  -(5)-
     *COMPRESS     USER230.ISMF.ALIST        1020K      1020K      0
     *COMPRESS     USER230.ISMF.CLIST        1020K      1020K      0
     *COMPRESS     USER230.ISMF.DGTLLIB       464K       464K      0
```

Figure 64. Asterisk History Symbol Showing Successful Completion of a List Command

Tips

- Because ISMF does not process line operators preceded by an asterisk, the asterisk history symbol gives you a record of the line operators you have used.
- You can also use an asterisk as the first character for any comments you want to place in the line operator field. The information following the asterisk (both comments and successful line operators) remains in the line operator field until you perform one of the following actions:
  - Blank out the field.
  - Enter the CLEAR command on the command line. CLEAR erases pending line operators and line operator history symbols for all entries in the list except those hidden or excluded by filtering.
  - Refresh the list or construct another list using different selection criteria.
  - Exit the application.

Error Condition that Affects a Line Operator or List Command

When there is an error during the execution of a line operator or list command, and the error is not severe enough to keep ISMF from processing the rest of the list, ISMF displays the line operator or command next to the list entry that failed and prefixes them with a not sign (¬). The list entry is bypassed, and processing continues for the rest of the line operators or entries in the list, as shown in Figure 65 on page 83. The not sign prefix represents a return code of 4.

Figure 65 on page 83 shows a data set list where all the list entries except the fifth one have been processed successfully.

```
 Panel List Dataset Utilities Scroll Help
 --------------------------------------------------------------------------
                        DATA SET LIST              COMPRESS JOB CREATED
 Command ===>                                           SCROLL ===> PAGE
                                                   Entries 1-14 of 18
 Enter Line Operators Below:                       Data Columns 3-5 of 42
                                                   **ENTRIES HIDDEN**
    LINE                                 ALLOC     ALLOC    % NOT
    OPERATOR        DATA SET NAME        SPACE     USED     USED
 ---(1)---- ------------(2)------------ ---(3)--- ---(4)--- -(5)-
   *COMPRESS   USER230.ISMF.ALIST        1020K     1020K      0
   *COMPRESS   USER230.ISMF.CLIST        1020K     1020K      0
   *COMPRESS   USER230.ISMF.DGTLLIB       464K      464K      0
   *COMPRESS   USER230.ISMF.DGTMLIB        46K       40K     13
   ¬COMPRESS   USER230.ISMF.DGTPLIB       649K      649K      0
   *COMPRESS   USER230.ISMF.DGTSLIB       139K       93K     33
   *COMPRESS   USER230.ISMF.DGTTABL      1020K     1020K      0
   *COMPRESS   USER230.ISMF.ISPPLIB       278K      278K      0
   *COMPRESS   USER230.ISMF.ISPSLIB        93K       93K      0
   *COMPRESS   USER230.ISMF.JCL           417K      417K      0
   *COMPRESS   USER230.ISMF.LKED           93K       93K      0
   *COMPRESS   USER230.ISMF.MACLIB        185K      185K      0
   *COMPRESS   USER230.ISMF.OBJ           139K       93K     33
   *COMPRESS   USER230.ISMF.PLIST        1020      1020       0  ---
```

Figure 65. Not Sign Showing Unsuccessful Completion of a List Command

Error Condition that Affects the List Processing

If there is an error during the execution of a line operator or list command that is
so severe thatISMF cannot continue with the rest of the list, ISMF prefixes the line
operator with a question mark. For a list command, ISMF displays the command
next to the list entry that failed and prefixes the command with a question mark. A
question mark represents a return code greater than 4.

For example, ISMF could not continue processing the list shown in Figure 66 once
the error occurred on the fourth line operator.

```
 Panel List Dataset Utilities Scroll Help
 --------------------------------------------------------------------------
                        DATA SET LIST              INVALID COMMAND
 Command ===>                                           SCROLL ===> PAGE
                                                   Entries 1-14 of 18
 Enter Line Operators Below:                       Data Columns 3-5 of 42

    LINE                                 ALLOC     ALLOC    % NOT
    OPERATOR        DATA SET NAME        SPACE     USED     USED
 ---(1)---- ------------(2)------------ ---(3)--- ---(4)--- -(5)-
   *COPY       USER230.ISMF.ALIST        1020K     1020K      0
   *COPY       USER230.ISMF.CLIST        1020K     1020K      0
   *COPY       USER230.ISMF.DGTLLIB       464K      464K      0
   ?COPY       USER230.ISMF.DGTMLIB        46K       40K     13
    COPY       USER230.ISMF.DGTPLIB       649K      649K      0
    COPY       USER230.ISMF.DGTSLIB       139K       93K     33
    COPY       USER230.ISMF.DGTTABL      1020K     1020K      0
    COPY       USER230.ISMF.ISPPLIB       278K      278K      0
               USER230.ISMF.ISPSLIB        93K       93K      0
               USER230.ISMF.JCL           417K      417K      0
               USER230.ISMF.LKED           93K       93K      0
               USER230.ISMF.MACLIB        185K      185K      0
               USER230.ISMF.OBJ           139K       93K     33
               USER230.ISMF.PLIST        1020K     1020K      0
```

Figure 66. Example of a Question Mark Return Code Symbol for a Line Operator

Correcting Errors for Line Operators and List Commands

You have several options to correct an error for a **line operator** prefixed with either a not sign (¬) or a question mark (?):

- Correct any obvious spelling errors, erase the history symbol, and retry the line operator.
- Use the HELP command to display the long error message and the message help panel for information to help you correct the error.
- Enter the MESSAGE line operator on top of the line operator with the error. ISMF displays a message on the particular line operator that can help you diagnose the problem. For more information, see "MESSAGE Line Operator" on page 20.
- Hide the list entry and continue working with the list.
- Erase the line operator field in error and continue working with the list.
- Enter the CLEAR command on the command line. This clears the entire line operator column and cancels any pending line operators. Then retry the line operator that caused the error.
- Press ENTER again to continue working with the list.

You have several options to correct errors for **list commands**:

- Use the HELP command to display the long error message and the message help panel for information to help you correct the error.
- Blank out the command line and issue the MESSAGE line operator against the list entry causing the problem. ISMF displays a series of messages that can help you diagnose the problem. See "MESSAGE Line Operator" on page 20 for more information.
- Use the HIDE line operator to exclude the entry causing the error from the list. Enter **H** followed by a blank space in the line operator field of the entry you want to hide. ISMF executes the HIDE line operator and continues processing the list beginning with the first entry on the list. If there are no other entries in error, the entry panel for the list command is displayed.
- Clear the command line by blanking out the list command. This cancels the list command.

List Panel Processing Rules

ISMF follows a set sequence for list panel processing:

1. ISMF executes TSO and ISPF commands (for example, KEYS) before ISMF line operators.
2. ISMF executes the ISMF commands CLEAR, END, and RETURN before line operators. Entering these commands cancels pending line operators.
3. ISMF executes line operators before the ISMF commands for scrolling and tailoring (UP, DOWN, TOP, BOTTOM, LEFT, RIGHT, FIND, VIEW, SORT, FILTER, FOLD), and before the PROFILE, SAVE, REFRESH, and RESHOW commands.

   For example, if you entered COPY as a line operator and FILTER on the command line, as shown in Figure 67 on page 85, ISMF executes the line operator first. The COPY Entry Panel is displayed and the COPY command is performed before the FILTER Entry Panel is displayed.

```
  Panel List Dataset Utilities Scroll Help
-----------------------------------------------
                                   DATA SET LIST
Command ===> FILTER

Enter Line Operators Below:

   LINE
   OPERATOR           DATA SET NAME
   ---(1)----   ------------(2)------------
   COPY         USER230.ISMF.ALIST
                USER230.ISMF.CLIST
                USER230.ISMF.DGTLLIB
```

Figure 67. Processing Sequence for Commands and Line Operators

4. If more than one line operator is specified, ISMF starts processing at the top of the list and continues down until it has processed all the line operators.

   For example, in Figure 68, COPY executes first, then DUMP, and finally COMPRESS.

```
  Panel List Dataset Utilities Scroll Help
-----------------------------------------------
                                   DATA SET LIST
Command ===>

Enter Line Operators Below:

   LINE
   OPERATOR           DATA SET NAME
   ---(1)----   ------------(2)------------
   COPY         USER230.ISMF.ALIST
   DUMP         USER230.ISMF.CLIST
   COMPRESS     USER230.ISMF.DGTLLIB
```

Figure 68. Processing Sequence for More than One Line Operator

Chapter 5. Understanding How Data Entry Panels Work

This chapter provides additional information on how to use data entry panels. The information is especially useful before using the commands that perform data and storage management tasks.

A data entry panel is a display of labeled fields that you fill in to perform a task. Typical tasks performed through data entry panels include list tailoring or data and storage management tasks. The panel can be displayed in response to the following input:
- An option you chose on a selection panel
- An ISMF command
- A line operator or list command entered on a list panel

For example, when you enter the DELETE line operator on a list panel, the DELETE Entry Panel is displayed. The DELETE Entry Panel allows you to specify information ISMF needs to delete a data set.

Default Values

ISMF provides default values for most required fields when performing functions against Data Set and Volume Applications. ISMF supplies the default value for a field on a data entry panel when you blank the field. When you press ENTER, ISMF redisplays the panel with the default values and the short message `DEFAULT PRIMING DONE`.

For example, if you want to compress a data set that is not passwordprotected, you can use the default values for the COMPRESS line operator. When you enter the COMPRESS line operator on a data set list, ISMF displays the COMPRESS Entry Panel primed with the name of the data set you want to compress and the values from the last time you used the line operator, as shown in Figure 69 on page 88.

```
   Panel  Utilities  Help
 --------------------------------------------------------------------------
                           COMPRESS ENTRY PANEL
 Command ===>

 Optionally Specify one or more for
  Data Set: USER7.ACS.LIBRARY

   To Control obtaining access to Data Set, Specify:
     Maximum Number of Retries  . . . . . . 2        (0 to 99)
     Number of Seconds between Retries  . . 2        (0 to 255)
     Serialize with Dynamic Allocation  . . N        (Y or N)

   For Password Protected Data Set, Specify:
     Data Set Password  . . . .                      (password or blanks)

   DFSMSdss Administrator Mode  . . N  (Y or N)




 Use ENTER to Perform COMPRESS;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 69. Example of a Data Entry Panel with Default Values

To see the default values, blank out the fields on the COMPRESS Entry Panel and
press ENTER. ISMF displays the COMPRESS Entry Panel primed with the default
values, as shown in Figure 70.

```
   Panel  Utilities  Help
 --------------------------------------------------------------------------
                           COMPRESS ENTRY PANEL        DEFAULT PRIMING DONE
 Command ===>

 Optionally Specify one or more for
  Data Set: USER7.ACS.LIBRARY

   To Control obtaining access to Data Set, Specify:
     Maximum Number of Retries  . . . . . . 8        (0 to 99)
     Number of Seconds between Retries  . . 8        (0 to 255)
     Serialize with Dynamic Allocation  . . N        (Y or N)

   For Password Protected Data Set, Specify:
     Data Set Password  . . . .                      (password or blanks)

   DFSMSdss Administrator Mode  . . N  (Y or N)




 Use ENTER to Perform COMPRESS;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 70. Data Entry Panel Primed with Default Values

When you install ISMF, you can accept the defaults ISMF supplies, or you can
customize them to suit your installation or personal needs. For information on
changing default values, refer to *z/OS DFSMS Installation Exits*.

Fields Primed with Last-Used Values

ISMF saves the values you enter on data entry panels between each use of the
panel, and from one session to the next. When you choose an option on a selection
panel or enter a line operator or list command, the data entry panel ISMF displays

will appear with values filled in from the last time you used the function. This is called priming. Password fields are also primed but only for one session. These fields appear blank because they are masked for security.

For repetitive tasks, where the values you enter are consistently the same, priming helps avoid errors and saves time. For example, when you use the DELETE line operator, you may always choose to delete a data set even if it has not reached its expiration date. When ISMF displays a data entry panel, you can accept the primed values by pressing the ENTER key. If the data entry panel has more than one page, you may want to scroll through all the pages to verify the primed values.

To alter the primed values, enter new values in any of the fields on the data entry panel. If you supply new values, these values are used to prime the data entry panel the next time you use it.

Entering Values on Data Entry Panels

The values you enter on data entry panels determine the way ISMF performs a specific task. ISMF data entry panels are just like ISPF data entry panels.On each data entry panel, input fields are preceded by an input arrow (===>). Output fields are preceded by a colon (:). Some of the fields are required and others are optional. If you fail to complete a required field, or enter an invalid value, ISMF prompts you with a short error message. ISMF Data Entry Panels may have several pages.

For the Data Set Application, depending on the type of data set you use, you may not be able to display all the options and specify values. ISMF automatically bypasses the pages that do not apply to the data set type you are using. For example, if you are trying to delete a data set that has not been backed up, ISMF displays an entry panel that does not include the option to delete the backup copy.

Figure 71 on page 90 shows a data entry panel displayed when you enter the DELETE line operator on a data set list. The name of the data set you want to delete appears on the panel along with any additional instructions. The example shows how you can instruct ISMF to delete a data set and its DFSMShsm backup versions even if the retention period for the data set has not expired.

```
   Panel   Utilities   Help
 ----------------------------------------------------------------------------
                              DELETE ENTRY PANEL
Command ===>

Optionally Specify one or more to Uncatalog and Delete
  Data Set: USER10.ISPPROF

  Enter "/" to select option    /  Scratch Data Set

                                /  Clear Data Set with Zeroes

                                   Delete even if Unexpired

  Data Set Password  . . . . .           (if password protected)




Use ENTER to Perform DELETE;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 71. Entering Values on a Data Entry Panel

Moving through Data Entry Panels

Like other types of ISMF panels, data entry panels may consist of more than one
page. The scroll commands UP and DOWN allow you to move through them.
Press the ENTER key to perform the function. The END command takes you back
to the list panel or to a selection panel without saving the values entered on the
panel. If you enter the END command on a data entry panel for a list command or
line operator, ISMF returns to the list. If you enter the END command on a data
entry panel that was displayed from a selection panel (the ISMF Profile Option
Menu, for example), ISMF returns to the associated selection panel.

Data entry panels are structured to provide a fast path for most of the line
operators and list commands. The other pages are grouped so that related values
are shown together. The pages you complete vary with each task you perform; the
values you enter on the first page of the panel determine the sequence and number
of additional pages ISMF displays. Furthermore, after completing the first page of
a panel, you often have the option of bypassing the optional fields on the other
pages. This saves you the time it takes to display options that are not applicable to
the specific task you want to perform.

For example, when you use the DUMP line operator during a Data Set
Application, you might look at all seven pages of the entry panel. Figure 72 on
page 91 is the first page.

```
   Panel  Utilities  Help
  --------------------------------------------------------------------------------
                                DUMP ENTRY PANEL                Page 1 of 7
  Command ===>

  Specify one or more for
    Data Set: USER10.SPFLOG1.LIST
    Output DSN . . . DUMP.OUT
    If Output Data Set is New or Not Cataloged, Specify:
      Volume Count   ===>
      Output Volumes ===>            ===>         ===>          ===>
      Output Volumes ===>            ===>         ===>          ===>
      Output Volumes ===>            ===>         ===>          ===>
      Unit           ===>
    Number of Copies . . . . . . . . 1         (1 to 5 copies)
    Output Media Type  . . . . . . . TAPE      (TAPE or DASD)
    Type of Dump . . . . . . . . . . 1         (1 LOGICAL, 2 PHYSICAL)
    Input Data Set Password  . . . .           (password or blanks)

    Enter "/" to select option     DFSMSdss Administrator Mode
                             /  View or Change Current Allocation Values
                             /  View or Change Additional Dump Options
  Use ENTER to Continue;
  Use HELP Command for Help; Use END Command to Exit.
```

Figure 72. Page 1 of the DUMP Entry Panel

The values you enter on this page determine which of the remaining six pages you display, and the path you take through them. You can make five choices:

- The number of copies you want to dump
- Whether you are using tape or DASD for the output data set
- The type of dump
- Whether you want to see the current allocation values for the output data set
- Whether you want to see the other options you can specify with the DUMP command

Your choices determine which additional pages ISMF displays. If you choose to see the current allocation values for the output data set, and specify tape as the media type, you see one group of pages; if you specify DASD, you see another. If you choose to make more than one copy, ISMF displays a panel that allows you to specify the data set names, target volumes, and unit for the additional copies.

How Input Errors on a Data Entry Panel Are Handled

The information on a data entry panel is not processed until the input fields on the panel are completed correctly. If there is an error, ISMF points to it, prompting you to supply the correct information.

ISMF uses short and long error messages to indicate input errors on data entry panels. When there is an input error (for example, a required field left blank, or a field incorrectly specified), a short error message appears in the upper right corner, and the cursor is positioned at the beginning of the field containing the error. The short message briefly describes the error. If the short message does not give you enough information to correct the error, you can use the HELP command to display the long error message. Specifying HELP again displays the help panel associated with the error message, or, in some cases, the help panel associated with the data entry panel. The help panel gives you more information to help you complete the data entry panel.

You can display a record of error tracing by entering the ERTB command. This command can be issued from any ISMF application and it results in the display of the ISMF Error Table.

The display panel consists of a command line, the address of the error table, and the current entry address of the ERTB. The error can be found in the ISPF log data. The ERTB entry will be gone when you exit the ISMF application, but the ISPF log will remain. You can enter DOWN or UP on the command line to look at previous and subsequent entries. Figure 73 is an example of the ERTB.

```
   Panel  Help
 ------------------------------------------------------------------------------
                       ISMF ERROR TABLE DISPLAY

 ISMF Ertb Address . . : 0227A1BC                        User : USER10
 Error Entry Address . : 0227A420                        Date : 05/07/05
 Last Panel Displayed  : DGTLGP11                        Time : 14:02:00
 Entry :
 ---------------------      Entry :
 Module Name: DGTFFN02      ---------------------      Entry :
 Proc Name  : F2FOFIND      Module Name : DGTFARP2      -----------------------
 Return Code: 0008          Proc Name . : DGTFARP2      Module Name: DGTFED02
 Reason Code: 0320          Return Code : 0008          Proc Name  : EDITDS
 Short Msg  :               Reason Code : 0696          Return Code: 0012
 Long Msg . :               Short Msg . :               Reason Code: 0345
 Service  . : DGTEFOFI      Long Msg  . :               Short Msg  : DGTED001
 Feedback . : FIND 14       Service . . : TBSKIP        Long Msg . : DGTED001
                            Feedback  . :               Service  . : EDIT
                                                        Feedback . : MSGID(ISRD03



 Use ENTER to Review Displayed Entries; Use UP/DOWN Command for other En
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 73. An Example Error Table (ERTB) Display

If your ISMF profile has been used to set up an automatic display of the ERTB, every log record matching the values specified in the profile generates an ERTB display. In some cases, ISMF may detect, log, and display more than one record per error. It may seem that ISMF redisplays the same entry over and over, but the Module or Proc name and the entry address indicate that the entries are distinct. The rightmost entry is the most recent entry.

Chapter 6. Performing Data and Storage Management Tasks

This chapter helps you perform six general types of data and storage management tasks:
1. Recovering unused space
2. Migrating and moving data
3. Backing up and recovering data sets
4. Protecting data
5. Altering data set characteristics
6. Invoking TSO commands and CLISTs

To perform these tasks, you enter line operators or list commands on a data set list or a DASD volume list and then complete data entry panels. By passing the information you have supplied to DFSMShsm, DFSMSdss, ICKDSF, RACF, or an existing TSO command or CLIST, ISMF helps you use these products or CLISTs.

Recovering Unused Space

You can use ISMF to recover the following kinds of unused space:

- Space occupied by members of a partitioned data set that have been updated or deleted
- Unused space at the end of a data set
- Space occupied by data sets that you no longer need.

Table 5 summarizes the DFSMShsm and DFSMSdss functions that ISMF uses to perform these tasks.

Table 5. Summary of Commands to Recover Unused Space

Task	Function	Scope	Action
Recover unused space at the end of a data set.	CONDENSE	Single data set	Frees unused space at the end of a data set. Compresses partitioned data sets. Performed in the foreground by DFSMShsm.
Recover unused space occupied by members of partitioned data sets.	COMPRESS	Single data set, group of data sets, or volume	Works only with partitioned data sets. Reclaims embedded unused space. Performed in the background by DFSMSdss.
Recover unused space at the end of data sets.	RELEASE	Single data set, group of data sets, or volume	Frees unused space at the end of data sets or frees all allocated, unused space on a specified volume. Performed in the background by DFSMSdss.
Recover space occupied by data sets that are no longer needed.	DELETE /ERASE	Single data set	Deletes or erases online or DFSMShsm-migrated data sets. Performed in the foreground by TSO or DFSMShsm.
Reduce or eliminate free space fragmentation.	DEFRAG	Volume	Relocates non-VSAM and integrated catalog facility cataloged VSAM data set space to reduce free space fragmentation. Performed in the background by DFSMSdss.

Recovering Unused Space from Partitioned Data Sets

There are two ways to reclaim space occupied by members of a partitioned data set that have been updated or deleted. You can use the **CONDENSE** line operator or the **COMPRESS** line operator or list command. CONDENSE is performed in the foreground. COMPRESS is performed in the background.

CONDENSE can be used for individual entries in a data set list. The data sets can be either partitioned or sequential. For partitioned data sets, CONDENSE reclaims all embedded unused space. For both partitioned and sequential data sets with secondary allocation, the CONDENSE line operator causes DFSMShsm to freethe unused space at the end of the data set by migrating and recalling the data set. For data sets with secondary allocation, CONDENSE might also reduce the number of extents the data set occupies; when DFSMShsm recalls the data set, it reallocates only the amount of space the data requires. CONDENSE does not change the allocation unit. If the data set was originally allocated in cylinders, some unused tracks might remain at the end of the data set after it is condensed.

On the CONDENSE Entry Panel, you can specify a volume serial number and device type for a specific volume to receive the condensed data set, or you can blank out the field and let DFSMShsm choose the volume. You can also indicate whether you want to wait for the command to execute or return immediately to the list panel. If you choose to wait, ISMF displays the CONDENSE Entry Panel until the CONDENSE is completed. When the data set has been condensed, the list panel is displayed again.

COMPRESS can be used as a line operator or a listcommand on a data set list and as a line operator on a volume list. You can compress a single partitioned data set, a group of partitioned data sets, or a volume containing partitioned data sets. COMPRESS causes DFSMSdss to reclaim all embedded unused space from the specified data sets. However, COMPRESS does not release unused space at the end of a data set. COMPRESS works only with partitioned data sets. If you try to compress a data set that is not partitioned, ISMF displays an error message.

On the COMPRESS Entry Panel, you provide information to control access to the data sets you wish to compress. You can specify the maximum number of times DFSMSdss should attempt to compress the data set and the number of seconds between each attempt. You can also indicate that you want DFSMSdss to use dynamic allocation instead of enqueue to coordinate use of the data set. If the data set is password protected, you must supply the password on this panel.

If you are performing a task against a volume, you can also list the data set names you do not wish to compress.

Recovering Unused Space from Data Sets

Both the **CONDENSE** line operator and the **RELEASE** line operator (or list command) free unused space at the end of a data set. When used for a volume, RELEASE frees all allocated, unused space for partitioned and sequential data sets on the volume.

As noted in "Recovering Unused Space from Partitioned Data Sets," you can use **CONDENSE** to free unused space at the end of individual sequential or partitioned data sets. CONDENSE also compresses partitioned data sets.

RELEASE is a DFSMSdss command that you can use against a single data set, a group of sequential or partitioned data sets, or a volume. RELEASE frees space that has been allocated but not used at the end of data sets. Because RELEASE frees only space at the end of data sets, you might want to compress partitioned data sets before releasing the space. Like CONDENSE, RELEASE does not change the allocation unit for a data set. If the data set was originally allocated in cylinders, some unused tracks might remain after the unused space has been released. RELEASE is performed in the background.

On the RELEASE Entry Panel, you can specify a minimum amount of unused space and a minimum secondary allocation that the data set must have for DFSMSdss to execute the command. You can specify the maximum number of times DFSMSdss should attempt to release the unused space and the number of seconds between each attempt. You can also indicate that you want DFSMSdss to use dynamic allocation instead of enqueue to coordinate use of the data set. If the data set is password-protected, you must supply the password on this panel.

If you are performing a task against a volume, you can list names of data sets not to be released.

Deleting or Erasing Data Sets

The **DELETE** line operator is performed in the foreground by TSO for cataloged data sets, by SVC 29 for uncataloged data sets, and by DFSMShsm for migrated data sets. You can delete individual data sets that have been migrated by DFSMShsm, and data sets that are online. If you enter the DELETE line operator for a data set that has been migrated, ISMF translates the DELETE line operator to an HDELETE and continues processing. You can delete a data set without being certain it is online. You can also delete the DFSMShsm backup versions of a data set.

A TSO message confirms each DELETE. The DELETE line operator is supported for cataloged data sets as well as data sets generated from the VTOC. However, for VSAM data sets in a catalog-generated list, you can issue DELETE only against the cluster entry.

On the DELETE Entry Panel you have the following options:
- Delete the data set from the VTOC as well as the catalog.
- For VSAM data sets, replace the data with binary.
- Delete the data set even if its retention period has not expired.
- Delete any or all backup versions. (If you choose to do this, the HBDELETE panel is displayed.)

If the data set is password protected, you must supply the password on the DELETE Entry Panel.

Tip: You can use the **ERASE** line operator on all application list panels as a synonym for DELETE. The line operator erases single data sets that are online or have been migrated by DFSMShsm.

Defragmenting a Volume

The **DEFRAG** line operator applies only to volume applications. You can use it to relocate non-VSAM and integrated catalog facility data set extents on a DASD volume to reduce or eliminate free-space fragmentation. When protected data sets

or data sets defined with the ERASE option are relocated, information in the old locations is erased for security. DEFRAG is performed in the background by DFSMSdss.

On the DEFRAG Entry Panel, you can specify the number of times DFSMSdss should attempt to gain control of the volume, the number of seconds between each attempt, and the password for protected data sets. You can also specify an index value to control the amount of fragmentation. You can choose among three defragmentation techniques: one minimizes fragmentation, one minimizes data movement, and one minimizes volume involvement. You can list any data sets you wish to exclude from the relocation in the last field on the DEFRAG Entry Panel.

Migrating and Moving Data

ISMF uses both DFSMShsm and DFSMSdss commands to help you perform these tasks:

- Migrate less active data sets from primary storage to other devices (like or unlike).
- Recall data sets when you need them again.
- Move data sets to DASD volumes of like or unlike device types.

Table 6 summarizes the DFSMShsm and DFSMSdss commands that ISMF uses for migration and data movement.

Table 6. Summary of Commands to Migrate and Move or Copy Data Sets

Task	Function	Scope	Action
Move or copy less active data sets from primary storage to other devices (like or unlike).	HMIGRATE	Single data set	Migrates a data set to a DFSMShsm level 1 or level 2 volume. Performed in the foreground by DFSMShsm.
Recall data sets that have been migrated by DFSMShsm.	HRECALL	Single data set	Recalls a single data set that has been migrated by DFSMShsm. Performed in the foreground by DFSMShsm.
Move or copy data sets to DASD volumes of like or unlike device type.	COPY	Single data set, group of data sets, or volume	Copies data sets to DASD volumes of like or unlike device type. Performed in the background by DFSMSdss.

Using DFSMShsm for Migration of Data

When DFSMShsm migrates data, it uses a hierarchy of storage devices that have different costs for storing data and different speeds of accessing the data. Less active data is stored further down in the hierarchy. The hierarchy consists of three levels of devices and volumes:

Level 0
Storage devices that contain data directly accessible to you. Level 0 volumes are always mounted and online.

Level 1
Storage devices that contain data compressed by DFSMShsm. These devices may provide cheaper storage, but the access time is usually slower. Level 1 volumes contain data sets that DFSMShsm has moved from level 0 volumes. They are usually permanently mounted and online.

Level 2
Storage devices that contain data compressed by DFSMShsm. Like level 1,

these devices may provide cheaper storage, but the access time is usually slower. Level 2 volumes contain data sets that DFSMShsm has moved from level 1 or level 0 volumes. They are normally not mounted or online.

Both migration and recall are usually performed automatically by DFSMShsm space maintenance. However, you can choose to perform space maintenance yourself. For example, if you know that certain data sets will not be used for some time, you can migrate them immediately. You might also need to recall a data set before DFSMShsm is scheduled to do so. With the HMIGRATE and HRECALL line operators you can manually make use of the DFSMShsm storage hierarchy.

HMIGRATE allows you to migrate individual data sets to level 1 or level 2 volumes. When you enter HMIGRATE in the line operator column of the data set you want to move, ISMF displays the HMIGRATE Entry Panel. On the data entry panel, you can specify the migration level you want DFSMShsm to use and the password if the data set is password-protected. Because HMIGRATE is performed in the foreground, you can choose to wait for completion. If you choose to wait, ISMF displays the HMIGRATE Entry Panel until the data set has been migrated. When the HMIGRATE is completed, the list panel is displayed again.

HRECALL recalls individualdata sets that have been migrated to level 1 or level 2 volumes. On the HRECALL Entry Panel, you can direct the recall by specifying the volume serial number and device type for DFSMShsm to use. If you do not choose a specific volume and device type, DFSMShsm chooses a volume for the recall. Like HMIGRATE, the HRECALL line operator is performed in the foreground. You have the option of returning to the list panel immediately or waiting for the data set to be recalled before continuing.

Using COPY as a Device Migration Aid

With **COPY** you can copy or move a single data set, a group of data sets, or a volume to a DASD volume of like or unlike device type. For example, you can use COPY to move data sets from a 3380 to a 3390 or from one model 3390 to another. COPY is a valuable tool for device conversion.

When you enter the COPY line operator or list command, ISMF displays the data entry panel for COPY. On the COPY Entry Panel, you can specify the following options:
- Delete the original data sets after they have been copied.
- Rename the data sets as they are copied.
- Control the replacement of duplicate copies of data sets.
- Reblock sequential or partitioned data sets.
- Specify where to catalog the new data set.
- Specify the volume to receive the new data set and how much space to allocate on the volume.
- Provide the name of a RACF model data set to use to define the RACF profile for the new data set.
- Specify a maximum number of attempts DFSMSdss should make to serialize the data set and the number of seconds between each retry.
- Copy the data set even if it is being used by another program.
- Copy data sets that were allocated as unmovable.
- Use dynamic allocation instead of enqueue to serialize the use of the data set.

- Allow other programs read access to the data sets while the data sets are being copied.
- Copy all allocated space or only space that has actually been used.
- Verify the data after the COPY.
- Stop the COPY after the first I/O error or after 100 errors.
- Copy basic direct access method (BDAM) data set by relative block or TTR.

If you are performing a task against a volume, you also have the following options:
- Specify a logical or physical copy.
- Copy multivolume data sets.

The online help describes how to complete each field on the COPY Entry Panel. Defaults are provided for many of the options.

Backing up and Recovering Data Sets

ISMF uses DFSMShsm and DFSMSdss to help you make, store, and recover backup copies of your data sets. From the data set list, you can perform the following tasks:
- Create backup versions of a single data set or group of data sets.
- Control the frequency of backup and the number of backup versions made.
- Delete backup versions that you no longer need.
- Recover backup versions of data sets that you have stored on tape, DASD, or a mass storage volume.

Table 7 summarizes the DFSMShsm and DFSMSdss commands that ISMF uses for backup and recovery.

Table 7. Summary of Commands for Backup/Recovery of Data Sets

Task	Function	Scope	Action
Create a backup version of a data set.	HBACKDS	Single data set	Creates a backup version of a data set. Performed in the foreground by DFSMShsm.
Create backup versions of data sets.	DUMP	Single data set, group of data sets, or volume	Dumps data sets to tape, DASD, or mass storage volumes. Performed in the background by DFSMSdss.
Control the frequency of backup and number of backup versions.	HALTERDS	Single data set	Changes the number of backup versions of a data set and controls the frequency of backup. Performed in the foreground by DFSMShsm.
Delete a backup version of a data set.	HBDELETE	Single data set	Deletes backup version of a data set. Performed in the foreground by DFSMShsm.
Delete migrated version of a data set.	HDELETE	Single data set	Deletes a migrated version of a data set. Performed in the foreground by DFSMShsm.
Recover the backup version of a data set.	HRECOVER	Single data set	Recovers a backup version of a data set. Performed in the foreground by DFSMShsm.

Table 7. Summary of Commands for Backup/Recovery of Data Sets (continued)

Task	Function	Scope	Action
Restore dumped data set or DASD volume.	RESTORE	Single data set, group of data set, or single volume	Restores data dumped by DFSMSdss. If the data was compressed, it is expanded to its original form. Performed in the background by DFSMSdss. This command can be entered on the Data Set Selection Entry Panel and the Data Set List Panel. It can be entered on the Volume List Panel as a line operator only.
Restore an unlisted dumped data set.	RESTORE DATASET	Single data set	Restores an unlisted data set dumped by DFSMSdss. If the data was compressed, it is expanded to its original form. Performed in the background by DFSMSdss. This command can be entered on the command line of the Data Set List Panel or the Data Set Selection Entry Panel.

Creating Backup Versions of Data Sets or Volumes

ISMF provides two ways to create backup versions of your data sets: the **HBACKDS** line operator or the **DUMP** line operator or list command.

HBACKDS can be used against individual entries in a data set list. The data set must be cataloged. In a DFSMShsm environment, backing up data sets can be done automatically. However, if you do not want to wait, you can request an immediate backup using the HBACKDS line operator. When you use HBACKDS, DFSMShsm creates and stores a backup version of the specified data set. You do not need to identify the volume for DFSMShsm to store the data set. DFSMShsm chooses a volume.

HBACKDS is performed in the foreground. When you enter the line operator on the data set list, ISMF displays the HBACKDS Entry Panel. On the entry panel you can indicate whether you want to wait for the command to execute or return immediately to the list panel. If you choose to wait, ISMF displays the HBACKDS Entry Panel until the backup version of the data set has been created.

DUMP can be used for a single data set, a group of data sets, or a volume. It is performed as a background job by DFSMSdss. If you enter DUMP in the line operator field, DFSMSdss places a backup copy of a single data set or volume on the media you choose: tape, DASD, or a mass storage volume. If you enter DUMP as a list command on the command line of the data set list, DFSMSdss makes backup copies of each data set in the list.

When you enter DUMP as either a line operator or list command, ISMF displays the associated data entry panels. On the data entry panels, you can specify the following options:
- Dump single volume, multivolume, and VSAM data sets.
- Dump to tape or DASD.
- Specify allocation values for the new data set.
- Determine the disposition of the output data set when the dump is successful or if it is unsuccessful.
- Dump multiple copies of data sets.

- Automatically compress the data when it is dumped.
- Specify a maximum number of attempts DFSMSdss should make to dump the data set and the number of seconds between each retry
- Dump the data set even if it is being used by another program.
- Use dynamic allocation instead of enqueue to coordinate the use of the data set.
- Allow other programs read access to the data set while it is being dumped.
- Dump all allocated space or only space that has actually been used.
- Stop the DUMP after the first I/O error or after 100 errors.
- Specify the amount of I/O buffering DFSMSdss should use.
- Reset change indicators in the DSCB for all data sets successfully dumped.

Many of the previous DUMP capabilities also apply to the entry panel displayed during a Volume Application. In addition, when performing tasks against volumes, you can choose between a physical and a logical dump, and you can specify from which volumes allocated space is dumped.

The online HELP explains the individual fields on the DUMP data entry panels and the different options you have when you use DUMP. ISMF supplies defaults for many of these options.

Controlling the Number of DFSMShsm Backup Versions and the Frequency of Backup

HALTERDS allows you to control the number of backup versions DFSMShsm maintains of a DFSMShsm-managed data set. With HALTERDS you can also change the default value for the frequency of creating backup versions. When you enter the HALTERDS line operator, ISMF displays the HALTERDS Entry Panel primed with the data set name. On the entry panel, you can specify how often you want DFSMShsm to create backup versions of the data set and the number of backup versions you want to keep. HALTERDS is performed in the foreground. You cannot use this line operator in last-use mode. It works only in normal mode. This command cannot be used on SMS-managed data sets that are controlled by the data set's management class parameters.

Deleting Backup Versions of Data Sets

Use **HBDELETE** when you want to erase backup versions of data sets that have been made using DFSMShsm. When you enter the HBDELETE line operator, ISMF displays the HBDELETE Entry Panel for the data set you indicated. You can use the entry panel to delete all the backup versions of the data set or you can delete only specific versions by number. HBDELETE works in normal mode and is performed in the foreground by DFSMShsm.

Recovering Backup Versions of Data Sets and Volumes

There are two ways to recover backup versions of data sets. You can use the **HRECOVER** line operator for data sets backed up by using HBACKDS. You can also use the **RESTORE** line operator or list command for data sets backed up by using DUMP. The RESTORE line operator can also be used for volumes.

HRECOVER recovers a backup version of an individual cataloged data set from a DFSMShsm-managed volume. When you enter HRECOVER, ISMF displays the HRECOVER Entry Panel. The entry panel is primed with the name of the data set you want to recover. On the entry panel, you can specify the generation number or

date of the backup version you want to recover as well as the serial number of the target volume. You can also choose to rename the data set as it is recovered or to replace the existing data set with the backup version.

HRECOVER is performed in the foreground by DFSMShsm. You can wait for the data set to be recovered before you return to the list panel. If you choose to wait for completion, the HRECOVER Entry Panel is displayed until the command has been performed. Otherwise, you return to the list immediately.

RESTORE allows you to restore data sets dumped by DFSMSdss to a DASD volume. RESTORE is performed in the background. When you enter RESTORE, ISMF displays data entry panels for you to complete. The information you provide allows you to perform these tasks:

- Restore multivolume data sets.
- Restore VSAM data sets.
- Rename data sets as they are restored.
- Replace the original data set with the dumped data set.
- Catalog data sets as they are restored.
- Specify target volumes.
- Retain RACF protection for restored data sets that were originally RACF-protected.
- Specify a maximum number of attempts DFSMSdss should make to restore the data set and the number of seconds between each retry.
- Determine the disposition of the original data set when the RESTORE command is successful or unsuccessful.
- Restore the data set even if it is being used by another program.
- Restore data sets that were allocated as unmovable.
- Use dynamic allocation instead of enqueue to coordinate the use of the data set.
- Allow other programs read access to the data sets while they are being restored.
- Verify the data after the RESTORE.
- Stop the RESTORE after the first I/O error or allow all errors.

You can restore an individual data set or a list of data sets. To restore an individual data set, use the **RESTORE** line operator or the **RESTORE DATASET** command. To restore a list of data sets, use the **RESTORE** or the **RESTORE LIST** list commands.

When you enter RESTORE in the line operator field of the list panel, ISMF recognizes it as a line operator and restores the corresponding data set. RESTORE DATASET also restores an individual data set, but unlike the RESTORE line operator, the data set you want to restore need not appear on the list panel. For example, you may want to restore a data set that has been deleted. You can enter the RESTORE DATASET command on the command line of either the Data Set Selection Entry Panel or the Data Set List Panel. When you enter RESTORE DATASET, ISMF displays the first page of the Data Set RESTORE Entry Panel so that you can supply the name of the dumped data set you want to restore.

On the Data Set Selection Entry Panel, RESTORE is also an acceptable form of the RESTORE DATASET command. When you enter RESTORE on the command line of the Data Set Selection Entry Panel, ISMF assumes you want to restore an individual data set. You can also specify RESTORE on the DASD Volume Selection

Entry Panel. You can select either a logical or a physical RESTORE and you will see a confirmation panel if you choose to replace the volume serial number.

RESTORE LIST restores an entire list of data sets that have been dumped by DFSMSdss. You enter the RESTORE LIST command on the command line of the Data Set List. RESTORE is also an acceptable form of the RESTORE LIST command. When you enter RESTORE on the command line of the Data Set List, ISMF assumes that you want to restore the entire list of data sets. RESTORE LIST is not a valid command on the Data Set Selection Entry Panel.

Protecting Data with RACF

You can use the SECURITY line operator to invoke a RACF panel and providesecurity for a data set. Table 8 summarizes the security command ISMF uses to protect data sets.

Table 8. Summary of Security Command

Task	Function	Scope	Action
Protect a data set.	SECURITY	Single data set	Invokes a RACF panel.

See *RACF V2 Security Administrator's Guide* for more information on RACF.

Altering Data Set Characteristics

You can change the following Storage Management Subsystem (SMS) attributes of a data set depending on its characteristics:

- For SMS-managed generation data sets (GDS), you can change these attributes:
  - Alter the expiration date.
  - Alter the management class.
  - Alter the storage class.
  - Roll in deferred generation data set.

- For generation data groups, you can change these attributes:
  - Alter the expiration date.
  - Assign a new generation data group (GDG) limit.
  - Uncatalog generation data sets.
  - Scratch generation data sets.

- For SMS-managed non-generation data sets, you can change these attributes:
  - Alter the expiration date.
  - Alter the management class.
  - Alter the storage class.

- For non-SMS-managed non-generation data sets you can change these attributes:
  - Alter the expiration date.
  - Roll in deferred generation data set (GDS).

- For SMS-managed data sets with Data Set Entry Type 'UNKNOWN', you can change these attributes:
  - Alter the expiration date.
  - Assign a new GDG limit.
  - Uncatalog generation data sets.
  - Scratch generation data sets.
  - Roll in deferred generation data set.
  - Alter the management class.
  - Alter the storage class.

- When Data Set Environment is 'UNKNOWN' and the Data Set Type is also 'UNKNOWN', you can change these attributes:
  - Alter the expiration date.
  - Assign a new GDG limit.
  - Uncatalog generation data sets.
  - Scratch generation data sets.
  - Roll in deferred generation data set.

You can use the ALTER line operator to perform these tasks. Table 9 summarizes the line operator that ISMF uses to change data set characteristics.

Table 9. Summary of Commands to Alter Data Set Characteristics

Task	Function	Scope	Action
Alter data set characteristics.	ALTER	Single cataloged data set	Invokes a panel that you use to change the Management or Storage Class, GDG limit, and expiration information.

See "Using the Data Set ALTER Line Operator" on page 145 for more information. ISMF help panels from each of the ALTER panels describe the attribute fields in detail.

Invoking TSO Commands and CLISTs

You can invoke TSO commands and CLISTs from the list panel in any application. TSO commands and CLISTs can be entered on list panels as line operators or list commands. There is also a CLIST line operator.

Invoking TSO Commands and CLISTs from the Command Line

You can directly invoke TSO commands and CLISTs from the command line of any list panel. The command or CLIST is invoked for every entry in the list.

Entering TSO Commands or CLISTs with Parameters

Because these commands and CLISTs often require parameters, the command lineson the list panels allow you to extend parameters to the end of the screen. Figure 74 shows an example of the XMIT command entered from the command line of a data set list panel.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ---------------------------------------------
                           DATA SET LIST
Command ===> xmit stlvm27.ibmuser dsn(/) seq

Enter Line Operators Below:

    LINE
    OPERATOR          DATA SET NAME
   ---(1)----  -----------(2)-----------
              USER230.ISMF.PLS1
              USER230.ISMF.PLS2
              USER230.ISMF.PLS3
              USER230.ISMF.PLS4
```

Figure 74. Entering a TSO Command from the Command Line

All the entries in the list shown in Figure 74 are sent to the user ID IBMUSER at the node STLVM27.

The parameter for the command shown in Figure 74 on page 103 requires you to specify the data set name. Since the data set name changes for each entry in the list, you can use a slash character as a substitute for the data set name. Each data set name in the list replaces the slash when the list entry is processed. ISMF replaces only the first occurrence of the slash character with the data set name. For example, there are several slash characters used in the following command:

```
COMMAND ===> setdate / newdate(88/01/12)
```

If the data set name for a particular data set is TEST.PLI, ISMF translates the command as follows:

```
COMMAND ===> SETDATE 'TEST.PLI' NEWDATE(88/01/12)
```

You can invoke a user CLIST from the command line just like a TSO command. If you do not want the CLIST to be executed as a repeated line operator, prefix the CLIST with the TSO command. To improve performance, you can use a percent character as a prefix to the CLIST name. Figure 75 shows a CLIST with a percent character prefix.

```
   Panel  List  Dataset  Utilities  Scroll  Help
-----------------------------------------------
                              DATA SET LIST
Command ===> %clistname stlvm27.ibmuser dsn(/)

Enter Line Operators Below:

    LINE
    OPERATOR          DATA SET NAME
    ---(1)----   ------------(2)------------
               USER230.ISMF.PLS1
               USER230.ISMF.PLS2
               USER230.ISMF.PLS3
               USER230.ISMF.PLS4
```

Figure 75. Entering a CLIST from the Command Line

The percent character is optional.

It causes ISPF to bypass its search through the program libraries and search only the CLIST libraries for the commands. This method of locating the commands specified by the CLIST speeds up execution time by limiting the number of libraries ISPF searches.

Invoking TSO Commands and CLISTs from the Line Operator Column

You can invoke TSO commands and CLISTs for individual data set and volume list entries. These commands and CLISTs are entered just as you would enter them from the command line except that you enter them from the line operator column. When entered as a line operator, they are only invoked for a single entry. From the command line, the CLIST processes each entry in the list.

To enter parameters for these line operators, you can type over the data columns to the right of the line operator column. These data columns can act as input fields for the parameters as far as the right margin of the screen. You cannot scroll right to add more parameters.

You can use the slash character in the parameter of a TSO command or CLIST and the optional percent character prefix with a CLIST as described in "Invoking TSO Commands and CLISTs from the Command Line" on page 103. Figure 76 on page 105

105 shows a CLIST with a percent character prefix entered as a line operator.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ---------------------------------------------
                               DATA SET LIST
Command ===>

Enter Line operators Below:

   LINE
   OPERATOR           DATA SET NAME
  ---(1)----  ------------(2)------------
             USER230.ISMF.PLS1
  %clistname stlvm27.ibmuser dsn(/)
             USER230.ISMF.PLS3
             USER230.ISMF.PLS4
```

Figure 76. Entering a CLIST as a Line Operator

Using the CLIST Line Operator

The **CLIST** line operator allows you to invoke the CLIST Entry Panel. From the CLIST Entry Panel, you can call an existing TSO command procedure (CLIST) or issue a single TSO command. You may enter the CLIST line operator from a data set or volume list panel. Using the CLIST line operator, you can leave the list toperform tasks against individual list entries. The CLIST you call is executed in the foreground. When the CLIST is completed, control returns to ISMF so that you can continue working with the list.

For example, you can use a CLIST to rename a data set or query the DFSMShsm status of a data set. The CLIST name should use a naming convention consistent with the application to which you want to pass data. Table 10 summarizes the CLIST line operator.

Table 10. Summary of the CLIST Line Operator

Task	Function	Scope	Action
Perform any function for which there is a CLIST.	CLIST	Single data set or volume	Invokes a TSO CLIST. Performed in the foreground.

Using ISMF Support for CLISTs

ISMF provides support for user-created commands with a system of variables. You can use these variables in your CLIST to perform the following functions:
- Control the processing of your CLIST.
- Acquire data on the list panel where your CLIST is invoked.
- Save message text while your CLIST is in control.
- Acquire data on the list panel entries.
- Acquire data on the list panel selection criteria.

Appendix B, "Acquiring Data for a User-Created CLIST," on page 169 describes how to use these variables in your CLIST.

Related Reading: For information on coding user-created CLISTs, refer to *z/OS TSO/E Programming Guide*.

Chapter 7. Setting Up Your ISMF Profile

Your ISMF profile determines the way ISMF runs during your session. The information that is stored in your profile controls these processes:
- The user mode
- The logging of trace and error data
- The way ISMF recovers from abends
- The way background jobs are processed

ISMF provides initial settings for your profile, but you can modify the settings to fit your needs.

This chapter shows you how to perform the following tasks:
- Invoke the Profile option.
- Specify a user mode.
- Change the initial ISMF settings to:
  - Control logging errors and recover from abends.
  - Submit background job information.

Invoking the ISMF Profile Option

You can invoke the profile option by:
- Choosing option 0, ISMF Profile, on the ISMF Primary Option Menu (Figure 4 on page 7)
- Entering the PROFILE command on the command line of any ISMF panel except an ISMF menu panel, such as the ISMF Profile Option Menu, the Volume List Selection Menu, an abend panel, or any panel listed in the ISMF Profile Option Menu

In either case, ISMF displays the ISMF Profile Option Menu (see Figure 77).

```
  Panel  Help
 --------------------------------------------------------------------------
                         ISMF PROFILE OPTION MENU
Enter Selection or Command ===>

Select one of the following options and Press Enter:

  0  User Mode Selection
  1  Logging and Abend Control
  2  ISMF Job Statement
  3  DFSMSdss Execute Statement
  4  ICKDSF Execute Statement
  5  Data Set Print Execute Statement
  6  IDCAMS Execute Statement
  X  Exit




 Use HELP command for Help; Use END command or X to Exit.
```

Figure 77. The Profile Option Menu

From the ISMF Profile Option Menu, you can select these options:

- Change user mode from end user to storage administrator or from storage administrator to end user.
  - When user mode is specified as storage administrator, the following commands are invoked as storage administrator commands in the background:

    HRECOVER (HSEND RECOVER)

    HALTERDS (HSEND ALTERDS)

    HBACKDS (HSEND BACKDS)

    HDLETE (HSEND DELETE)

    HBDELETE (HSEND BDELETE)

    HMIGRATE (HSEND MIGRATE)

    HRECALL (HSEND RECALL)

  - When user mode is specified as end user, HRECOVER, HALTERDS, HBACKDS, HDELETE, HBDELETE, HMIGRATE, HRECALL are invoked as user commands.
  - Both user commands and storage administrator can be protected using RACF FACILITY profiles. See Protecting DFSMShsm storage administrator commands with RACF FACILITY class profiles in *z/OS DFSMShsm Implementation and Customization Guide*.
- Display and change your profile parameters for logging and error recovery.
- Display and change the job statements and execute statements that ISMF uses to submit background jobs.

Tip: For background jobs, you can also change the job statements and the DFSMSdss execute statement each time you submit a job. Tailoring these statements for individual commands and line operators is discussed in "Specifying Job Statements when Submitting Jobs" on page 114.

Other options on the ISMF Profile Option Menu access ICKDSF, IDCAMS, DFSMSdss, and IEBPTPCH (option 5) execute statement information. These options affect line operators and commands that are available to storage administrators. Refer to *z/OS DFSMSdfp Storage Administration* for more information.

Specifying a User Mode

Enter option 0, USER MODE, on the ISMF Profile Option Menu (Figure 77 on page 107). Press ENTER.

On the User Mode Entry Panel (Figure 78 on page 109), select a user status: end user or storage administrator.

```
   Panel  Utilities  Help
 -------------------------------------------------------------------------------
                            USER MODE ENTRY PANEL
 Command ===>

 Specify the following:

   User Mode  . . 1       (To specify your choice of session, type in a:

                             1 For an End User (EU)
                             2 For a Storage Administrator (SA)

                          in the User Mode Field and Press Enter to
                          Verify Your Selection.)

                          Note: You must Exit and Reenter ISMF after
                                Changing the User Mode Field in Order
                                to View and Use Your Selected Session.




 Use ENTER to Perform Verification;
 Use HELP Command for Help;  Use END Command to Save and Exit.
```

Figure 78. ISMF User Mode Entry Panel

If you change the user mode during a session, you must exit ISMF and reenter it
to get the new ISMF Primary Option Menu.

Controlling Logging and Recovery from Abends

To display or change the ISMF profile parameters for logging and the way ISMF
handles abends, enter option 1, LOGGING AND ABEND CONTROL, on the ISMF
Profile Option Menu (Figure 77 on page 107). ISMF displays the Logging/Abend
Control Entry Panel (Figure 79).

```
   Panel  Utilities  Help
 -------------------------------------------------------------------------------
                        LOGGING/ABEND CONTROL ENTRY PANEL
 Command ===>

 Optionally Specify One or More:

   Log Detailed Error Data . . Y  (Y or N)
   Log Inter-module Trace  . . N  (Y or N)
   Log Trace-point Trace . . . N  (Y or N)

   Recover from Abends . . . . Y  (Y or N)

   Display Ertb when the Record Below is Logged . . N     (Y or N)
     Module Name . .                                (8 Characters)
     Proc Name . . .                                (1 to 8 Characters)
     Return Code . .                                (1 to 4 Digits)
     Reason Code . .                                (1 to 4 Digits)
     Short Msg . . .                                (8 Characters)
     Long Msg  . . .                                (8 Characters)
     Service . . . .                                (1 to 8 Characters)
     Feedback  . . .                                (1 to 35 Characters)
 Use ENTER to Perform Verification;
 Use HELP Command for Help; Use END Command to Save and Exit.
```

Figure 79. Specifying Logging and Abend Parameters

The options on the Logging/Abend Control Entry Panel allow you to determine
and change the following options:

- The kind of logging ISMF performs for your session (the first three options on the panel)
- How ISMF attempts to recover from abend conditions
- Whether the error table is displayed when the record you specify is logged

For more information on how to use the ISPF log and determining how ISMF handles abends, please refer to *z/OS DFSMSdfp Diagnosis*.

Setting Up Background Job Information

ISMF stores Job Control Language (JCL) and execute statements in your profile. Each time you use a line operator or list command in normal mode that generates a background job, ISMF draws on this information to prime the job statement on the Job Submission Entry Panel.

ISMF does not do any validity checking of the JCL statements.

If you want to modify the job statements, you can specify this information in either of two ways:

- From the ISMF Profile Option Menu. This procedure is described in "Specifying Job Statements from the ISMF Profile Option Menu."
- Before you submit your background job. This procedure is described in "Specifying Job Statements when Submitting Jobs" on page 114.

When you exit ISMF successfully, the JCL you enter for ISMF job statements is stored in your profile.

Specifying Job Statements from the ISMF Profile Option Menu

All the information that ISMF uses to process your background jobs is available from the ISMF Profile Option Menu (see Figure 77 on page 107). With the options that are available, you can access the following information:
- ISMF job statement information, option 2
- DFSMSdss execute statement information, option 3
- ICKDSF execute statement information, option 4
- Data set print execute statement information, option 5
- IDCAMS execute statement information, option 6

Specifying JCL on the ISMF Job Statement Entry Panel

Use the ISMF JOB STATEMENT option on the ISMF Profile Option Menu to establish a standard set of JCL statements for background jobs. Because this information is stored by ISMF in your profile, you only enter it once rather than each time you submit a job.

To set up the job statements in your profile, enter option 2, ISMF JOB STATEMENT, on the ISMF Profile Option Menu (shown in Figure 77 on page 107). ISMF displays your ISMF Job Statement Entry Panel, as shown in Figure 80 on page 111.

```
  Panel  Utilities  Help
 ---------------------------------------------------------------------------
                         ISMF JOB STATEMENT ENTRY PANEL
Command ===>

Specify ISMF Job Statement Source . . 1
    1 ISPF
    2 ISMF
ISPF Job Statement Information
      //USERID   JOB  (ACCOUNT),'NAME'
      //*
      //*
      //*

ISMF Job Statement Information
  ===> //USER10A  JOB  (ACCOUNT),'NAME'
  ===> //*
  ===> //*
  ===> //*
  ===> //*
  ===> //*
  ===> //*
Use ENTER to Perform Verification;
Use HELP Command for Help; Use END Command to Save and Exit.
```

Figure 80. Specifying Job Statement Information

You can choose the source of your job control statements by selecting either ISMF
or ISPF job control statements. If you select option 1, ISMF uses ISPF job
statements to prime the Job Submission Entry Panel when submitting background
jobs. If you choose option 2, the set of ISMF job control statements listed in the
ISMF Job Statement Information field is used. Source 1 using ISPF job statements is
the default.

The first time you invoke the Job Statement Entry Panel, ISMF provides a skeleton
job statement for you to complete with ISMF JCL information. See Figure 80 for the
format of the statement. ISPF job control statements are for display only and
cannot be modified here. You can change them by using ISPF option 0.

Your user ID followed by the letter A appears as the job name. The A is an
identifier for the current job. Each time you submit a background job the letter is
incremented. For example, if the current job name is USER230A, the next job name
will be USER230B. If you choose to substitute a number for the alphabetic
identifier, 0 through 9 is used for the cycle. If you want to use a job name other
than your user ID you can do so, but the following events will occur:
• The name of each job you submit is not incremented by ISMF.
• Your jobs cannot be found by the TSO STATUS command.

In addition, you might end up with jobs having the same name.

Restriction: Do not blank out the job name, because TSO does not generate a
default job name.

The words ACCOUNT and NAME indicate the proper positions for you to supply
accounting information and your name.

You can add up to six additional ISMF JCL statements to complete the Job
Statement Entry Panel. These statements can be JOBLIB, JES2, JES3, or comment
statements. Figure 81 on page 112 shows an example of the JCL you can use to set
up your profile for the ISMF version.

```
   Panel  Utilities  Help
-----------------------------------------------------------------------------
                       ISMF JOB STATEMENT ENTRY PANEL
Command ===>

Specify ISMF Job Statement Source . . 2
    1 ISPF
    2 ISMF
ISPF Job Statement Information
      //USERID   JOB  (ACCOUNT),'NAME'
      //*
      //*
      //*

ISMF Job Statement Information
  ===> //USER10A  JOB  (USER10,'B=050,D=M86,O=G42'),'USER.10',
  ===> //    USER=USER10,NOTIFY=USER10,
  ===> //    TIME=(0,15),MSGCLASS=Z,MSGLEVEL=(1,1),REGION=1024K
  ===> //*
  ===> //*
  ===> //*
  ===> //*
Use ENTER to Perform Verification;
Use HELP Command for Help; Use END Command to Save and Exit.
```

Figure 81. Sample JCL on the Job Statement Entry Panel

Related Reading: For more information on JCL syntax and parameters on the JOB statement, refer to *z/OS MVS JCL Reference*.

When you enter a list command or line operator and submit that job for background processing, the information from this profile panel is used to prime the Job Submission Entry Panel. See "Specifying Job Statements when Submitting Jobs" on page 114 for more information on the Job Submission Entry Panels.

Specifying an Execute Statement for a DFSMSdss Background Job

To set up the DFSMSdss execute statement in your profile, enter option 3, DFSMSdss EXECUTE STATEMENT, on the ISMF Profile Option Menu (Figure 77 on page 107). ISMF displays the DFSMSdss Execute Statement Entry Panel shown in Figure 82 on page 113.

```
  Panel  Utilities  Help
 ------------------------------------------------------------------------------
                      DFSMSdss EXECUTE STATEMENT ENTRY PANEL
 Command ===>

 Specify DFSMSdss Execute Statement Information:

  ===> //*
  ===> //*
  ===> //**NOTE - THE REGION SIZE IS MINIMUM AND MAY BE CHANGED
  ===> //STEP1  EXEC  PGM=ADRDSSU,REGION=2048K
  ===> //*
  ===> //*
  ===> //SYSPRINT  DD  SYSOUT=*




 Use HELP Command for Help; Use END Command to Save and Exit.
```

Figure 82. Skeleton Provided for the DFSMSdss Execute Statement

The first time you invoke the DFSMSdss Execute Statement Entry Panel, ISMF
provides a skeleton DFSMSdss EXEC statement for you to complete. The format of
this statement is shown in Figure 82.

You can tailor this statement for your own use. You can add parameters to the
DFSMSdss execute statement and up to five additional job steps before the
DFSMSdss EXEC step. Make certain that the region size parameter is appropriate
for your job and change it as necessary.

Figure 83 shows an example of how you can tailor the DFSMSdss execute
statement to suit your needs.

```
  Panel  Utilities  Help
 ------------------------------------------------------------------------------
                      DFSMSdss EXECUTE STATEMENT ENTRY PANEL
 Command ===>

 Specify DFSMSdss Execute Statement Information:

  ===> //*
  ===> //*
  ===> //*
  ===> //S1DFDSS EXEC PGM=ADRDSSU,REGION=2048K,
  ===> //  PARM='UTILMSG=YES,TYPRUN=SCAN'
  ===> //*
  ===> //SYSPRINT  DD  SYSOUT=*




 Use HELP Command for Help; Use END Command to Save and Exit.
```

Figure 83. Completed DFSMSdss Execute Statement

The execute statement information in Figure 83 on page 113 contains both an EXEC statement with added parameters and a data definition (DD) statement. The first line of the EXEC statement names the step (S1DFDSS), identifies DFSMSdss(PGM=ADRDSSU), and specifies the region size (REGION=2048K):

```
//S1DFDSS  EXEC PGM=ADRDSSU,REGION=2048K,
```

The second line contains parameter information:

```
//  PARM='UTILMSG=YES,TYPRUN=SCAN'
```

In the second line, UTILMSG=YES specifies that utility messages are to be printed in the SYSPRINT listing. TYPRUN=SCAN specifies that the JCL syntax for the job is checked and verified without actually executing the DFSMSdss function.

The last line contains a SYSPRINT statement that specifies that the SYSOUT class is the same as the MSGCLASS on the job statement:

```
//SYSPRINT DD SYSOUT=*
```

When you enter a list command or line operator that is submitted to DFSMSdss for processing, ISMF uses the information on the DFSMSdss Execute Statement Entry Panel to construct the DFSMSdss job stream. See "Specifying Job Statements when Submitting Jobs" for more details on submitting jobs for processing. To learn more about the DFSMSdss execute statement, see *z/OS DFSMSdss Storage Administration*.

Recommendation: Use the information from the DFSMSdss background job as a reference when you specify the ICKDSF, Data Set Print, and IDCAMS execute statements from the options listed on the ISMF Profile Option Menu (Figure 77 on page 107).

Specifying Job Statements when Submitting Jobs

The Job Submission Entry Panel is primed with values from the Job Statement Entry Panel in your profile if you chose ISMF (option 2) as the job statement source. If you selected ISPF (option 1) from the Job Statement Entry Panel, the Job Submission Entry Panel is primed with values from the ISPF source job statements, which are displayed on the Job Statement Entry Panel for reference only.

The panel title of the Job Submission Entry Panel indicates the command or line operator you have specified. You can accept job statements, whether they are ISPF or ISMF job statements, or modify them for your immediate needs. When you press ENTER, the job is submitted using the JCL with any changes made.

Figure 84 on page 115 is an example of the Job Submission Entry Panel you might see when you use the COPY command.

```
   Panel  Utilities  Help
 -------------------------------------------------------------------------
                         JOB SUBMISSION ENTRY PANEL
 Command ===>

 Select One of The Following
 2   1.  Submit Job for Background Processing
     2.  Save Generated Job in a Data Set
 If Save option is selected above, Specify:
  Data Set Name  . . .
  Replace Contents . . N             (Y or N)

 Job Statement Information:             (Verify before Proceeding)
      //USER10A  JOB (USER10,'B=050,D=M86,O=G48'),'USER10',
      //         MSGCLASS=Z,NOTIFY=USER10,USER=USER10,
      //         TIME=(0,5),MSGLEVEL=(1,1)
      //*
      //*
      //*
      //*
 Enter "/" to select option
 /  View or Change Execute Statements from Profile
 Use ENTER to Continue;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 84. Sample Job Submission Entry Panel

After you complete the COPY Entry Panels, ISMF displays the COPY Job
Submission Entry Panel. ISMF uses the information supplied on this panel to
submit the COPY job to DFSMSdss. The fields on the panel and your options for
completing them are:

SELECT ONE OF THE FOLLOWING
> In this field, specify whether you want to submit a job immediately or to save
> the generated job stream in a data set.

> **Option Meaning**

> **1**   ISMF uses the values you supplied on the data entry panels for the
> line operator or command and the information on the Job Submission
> Entry Panel and the DFSMSdss Execute Statement Entry Panel to
> generate the job stream and submit the job immediately for
> background processing.

> **2**   ISMF generates the job stream and stores it in a data set. Saving a data
> set gives you the opportunity to look at the job stream before you
> actually submit the job.

> If you choose option 2, you must complete the following fields:

> **DATA SET NAME**
>> The data set must be preallocated, cataloged, and either physical sequential
>> or partitioned. It may be a PDS member, a PDSE, or a relative generation
>> data set. The data set must be fixed or fixed block and have a logical
>> record length of 80.

> **REPLACE CONTENTS**
>> This field specifies whether you want to replace any existing data with the
>> new job stream or add the new job to the end of the data set.

JOB STATEMENT INFORMATION
> The entries in this section of the panel can be either ISMF or ISPF job control
> statements depending on the source you specified on the ISMF Job Statement
> Entry Panel (see Figure 80 on page 111). The entries provide processing
> parameters and accounting information, and identify ownership. With the

ISMF version, you can add JOBLIB, JES2, JES3, or comment statements. You can have up to seven ISMF job control statements.

Guideline: While any changes made to ISMF job statements (source 2) are stored in your profile and used the next time you submit a background job, the changes made to ISPF job statements (source 1) are not saved in your profile. Changes to ISPF job statements are used only for current job submissions. A message about the status of your profile is displayed.

VIEW OR CHANGE EXECUTE STATEMENTS FROM PROFILE

In this field, indicate whether you want to display the DFSMSdss Execute Statement Entry Panel from your profile.

Option Meaning

/   ISMF displays the DFSMSdss Execute Statement Entry Panel. You can verify or change the DFSMSdss execute statements before submitting the job.

blank ISMF submits the job with the execute statements stored in your profile without showing them to you.

The DFSMSdss Execute Statement Entry Panel, shown in Figure 85, contains an example of an execute statement entry panel.

```
  Panel  Utilities  Help
 -----------------------------------------------------------------------------
                    DFSMSdss EXECUTE STATEMENT ENTRY PANEL
Command ===>

Specify DFSMSdss Execute Statement Information:

 ===> //*
 ===> //*
 ===> //**NOTE - THE REGION SIZE IS MINIMUM AND MAY BE CHANGED
 ===> //STEP1  EXEC  PGM=ADRDSSU,REGION=2048K
 ===> //*
 ===> //*
 ===> //SYSPRINT  DD  SYSOUT=*






Use HELP Command for Help; Use END Command to Save and Exit.
```

Figure 85. An Example of a DFSMSdss Execute Statement

For individual jobs, you can add other steps before the execute statement (EXEC) and additional parameters to the EXEC step. Some useful parameters include:

TYPRUN=SCAN
    Checks the JCL syntax without executing the DFSMSdss function.

UTILMSG=YES
    Prints utility messages in the SYSPRINT listing.

PAGENO=nnnn
    Indicates the starting page number for the SYSPRINT data set. nnnn can be any 1- to 4-digit number.

LINECNT=nnn

> Indicates the number of lines to print per page. nnn can be any 1- to 3-digit number.

XABUFF=ABOVE16│BELOW16

> Specifies whether the I/O buffer used for COPY, DUMP, and RESTORE is to be above or below the 16-megabyte virtual storage line.

For example, in Figure 85 on page 116, the parameters on the EXEC statement specify that the listing should start on page 8 with 57 lines per page, and utility messages printed. *z/OS DFSMSdss Storage Administration* describes all the parameters that you can use.

Restriction: ISMF does not check the job statement or the DFSMSdss execute statement for validity. If you have a question about the correct way to specify a parameter, consult *z/OS DFSMSdss Storage Administration*.

Job Submission for Line Operators and Commands Entered in Last-Use Mode

If you enter a line operator in last-use mode (for example, COPY=), ISMF does not display the Job Submission Entry Panel. The processing options stored in your profile are used instead. If you chose to submit the last job immediately, the new job is sent directly to the job queue. If you chose to save the job stream in a data set the last time you submitted a background job, the new job is also saved. However, the new job is added to the end of the data set regardless of the option you specified the last time you used the Job Submission Entry Panel.

Chapter 8. Using Data Facility Storage Management Subsystem (DFSMS)

This topic gives you a brief overview of DFSMS, and explains ISMF applications.

ISMF has a number of applications that the storage administrator uses to automate and simplify storage and data management tasks. These applications form DFSMS and provide a user interface to many DFSMSdfp, DFSMShsm, DFSMSdss, DFSMSrmm, and ICKDSF functions.

The ISMF applications include:
Aggregate Group
Automatic Class Selection
Control Data Set
Data Class
Data Collection
Library Management
Management Class
Storage Class
Storage Group

As an end user, you have access to information about the Data Class, Management Class, Storage Class and Aggregate Group applications of DFSMS. The other DFSMS applications are available only to your storage administrator, and therefore they are not discussed in this manual. For more information about these other applications refer to *z/OS DFSMSdfp Storage Administration*.

What is DFSMS?

DFSMS is a component of DFSMSdfp. Your storage administrator uses DFSMS to assign various attributes to your data sets and objects so that the system can automatically assume storage management tasks that were previously done manually. DFSMS helps your storage administrator simplify storage management and makes more efficient use of your system space and resources. For more information about DFSMS, refer to *z/OS DFSMSdfp Storage Administration*.

The ISMF applications to which you have access control different aspects of a data set's allocation or object's creation and performance:

Application
> **Controls**

Aggregate Group
> Primary and recovery locations for backing up and recovering specific applications.

Data Class
> A data set's organization, format, space allocation, and other storage attributes.

Storage Class
> A data set's or object's device availability or a data set's response times for direct and sequential access, secondary lock structure, and other performance factors.

Management Class
> Expiration date, backup specifications, migration characteristics, and other data management considerations.

To use DFSMS, your storage administrator designs a configuration that contains sets of attributes, which are called *constructs*, of the various class and group applications. The storage administrator can create any number of constructs for each DFSMS application, giving each construct a unique name. For example, the storage administrator can define a storage class for data sets or objects that require high performance and another storage class for standard performance. The storage administrator can add, delete, copy, or alter classes as needs change.

After defining the necessary constructs, the storage administrator writes automatic class selection (ACS) routines to assign constructs to data sets and objects and to manage data sets and objects.

When a new data set is allocated or an object is to be written, DFSMS invokes ACS routines to assign a configuration of DFSMS classes to the data set or object. The attributes from the DFSMS classes then govern the space management, performance, and availability of the data set or object from its creation to its deletion.

You can display a list of the available data classes, storage classes, and management classes. You can look at the attributes associated with any specific class, but you cannot change any of the attributes. If you have authorization, you can change the name of a storage class and management class associated with any of your DFSMS-managed data sets. If you need to make any other changes, you must ask your storage administrator to make them for you.

The rest of this topic gives you a closer look at each of the three applications to which you have access.

The Aggregate Group Application

An aggregate group is an SMS construct that uses control information and data set lists to define an application or other group. It consists of backup criteria and a group of data sets selected for backup by the storage administrator according to application or other requirements. Information on how to define aggregate groups can be found in *z/OS DFSMSdfp Storage Administration*.

The aggregate group application allows you to:
- Generate a list of aggregate groups.
- Display the attributes of a single aggregate group.
- Delete aggregate groups.
- Edit and browse the selection data sets associated with an aggregate group.
- Edit and browse the instruction data sets associated with an aggregate group.
- Backup the selected aggregate group.
- Recover an aggregate group that has been backed up.
- Specify the number of local copies of aggregate backup (ABACKUP) output files that is to be created. (15 maximum)
- Assign aggregate backup attributes to an aggregate group by giving it a management class name.

The Data Class Application

A data class defines the way data sets are allocated. A data class cannot be assigned to an object.

Data class attributes are assigned to a data set when it is created. Data class attributes apply to both DFSMS-managed and non-DFSMS-managed data sets. Attributes specified in JCL or equivalent allocation statements override those specified in a data class. Individual attributes in a data class can be overridden by JCL, TSO, IDCAMS, and dynamic allocation statements.

You can display a list of available data classes and look at the attributes of a given class. See "Listing and Displaying Class Information" on page 126.

A data class defines the following attributes:
* Compaction
* Data Set Organization
* Record Format
* Record Size
* Key Length/Offset
* Space
  - Average Record
  - Average Value
  - Primary
  - Secondary
  - Directory
* Data Set Name Type
* Media Type
* Recording Technology
* Retention Period or Expiration Date
* Volume Count
* Additional Volume Amount
* Control Interval Size
* Percent Free Space
* Share Options
* Reuse
* Initial Load
* Spanned or Nonspanned
* BWO
* Log
* Logstream Id
* Log Replicate
* Space Constraint Relief
* Dynamic Volume Count
* RLS CF Cache Value
* RLS Above the 2-GB Bar
* FRlog
* Extent Constraint Removal
* Performance Scaling
* System Managed Buffering
* CA Reclaim
* Block Size Limit
* Override Space
* System Determined Blocksize
* EATTR
* Record Access Bias

- RMODE31

ISMF's online HELP describes each attribute in detail.

Data Class Examples

The following attributes and their corresponding values show how a data class for general data sets might be defined by your storage administrator. These data class attributes control characteristics typically specified on JCL DD statements, TSO ALLOCATE commands, and elsewhere. This data class might be defined for all system CNTL, DATA, JCL, and OBJ data sets:

Attribute	Value
DATA CLASS NAME	DCDATA
RECFM	FB
LRECL	80
AVG VALUE	80
AVG REC	U
SPACE PRIMARY	1000
SPACE SECONDARY	100
DATA SET NAME TYPE	EXTENDED PREFERRED

A data set with these attributes would be fixed-block and have 80 bytes per record. The allocated primary space would be 80000 bytes and allocated secondary space would be 8000 bytes. The data set would be allocated as an extended sequential data set if possible and would be striped. However, if it were not possible, the data set would be allocated as a non-extended data set and would not be striped.

The following example shows the definition of DCVAR, a data class for variable-length text files. This data class might be defined for all system FOIL, SCRIPT, TEXT, and VSBASIC data sets:

Attribute	Value
DATA CLASS NAME	DCVAR
RECFM	VB
LRECL	255
AVG VALUE	255
AVG REC	U
SPACE PRIMARY	1000
SPACE SECONDARY	100

A data set with these characteristics is variable-block and has a record length and average value of 255. The allocated primary space is 255000 and the allocated secondary space is 25500.

The Management Class Application

By using the management class for a given data set, DFSMShsm can decide how data sets should be backed up, when they should be migrated, and when backup copies should be deleted. The management class attributes for data sets are used each time DFSMShsm is run.

Some management class attributes apply to objects and are used during each object storage management cycle. These attributes assign an expiration date, specify if

objects are backed up automatically, and specify when to perform a class transition according to object class transition criteria.

You can display a list of available management classes and look at the attributes of a given class. See "Listing and Displaying Class Information" on page 126 for more information.

To assign and change the management class associated with your data set, see "Assigning Classes to Data Sets" on page 126, and "Using Line Operators on DFSMS Lists" on page 131.

A management class defines the following attributes:
- Partial Release
- Expiration Attributes
  - Expire After Date/Days
  - Expire After Days Non-Usage
  - Retention Limit
- Migration Attributes
  - Command or Auto Migrate
  - Level 1 Days Non-Usage
  - Primary Days Non-Usage
- Generation Data Group Management Attributes
  - Number of GDG Elements on Primary
  - Rolled-off GDS Action
- Backup Attributes
  - Administrator or User Command Backup Versions
  - Auto Backup
  - Backup Copy Technique
  - Backup Frequency
  - Number of Backups (Data Set Deleted)
  - Number of Backups (Data Set Exists)
  - Retain Days Extra Backups
  - Retain Days Only Backup Versions
- Class Transition Attributes
  - Object Class Transition Criteria
- Aggregate Backup
  - Abackup Copy Technique
  - Copy Serialization
  - Number of Versions
  - Retain Extra Versions
  - Retain Extra Versions Unit
  - Retain Only Version
  - Retain Only Version Unit

ISMF's online HELP describes each attribute in detail.

Management Class Examples

The following attributes and their corresponding values show how a management class for standard priority application data sets might be defined by your storage administrator:

Attribute	Value
MANAGEMENT CLASS NAME	MCNORM
EXPIRE AFTER DAYS NON-USAGE	NOLIM
EXPIRE AFTER DATE/DAYS	NOLIM

Attribute	Value
MAXIMUM RETENTION PERIOD	NOLIM
PARTIAL RELEASE	YES
PRIMARY DAYS NON-USAGE	15
LEVEL 1 DAYS	60
CMD/AUTO MIGRATE	BOTH
BACKUP FREQUENCY	0
NUMBER OF BACKUPS	
(DS EXISTS)	2
NUMBER OF BACKUPS	
(DS DELETED)	1
ONLY BACKUP RETAIN® DAYS	60
RETAIN DAYS EXTRA BACKUP	30
ADM/USER BACKUP	BOTH
AUTO BACKUP	YES
COPY SERIALIZATION	CONTINUE
NUMBER OF VERSIONS	NOLIMIT
RETAIN ONLY VERSION	9999
RETAIN ONLY VERSION UNIT	DAYS
RETAIN EXTRA VERSIONS	100
RETAIN EXTRA VERSIONS UNIT	MONTHS
BACKUP COPY TECHNIQUE	CONCURRENT PREFERRED
ABACKUP COPY TECHNIQUE	CONCURRENT PREFERRED

A data set with these management class attributes:

- Never expires
- Has no unused space
- Migrates 15 days after last use
- Migrates from level 1 to level 2 storage 60 days after last use.

  The data set can be migrated either manually or automatically and by either an end user or storage administrator.

- Backups are created whenever the volume is backed up. Two backups are kept. One automatic backup is kept for 60 days after the data set is deleted. An older backup is kept for 30 days.

The copy operation should not be interrupted if an enqueue failure is encountered. The number of versions that can be maintained for an aggregate group cannot exceed 9999 versions. NOLIMIT indicates that the aggregate backup and recovery function will not roll-off old versions if the system attempts to exceed the 9999 version limit. If your installation does not expire old versions and 9999 versions already exist, the ABACKUP operation fails when the system attempts to create a new version. The last remaining version of the aggregate group will be kept for 9999 days. The other versions of the aggregate group will be kept one hundred months. Data sets associated with this management class, whether part of an aggregate group or not, are backed up using the concurrent copy technique if it is available. Otherwise, they are backed up using the standard backup copy technique.

The following example shows how the management class for an object might be defined:

Attribute	Value
MANAGEMENT CLASS NAME	MCOBJ

Attribute	Value
EXPIRE AFTER DATE/DAYS	2555
AUTO BACKUP	YES
CLASS TRANSITION	
TIME SINCE CREATION	
MONTHS	1

An object assigned this management class would be automatically backed up and would expire after seven years (2555 days). Class transition would occur one month after creation.

The Storage Class Application

The Storage Class Application lets the storage administrator specify performance objectives and availability attributes that characterize a collection of data sets. For objects, the storage administrator can define the performance attribute Initial Access Response Seconds. A data set or object must be assigned to a storage class in order to be managed by DFSMS.

You can display a list of available storage classes and look at the attributes of a given class. For more information, see "Listing and Displaying Class Information" on page 126, "Assigning Classes to Data Sets" on page 126, and "Using Line Operators on DFSMS Lists" on page 131.

A storage class defines the following attributes:
- Storage Class Name
- Description
- Performance Objectives
  - Direct Bias
  - Direct Millisecond Response
  - Initial Response Seconds
  - Sequential Bias
  - Sequential Millisecond Response
  - Sustained Data Rate
  - OAM Sublevel
- Availability Objectives
  - Accessibility
    - Backup
    - Versioning
  - Availability
- Guaranteed Space
- Guaranteed Synchronous Write
- CF Cache Set Name
- CF Direct Weight
- CF Sequential Weight
- CF Lock Set Name

ISMF's online help describes each attribute in detail.

Storage Class Examples

The following attributes and their corresponding values represent a typical storage class, SCNORM, for most application data sets:

Attribute	Value
STORAGE CLASS NAME	SCNORM
DIRECT BIAS	READ
SEQUENTIAL BIAS	READ
AVAILABILITY	STANDARD
GUARANTEED SPACE	NO
ACCESSIBILITY	CONTINUOUS
SUSTAINED DATA RATE (MB/SEC)	2

The majority of input and output for these data sets will be READ. Processing of a data set stops if a device failure occurs with the volume that contains the data set. Placement of the data set depends on available pool space. DFSMS allocates volumes. Data sets in this storage class will be allocated on a volume that is supported by concurrent copy. The data transfer rate of the extended sequential data sets in this storage class will be 2 MB/sec.

The following attributes and their corresponding values represent a storage class for an object:

Attribute	Value
STORAGE CLASS NAME	SCOBJ
PERFORMANCE OBJECTIVES	
INITIAL ACCESS RESPONSE SECONDS	60

An object assigned to this storage class has to be accessible from any storage source within 60 seconds.

Assigning Classes to Data Sets

As a TSO or ISPF/PDF user, you can assign classes to your data sets.

As a TSO user, when you allocate an DFSMS-managed data set by using the TSO ALLOCATE command, you can have classes defaulted for you oryou can specify the names of the data class, management class, and storage class to be retained with the data set definition. For details on how to specify a class name on the TSO ALLOCATE command, refer to *TSO/E V2 Command Reference*.

As an ISPF/PDF user, when you allocate an DFSMS-managed data set by using the ISPF/PDF DEFINE command, you can have classesdefaulted for you or you can specify names of classes to be retained with the data set. For more information on this command, refer to *ISPF and ISPF/PDF Reference Summary*.

Assigning Classes to Objects

Users cannot assign classes to objects. The storage administrator specifies when objects are assigned classes by DFSMS ACS routines.

Listing and Displaying Class Information

To display information about data classes that are available for your data sets or management and storage classes that are available for your data sets or objects, you must start with the ISMF Primary Option Menu (Figure 4 on page 7). Select the appropriate application from the menu, and the corresponding application

selection panel is displayed. You can then specify the class whose attributes you want to look at, or you can display a list of available classes of a single type.

Example: Creating a Data Class List

To create a data class list, complete each field on the Data Class Application Selection panel, shown in Figure 86.

```
   Panel  Utilities  Help
 ------------------------------------------------------------------------------
                       DATA CLASS APPLICATION SELECTION
 Command ===>

 To perform Data Class Operations, Specify:
   CDS Name . . . . . . 'ACTIVE'
                             (1 to 44 character data set name or 'Active'
   Data Class Name  . . script%   (For Data Class List, fully or partially
                                  specified or * for all)

 Select one of the following options  :
    1  1. List    - Generate a list of Data Classes
       2. Display - Display a Data Class


 If List Option is chosen,
    Enter "/" to select option      Respecify View Criteria
                                     Respecify Sort Criteria



 Use ENTER to Perform Selection;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 86. Data Class Application Selection Panel

Complete each field on the Data Class Application panel, as follows:

CDS NAME

Enter the 1- to 44-character name (46 characters including quotation marks) of a control data set (CDS). ISMF processes quoted and unquoted CDS names using TSO conventions.

The CDS contains information about the configuration. To specify the active control data set (ACDS), enter 'ACTIVE' as the CDS name. The ACDS contains the current configuration for your installation.

This field is primed with the CDS name last referenced in ISMF, and the default is 'ACTIVE'.

DATA CLASS NAME

Enter a fully or partially specified class name (in this case, a data class name). This field is primed with the last-used value, and the default is an asterisk (*).

When an asterisk is specified, ISMF generates a list of all the classes in the control data set you indicated.

DATA CLASS NAME ===> *

If you want to list the classes, you can enter a partially specified name so that the list contains only the classes you are looking for.

Use an asterisk for zero or more non-blank characters. For example, to list all data classes with a 't' in the name, specify:

DATA CLASS NAME ===> *t*

Use a percent sign (%) for 1 non-blank character each. For example, to list all 7-character class names beginning with 'script', specify:

```
DATA CLASS NAME ===> script%
```

This field is primed with the last-used value, and the default is an asterisk (*). If you enter a fully specified class name you can generate a list containing the information about only one class, or you can display the attributes of one class.

SELECT ONE OF THE FOLLOWING OPTIONS

Complete this field by entering a '1' or '2'. The field is primed with '1' and defaults to '1'.

Enter '1' to generate a list that contains the classes you specified, as shown in Figure 87.

```
   Panel  List  Utilities  Scroll  Help
 -------------------------------------------------------------------------------
                              DATA CLASS LIST
 Command ===>                                           Scroll ===> HALF
                                                    Entries 1-19 of 199
                                                    Data Columns 3-9 of 48
 CDS Name . : ACTIVE

 Enter Line Operators below:

    LINE        DATACLAS                                             AVG
   OPERATOR     NAME     RECORG  RECFM  LRECL  KEYLEN  KEYOFF  AVGREC  VALUE
   ---(1)----   --(2)---  -(3)--  -(4)-  -(5)-  -(6)--  -(7)--  -(8)--  -(9)-
                ACCTDSN4 --        ----  -----   ---   -----  -       -----
                ACCTDSN5 --        ----  -----   ---   -----  -       -----
                ACCTDSN6 --        ----  -----   ---   -----  -       -----
                ACCTJOB4 --        ----  -----   ---   -----  -       -----
                ACCTJOB5 --        ----  -----   ---   -----  -       -----
                ACCTJOB6 --        ----  -----   ---   -----  -       -----
                ACCTSTP4 --        ----  -----   ---   -----  -       -----
                ACCTSTP5 --        ----  -----   ---   -----  -       -----
                ACCTSTP6 --        ----  -----   ---   -----  -       -----
                ATLDC004 --        ----    80    ---   -----  -       -----
                ATLDC008 --        ----    80    ---   -----  -       -----
```
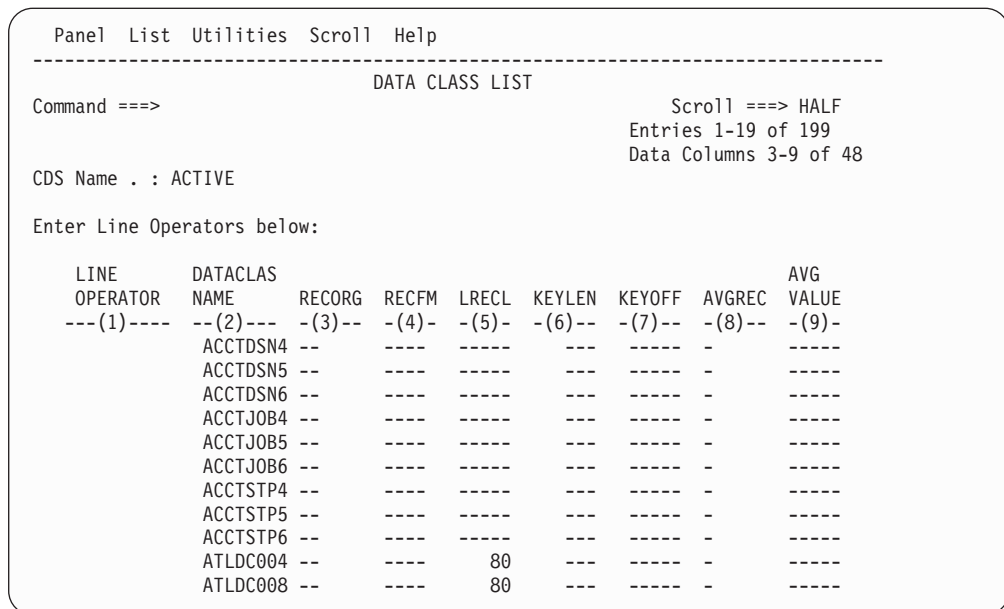
Figure 87. Data Class List Panel

Tip: If you want to display the data class attributes after you generate the data class list, enter the DISPLAY command on the Data Class List panel next to the name of the class whose attributes you wish to view.

Enter '2' to display the attributes of the class you specified, as shown in Figure 88 on page 129.

```
   Panel  Utilities  Scroll  Help
  -----------------------------------------------------------------------------
                                DATA CLASS DISPLAY               Page 1 of 5
  Command ===>

  CDS Name  . . . : ACTIVE
  Data Class Name : ACCTDSN4

  Description : DATACLAS ACCTDSN4 FOR ACS INTERNAL PROCESSING

  Recfm  . . . . . . . . . : VB
  Lrecl  . . . . . . . . . : 255
  Space Avgrec . . . . . . : U
        Avg Value  . . . . : 255
        Primary  . . . . . : 5000
        Secondary  . . . . : 5000
        Directory  . . . . : 62
  Retpd Or Expdt  . . . . :
  Volume Count    . . . . :
    Add'l Volume Amount  . :



  Use DOWN Command to View next Panel;
  Use HELP Command for Help; Use END Command to Exit.
```

Figure 88. Page 1 of the Data Class Display Panel

RESPECIFY VIEW CRITERIA
> You can choose the columns and the order of the columns to appear on the
> Data Class Application List panel. This field is always primed with a blank.
>
> - Leave this field blank to generate a data class list using the default VIEW
>   criteria (display all columns in alphabetical order) or the criteria that were
>   last specified to ISMF, if any.
>
>   **Restriction:** This might result in a restricted view.
> - Specify a slash (/) to first display a Data Class View Entry panel, as shown
>   in Figure 89.

```
   Panel  Utilities  Scroll  Help
  -------------------------------------------------------------------------
                          DATA CLASS VIEW ENTRY PANEL         Page 1 of 3
  Command ===>

  If desired, Select option . .         (1 - SELECT, 2 - SAVE, 3 - DELETE)
              View Name . .             (1 to 8 characters, * to Delete all,
                                          or blank for List of Saved Views)
    Specify tags in Sequence Desired:
    ===> *

         Line Operator             (26)  Data Set Name Type
         Data Class Name           (16)  Dynamic Volume Count
   (15)  Additional Volume Amt     (48)  EATTR
    (8)  Avgrec                    (27)  Extended Addressability
    (9)  Avg Value                 (44)  Extent Constraint Removal
   (35)  BWO                       (42)  FRlog
   (41)  Block Size Limit          (33)  Initial Load
   (49)  CA Reclaim                 (6)  Key Length
   (28)  Compaction                 (7)  Key Offset
   (18)  Control Interval Size data (24) Last Date Modified
  Use ENTER to Perform Selection or Display List in VIEW Sequence;
  Use DOWN For previous Panel; Use HELP Command for Help; Use END Command to Exit.
```

Figure 89. Data Class View Entry Panel with Specific Column Tags

> If you specify tag numbers 26, 5 and 3 on the Data Class View Entry panel,
> only columns 1, 2, 26, 5 and 3 will be displayed on the Data Class List panel,

as shown in Figure 90. (Columns 1 and 2, Line Operator and Data Class Name, cannot be specified because these columns always appear as the first two columns on the list panel.)

```
  Panel  List  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                          DATA CLASS LIST              VIEW WAS SUCCESSFUL
 COMMAND ===>                                            SCROLL ===> PAGE
                                                         Entries 1-9 of 9
                                                         View in Use

 CDS NAME:  SCDS.DC

 ENTER LINE OPERATORS BELOW:

     LINE        DATACLAS
    OPERATOR     NAME       DATA SET NAME TYPE  LRECL  RECORG
    ---(1)----   --(2)---   -------(26)-------  -(5)-  -(3)--
                 DCNAME1    ------------------  32761  KS
                 DCNAME2    ------------------  32761  ES
                 DCNAME3    ------------------  32761  RR
                 DCNAME4    ------------------  -----  LS
                 DCNAME5    LIBRARY            -----  --
                 DCNAME6    PDS                -----  --
                 DCNAME7    HFS                -----  --
                 DCNAME8    EXTENDED REQUIRED  -----  --
                 DCNAME9    ------------------  -----  --
    ----------   --------   ------  BOTTOM  OF  DATA  ------  --------  ---------
```

Figure 90. Data Class Application List Panel in VIEW Order

Tip: If you want to view the list after it is generated, enter the VIEW command, with or without parameters, on the command line of the list panel. For more information about selecting and reordering columns on an application list, see "Selecting List Display Columns" on page 65.

RESPECIFY SORT CRITERIA
The RESPECIFY SORT CRITERIA field on an application selection panel allows you to change the major and minor fields and the order in which the entries are sorted. This field is always primed with a blank space.

- Leave this field blank to generate a data class list using the default SORT criteria.
- If you request a list and specify a slash (/), the Data Class Sort Entry panel is displayed first, as shown in Figure 91 on page 131. Only the column tags specified as view criteria are displayed on the Sort Entry panel. Complete this entry panel just as you would other Sort Entry panels.

```
   Panel  Utilities  Scroll  Help
 --------------------------------------------------------------------------
                      DATA CLASS SORT ENTRY PANEL              Page 1 of 3
COmmand ===>

Specify one or more Attribute Numbers for Sort Sequence:
  Major Field  . . . 2   Minor Field 1 . . .      Minor Field 2 . . .

Specify A for Ascending or D for Descending Sort Order:
  Major Field  . . . A   Minor Field 1 . . .      Minor Field 2 . . .

   (1)  Line Operator              (26)  Data Set Name Type
   (2)  Data Class Name            (16)  Dynamic Volume Count
  (15)  Additional Volume Amt      (49)  EATTR
   (8)  Avgrec                     (27)  Extended Addressability
   (9)  Avg Value                  (44)  Extent Constraint Removal
  (35)  BWO                        (42)  FRlog
  (41)  Block Size Limit           (33)  Initial Load
  (49)  CA Reclaim                  (6)  Key Length
  (28)  Compaction                  (7)  Key Offset
  (18)  Control Interval Size Data (24)  Last Date Modified

Use ENTER to Perform SORT; Use DOWN Command to view next Panel;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 91. Data Class Sort Entry Panel

> **Tip:** If you want to sort the list after it is constructed, enter the SORT command, with or without parameters, on the command line of the list panel. For more information about sorting a list see "Sorting the List" on page 61.

Displaying and Tailoring DFSMS Lists

You can use a number of commands and line operators to scroll through and tailor class lists. See Chapter 10, "ISMF Command and Line Operator Reference Summary," on page 157 for a list of available commands and line operators. Since you can modify a class list as you would a data set list, refer also to "Tailoring the List Entries" on page 54 for more information.

Using Line Operators on DFSMS Lists

You can specify the **DISPLAY** line operator next to anyclass name on a class list to generate a panel that displays values associated with that particular class. This information can help you decide whether you need to assign a new DFSMS class to your data set or object.

If you determine that a data set you own should be associated with adifferent management class or storage class, and if you have authorization, you can use the **ALTER** line operator against a data set list entry to specify another storage class or management class. See page "Using the Data Set ALTER Line Operator" on page 145 for an example of using the ALTER line operator.

Table 11 on page 132 summarizes line operators you can use to facilitate system-managed storage.

Table 11. Summary of Storage Management Subsystem Line Operators

Task	Function	Scope	Application	Action
Display the attributes associated with an SMS class	DISPLAY	A data, management, or storage class.	Use the line operator from the Data, Management, or Storage Class Lists.	Displays the entry selected from the list panel. Performed in the foreground by DFSMSdfp.
Associate a new management class or storage class with an SMS-managed data set	ALTER	A single cataloged data set.	Use the line operator from the Data Set List.	Assign a new management class or storage class to a single cataloged data set. Performed in the foreground by DFSMSdfp.

Chapter 9. Examples of ISMF

This chapter contains examples of using ISMF to perform storage management tasks. These tasks include:
- Generating a data set list
- Recovering unused space with the COMPRESS line operator
- Copying a list of data sets from one device to another
- Using the DUMP line operator to back up a data set
- Restoring a data set that has been mistakenly deleted
- Deleting data sets that are no longer needed
- Using the Data Set ALTER line operator
- Generating a DASD volume list
- Defragmenting a DASD volume
- Generating a mountable optical volume list
- Generating a mountable tape volume list
- Generating a data class list
- Displaying a data class

Generating a Data Set List

This example shows how to generate a data set list. Invoke ISMF and choose the Data Set Application (option 1) from the ISMF Primary Option Menu.

1. Complete the Data Set Selection Entry Panel with the values shown in Figure 92.

```
   Panel  Defaults  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                       DATA SET SELECTION ENTRY PANEL            Page 1 of 5
 Command ===>

 For a Data Set List, Select Source of Generated List  . . 2  (1 or 2)

   1  Generate from a Saved List        Query Name To
      List Name  . .                    Save or Retrieve

   2  Generate a new list from criteria below
      Data Set Name . . . **
      Enter "/" to select option   _   Generate Exclusive list
      Specify Source of the new list  . . 2    (1 - VTOC, 2 - Catalog)
      1 Generate list from VTOC
        Volume Serial Number . . .          (fully or partially specified)
        Storage Group Name . . . .          (fully specified)
      2 Generate list from Catalog
        Catalog Name . . .
        Volume Serial Number . . .          (fully or partially specified)
        Acquire Data from Volume . . . . . . . N  (Y or N)
        Acquire Data if DFSMShsm Migrated  . . N  (Y or N)
 Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 92. Completing Page 1 of the Data Set Selection Entry Panel

These values specify that the list is generated from the master catalog, the user catalog, data acquired from the VTOC for data sets that have not been migrated by DFSMShsm, and data from the MCDS for migrated data sets.

2. Verify that pages 2, 3, and 4 of the Data Set Selection Entry Panel are blank. If they are not blank, you receive the short informational message OTHER VALUES PRESENT.

3. Press the ENTER key. ISMF generates and displays the data set list shown in Figure 93. This list conforms to the selection criteria.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                             DATA SET LIST
 Command ===>                                             Scroll ===> HALF
                                                     Entries 1-7 of 7
                                                     Data Columns 3-5 of 41

 Enter Line Operators below:

    LINE                                       ALLOC     ALLOC    % NOT
    OPERATOR          DATA SET NAME            SPACE     USED     USED
  ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
              USER1.DEB.LISTING1            ---------  ---------   ---
              USER1.ISMF.SYSIN.D880125.        46K       40K      13
                T105441
              USER1.ISPFILE                   139K       93K      33
              USER1.ISPPROF                   185K      185K       0
              USER1.SPFLOG1.LIST              371K      371K       0
              USER1.SPFTEMP1.CNTL          ---------  ---------   ---
              USER1.SPF3.LIST                 788K      788K       0
  ----------  ------  ----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 93. Successful Completion of Generating a Data Set List

Recovering Unused Space with the COMPRESS Line Operator

This example shows how to use the COMPRESS line operator to compress a data set.

Note: COMPRESS, which is a line operator, differs from COMPRESSED FORMAT, which is a data column.

1. Enter the COMPRESS line operator in the line operator column next to the data set USER1.ISPFILE, as shown in Figure 94.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                             DATA SET LIST
 Command ===>                                             SCROLL ===> DATA
                                                     Entries 1-7 of 7
 Enter Line Operators Below:                         Data Columns 3-5 of 41

    LINE                                       ALLOC     ALLOC    % NOT
    OPERATOR          DATA SET NAME            SPACE     USED     USED
  ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
              USER1.DEB.LISTING1            ---------  ---------   ---
              USER1.ISMF.SYSIN.D880125.        46K       40K      13
                T105441
    compress  USER1.ISPFILE                   139K       93K      33
              USER1.ISPPROF                   185K      185K       0
              USER1.SPFLOG1.LIST              371K      371K       0
              USER1.SPFTEMP1.CNTL          ---------  ---------   ---
              USER1.SPF3.LIST                 788K      778K       0
  ----------  ------  ----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 94. Entering the COMPRESS Line Operator

2. Press the ENTER key. ISMF displays the COMPRESS Entry Panel, as shown in Figure 95.

```
   Panel  Utilities  Help
 ------------------------------------------------------------------------------
                            COMPRESS ENTRY PANEL
 Command ===>

 Optionally Specify one or more for
  Data Set: USER10.HCD.TERM

   To Control obtaining access to Data Set, Specify:
     Maximum Number of Retries  . . . . . . 2        (0 to 99)
     Number of Seconds between Retries  . . 2        (0 to 255)
     Serialize with Dynamic Allocation  . . N        (Y or N)

   For Password Protected Data Set, Specify:
     Data Set Password  . . . .                      (password or blanks)

   DFSMSdss Administrator Mode  . . N  (Y or N)




 Use ENTER to Perform COMPRESS;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 95. Completing the COMPRESS Entry Panel

Complete the COMPRESS Entry Panel with the values shown.

3. Press the ENTER key. ISMF displays the COMPRESS Job Submission Entry Panel shown in Figure 96. This panel is primed with values from your profile.

```
   Panel  Utilities  Help
 ----------------------------------------------------------------------------
                          JOB SUBMISSION ENTRY PANEL
 Command ===>

 Select One of The Following
 1   1.  Submit Job for Background Processing
     2.  Save Generated Job in a Data Set
 If Save option is selected above, Specify:
  Data Set Name  . . .
  Replace Contents . . N              (Y or N)

 Job Statement Information:             (Verify before Proceeding)
      //USER10A  JOB (USER10,'B=050,D=M86,O=G48'),'USER10',
      //*       MSGCLASS=Z,NOTIFY=USER10,USER=USER10,
      //*       TIME=(0,5),MSGLEVEL=(1,1)
      //*
      //*
      //*
      //*
 Enter "/" to select option
 /  View or Change Execute Statements from Profile
 Use ENTER to Continue;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 96. Completing the COMPRESS Job Submission Entry Panel

Complete the COMPRESS Job Submission Entry Panel with the values shown.

Enter / in the VIEW OR CHANGE EXECUTE STATEMENTS FROM PROFILE field to verify the DFSMSdss execute statements ISMF will use to submit the job for background processing.

4. Press the ENTER key. ISMF then displays the DFSMSdss Execute Statement Entry Panel shown in Figure 97.

```
   Panel  Utilities  Help
 -------------------------------------------------------------------------------
                          DFDSS EXECUTE STATEMENT ENTRY PANEL
 Command ===>

 Specify DFDSS Execute Statement Information:

  ===> //*
  ===> //*
  ===> //**NOTE - THE REGION SIZE IS MINIMUM AND MAY BE CHANGED
  ===> //STEP1   EXEC  PGM=ADRDSSU,REGION=2048K
  ===> //*
  ===> //*
  ===> //SYSPRINT  DD  SYSOUT=*





 Use ENTER to Continue;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 97. Verifying the DFSMSdss Execute Statement

5. Press the ENTER key. ISMF submits the job and redisplays the data set list, as shown in Figure 98.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 -------------------------------------------------------------------------------
                               DATA SET LIST
 Command ===>                                              SCROLL ===> DATA
                                                           Entries 1-7 of 7
 Enter Line Operators Below:                               Data Columns 3-5 of 41

    LINE                                       ALLOC      ALLOC     % NOT
    OPERATOR            DATA SET NAME          SPACE      USED      USED
   ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
               USER1.DEB.LISTING1           ---------  ---------    ---
               USER1.ISMF.SYSIN.D880125.         46K        40K     13
                 T105441
  *compress    USER1.ISPFILE                    139K        93K     33
               USER1.ISPPROF                    185K       185K      0
               USER1.SPFLOG1.LIST               371K       371K      0
               USER1.SPFTEMP1.CNTL          ---------  ---------    ---
               USER1.SPF3.LIST                  788K       778K`     0
   ----------  ------  ----------- BOTTOM  OF  DATA -----------  ------  ----
```

Figure 98. Successful Submission for COMPRESS

The asterisk next to the COMPRESS line operator in the line operator column indicates that USER1.ISPFILE has been successfully submitted for background processing.

Copying a List of Data Sets with the COPY List Command

This example shows how to use the COPY list command to move a list of data sets from one device to another.

1. Enter the COPY list command on the command line of the Data Set List Panel, as shown in Figure 99.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                             DATA SET LIST
 Command ===>                                          SCROLL ===> DATA
                                                  Entries 1-7 of 7
 Enter Line Operators Below:                      Data Columns 3-5 of 41

     LINE                                ALLOC     ALLOC    % NOT
    OPERATOR          DATA SET NAME      SPACE     USED     USED
   ---(1)----   ------------(2)------------  ---(3)---  ---(4)---   -(5)-
              USER1.DEB.LISTING1          ---------  ---------   ---
              USER1.ISMF.SYSIN.D880125.     46K       40K       13
                T105441
       copy   USER1.ISPFILE               139K       93K  33
              USER1.ISPPROF               185K      185K        0
              USER1.SPFLOG1.LIST          371K      371K        0
              USER1.SPFTEMP1.CNTL         ---------  ---------   ---
              USER1.SPF3.LIST             788K      778K        0
   ----------  ------  ---------- BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 99. Entering the COPY Command

2. Press the ENTER key. ISMF displays the first page of the COPY Entry Panel as shown in Figure 100.

```
  Panel  Utilities  Help
 ------------------------------------------------------------------------------
                      COPY COMMAND ENTRY PANEL              Page 1 of 13
 Command ===>

 Specify one or more for the 13 Data Sets:
 Target Volumes       ===>           ===>          ===>          ===>
   Percent Utilization ===> 100     ===> 100      ===> 100     ===> 100
   Unit                ===>          ===>          ===>          ===>
 Target Data Sets New First Level Qualifier  . . . . .

 Select Where to Catalog Target Data Sets:
   3  1. Do Not Catalog                   3. Default Catalog
      2. Same Catalog                     4. New Catalog
   Specify New Catalog Name . .
 Optionally Specify one or more:
  Replace Duplicates  . . . . . N  (Y or N)
  Replace Unconditional . . . . N  (Y or N)
  Reblock Target Data Sets  . . N  (Y or N)
  RACF Model Data Set Name  . .
  RACF Model Volume Serial  . .
 Enter "/" to select option  .  /  View or Change Additional Copy Options
 Use ENTER to Continue;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 100. Completing Page 1 of the COPY Entry Panel

Complete the first page of the COPY Entry Panel with the values shown. Enter / in the VIEW OR CHANGE ADDITIONAL COPY OPTIONS field to take the last-used values on the other pages of the entry panel.

3. Press the ENTER key. ISMF displays the Job Submission Entry Panel, as shown in Figure 101 on page 138.

```
   Panel  Utilities  Help
 ------------------------------------------------------------------------------
                        JOB SUBMISSION ENTRY PANEL
 Command ===>

 Select One of The Following
 1   1.  Submit Job for Background Processing
     2.  Save Generated Job in a Data Set
 If Save option is selected above, Specify:
  Data Set Name  . . .
  Replace Contents . . N            (Y or N)

 Job Statement Information:          (Verify before Proceeding)
     //USER10A  JOB (USER10,'B=050,D=M86,O=G48'),'USER10',
     //*      MSGCLASS=Z,NOTIFY=USER10,USER=USER10,
     //*       TIME=(0.5),MSGLEVEL=(1,1)
     //*
     //*
     //*
     //*
 Enter "/" to select option
    View or Change Execute Statements from Profile
 Use ENTER to Continue;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 101. Verifying the COPY Job Statement Information

> Verify the job statements on the COPY Job Submission Entry Panel.
>
> Enter / in the VIEW OR CHANGE EXECUTE STATEMENTS FROM PROFILE
> field.

4. Press the ENTER key to submit the job. ISMF displays the data set list, as
   shown in Figure 102.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                        DATA SET LIST              COPY JOB CREATED
 Command ===>                                      SCROLL ===> DATA
                                                   Entries 1-7 of  7
 Enter Line Operators Below:                       Data Columns 3-5 of 41

    LINE                                ALLOC     ALLOC    % NOT
    OPERATOR         DATA SET NAME      SPACE      USED     USED
    ---(1)----   ------------(2)------------  ---(3)---  ---(4)---  -(5)-
    *COPY        USER1.DEB.LISTING1         ---------  ---------     ---
    *COPY        USER1.ISMF.SYSIN.D880125.      46K        40K       13
    *COPY          T105441
    *COPY        USER1.ISPFILE                 139K        93K       33
    *COPY        USER1.ISPPROF                 185K       185K        0
    *COPY        USER1.SPFLOG1.LIST            371K       371K        0
    *COPY        USER1.SPFTEMP1.CNTL        ---------  ---------     ---
    *COPY        USER1.SPF3.LIST               788K       788K        0
    ----------  ------  ----------- BOTTOM OF  DATA -----------  ------  ----
```

Figure 102. Data Set List after Successful Submission of the COPY Command

> The asterisks next to each COPY command in the line operator column and the
> short informational message COPY JOB CREATED indicate that the job has been
> successfully submitted.

Backing Up a Data Set with the DUMP Line Operator

> This example shows how to generate a job that dumps a copy of the ISPF profile.

1. Enter the DUMP line operator next to the data set USER1.ISPPROF, as shown in Figure 103.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                          DATA SET LIST                    COPY JOB CREATED
  Command ===>                                               SCROLL ===> DATA
                                                           Entries 1-7 of 7
  Enter Line Operators Below:                              Data Columns 3-5 of 41

     LINE                                    ALLOC     ALLOC    % NOT
     OPERATOR          DATA SET NAME         SPACE     USED     USED
     ---(1)----    ------------(2)------------  ---(3)---  ---(4)---  -(5)-
     *COPY         USER1.DEB.LISTING1        ---------  ---------    ---
     *COPY         USER1.ISMF.SYSIN.D880125.    46K       40K       13
     *COPY             T105441
     *COPY         USER1.ISPFILE               139K       93K       33
     dump          USER1.ISPPROF               185K      185K        0
     *COPY         USER1.SPFLOG1.LIST          371K      371K        0
     *COPY         USER1.SPFTEMP1.CNTL       ---------  ---------    ---
     *COPY         USER1.SPF3.LIST             788K      788K        0
     ----------  ------  ----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 103. Entering the Dump Line Operator

2. Press the ENTER key. ISMF displays page 1 of the DUMP Entry Panel as shown in Figure 104. Complete page 1 of the DUMP Entry Panel with the values shown.

```
   Panel  Utilities  Help
  ------------------------------------------------------------------------------
                           DUMP ENTRY PANEL                      Page 1 of 7
  Command ===>

  Specify one or more for
    Data Set: USER10.ISPPROF
    Output DSN . . . USER10.ISPPROF.DUMP(+1)
    If Output Data Set is New or Not Cataloged, Specify:
      Volume Count   ===> 1
      Output Volumes ===>          ===>         ===>         ===>
      Output Volumes ===>          ===>         ===>         ===>
      Output Volumes ===>          ===>         ===>         ===>
      Unit           ===>
    Number of Copies . . . . . . . . 1        (1 to 5 copies)
    Output Media Type  . . . . . . . TAPE     (TAPE or DASD)
    Type of Dump . . . . . . . . . . 1        (1 LOGICAL, 2 PHYSICAL)
    Input Data Set Password  . . . .          (password or blanks)

    Enter "/" to select option     DFSMSdss Administrator Mode
                                    View or Change Current Allocation Values
                                    View or Change Additional Dump Options
  Use ENTER to Continue;
  Use HELP Command for Help; Use END Command to Exit.
```

Figure 104. Completing Page 1 of the DUMP Entry Panel

Enter / in both the VIEW OR CHANGE CURRENT ALLOCATION VALUES and the VIEW OR CHANGE ADDITIONAL DUMP OPTIONS fields to take the last-used values for the other options on the DUMP line operator.

3. Press the ENTER key. ISMF displays the Job Submission Entry Panel, as shown in Figure 105 on page 140.

```
  Panel  Utilities  Help
 -----------------------------------------------------------------------------
                         JOB SUBMISSION ENTRY PANEL
Command ===>

Select One of The Following
1   1.  Submit Job for Background Processing
    2.  Save Generated Job in a Data Set
If Save option is selected above, Specify:
 Data Set Name  . . .
 Replace Contents . . N            (Y or N)

Job Statement Information:          (Verify before Proceeding)
     //USER10A  JOB (USER10,'B=050,D=M86,O=G48'),'USER10',
     //        MSGCLASS=Z,NOTIFY=USER10,USER=USER10,
     //        TIME=(0.5),MSGLEVEL=(1,1)
     //*
     //*
     //*
     //*
Enter "/" to select option
   View or Change Execute Statements from Profile
Use ENTER to Continue;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 105. Verifying the DUMP Job Statement Information

Complete the Job Submission Entry Panel with the values shown.

Enter / in the VIEW OR CHANGE EXECUTE STATEMENTS FROM PROFILE field to bypass the DFSMSdss Execute Statement Entry Panel.

4. Press the ENTER key. ISMF submits the job and redisplays the data set list, as shown in Figure 106.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 -----------------------------------------------------------------------------
                          DATA SET LIST            DUMP JOB CREATED
Command ===>                                    SCROLL ===> DATA
                                                Entries 1-7 of 7
Enter Line Operators Below:                     Data Columns 3-5 of 41

   LINE                             ALLOC     ALLOC    % NOT
   OPERATOR        DATA SET NAME    SPACE     USED     USED
   ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
   *COPY       USER1.DEB.LISTING1           ---------  ---------   ---
   *COPY       USER1.ISMF.SYSIN.D880125.      46K        40K       13
   *COPY         T105441
   *COPY       USER1.ISPFILE                 139K        93K       33
   *DUMP       USER1.ISPPROF                 185K       185K        0
   *COPY       USER1.SPFLOG1.LIST            371K       371K        0
   *COPY       USER1.SPFTEMP1.CNTL          ---------  ---------   ---
   *COPY       USER1.SPF3.LIST               788K       788K        0
   ----------  ------  ----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 106. Data Set List with Successful Submission of the DUMP Line Operator

The asterisk next to the DUMP line operator in the line operator column and the short informational message DUMP JOB CREATED indicate that the job has been successfully submitted.

Restoring a Data Set with the RESTORE Line Operator

This example shows how to restore the data set dumped in the previous example. The job is submitted again for background processing.

1. Enter the RESTORE line operator next to the data set USER1.ISPPROF, as shown in Figure 107.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  ----------------------------------------------------------------------------
                            DATA SET LIST
 Command ===>                                             SCROLL ===> DATA
                                                     Entries 1-7 of 7
 Enter Line Operators Below:                         Data Columns 3-5 of 41

    LINE                                ALLOC     ALLOC    % NOT
    OPERATOR         DATA SET NAME       SPACE     USED     USED
    ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
    *COPY       USER1.DEB.LISTING1         ---------  ---------    ---
    *COPY       USER1.ISMF.SYSIN.D880125.      46K       40K       13
    *COPY          T105441
    *COPY       USER1.ISPFILE                 139K       93K       33
    restore     USER1.ISPPROF                 185K      185K        0
    *COPY       USER1.SPFLOG1.LIST            371K      371K        0
    *COPY       USER1.SPFTEMP1.CNTL        ---------  ---------    ---
    *COPY       USER1.SPF3.LIST               788K      788K        0
    ----------  ------  ----------  BOTTOM  OF  DATA  ----------  ------  ----
```

Figure 107. Entering the RESTORE Line Operator

2. Press the ENTER key. ISMF displays the RESTORE Entry Panel, as shown in Figure 108.

```
   Panel  Utilities  Help
  ----------------------------------------------------------------------------
                         RESTORE ENTRY PANEL                   Page 1 of 8
 Command ===>

 Specify one or more for Data Set: USER10.SPFLOG1.LIST
   Input DSN  . . ISPPROF.DUMP(+1)

   If Input Data Set is not Cataloged, Specify:
     Input Volumes  . . . SYS303
     Input Volumes  . . .
     Input Volumes  . . .
      Unit  . . . . . . . 3380

   Type of Restore  . . . 1        (1 LOGICAL, 2 PHYSICAL)

   Enter "/" to select option
     DFSMSdss Administrator Mode

     View or Change Output Data Set options
     View or Change Input Allocation values
     View or Change Additional Restore options
 Use ENTER to Continue;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 108. Completing the RESTORE Entry Panel

Complete page 1 of the RESTORE Entry Panel using the same options used in the DUMP example.

Enter N in the VIEW OR CHANGE OUTPUT DATA SET OPTIONS, the VIEW
OR CHANGE INPUT ALLOCATION VALUES, and the VIEW OR CHANGE
ADDITIONAL RESTORE OPTIONS fields.

3. Press the ENTER key. ISMF displays the RESTORE Job Submission Entry Panel,
   as shown in Figure 109.

```
  Panel  Utilities  Help
 ------------------------------------------------------------------------------
                         JOB SUBMISSION ENTRY PANEL
 Command ===>

 Select One of The Following
 1   1.  Submit Job for Background Processing
     2.  Save Generated Job in a Data Set
 If Save option is selected above, Specify:
  Data Set Name  . . .
  Replace Contents . . N               (Y or N)

 Job Statement Information:            (Verify before Proceeding)
      //USER10A  JOB (USER10,'B=050,D=M86,O=G48'),'USER10',
      //         MSGCLASS=Z,NOTIFY=USER10,USER=USER10,
      //         TIME=(0.5),MSGLEVEL=(1,1)
      //*
      //*
      //*
      //*
 Enter "/" to select option
    View or Change Execute Statements from Profile
 Use ENTER to Continue;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 109. Verifying the RESTORE Job Statement Information

Enter option 1 to submit the job for background processing.

Enter / in the VIEW OR CHANGE EXECUTE STATEMENTS FROM PROFILE
field to bypass the DFSMSdss execute statement.

4. Press the ENTER key. ISMF generates the RESTORE job and displays the data
   set list, as shown in Figure 110.

```
  Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                         DATA SET LIST            RESTORE JOB CREATED
 Command ===>                                       SCROLL ===> DATA
                                                  Entries 1-7 of 7
 Enter Line Operators Below:                      Data Columns 3-5 of 41

    LINE                               ALLOC     ALLOC    % NOT
    OPERATOR        DATA SET NAME       SPACE     USED     USED
    ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
    *COPY       USER1.DEB.LISTING1          ---------  ---------    ---
    *COPY       USER1.ISMF.SYSIN.D880125.      46K        40K       13
    *COPY          T105441
    *COPY       USER1.ISPFILE                 139K        93K       33
    *RESTORE    USER1.ISPPROF                 185K       185K        0
    *COPY       USER1.SPFLOG1.LIST            371K       371K        0
    *COPY       USER1.SPFTEMP1.CNTL        ---------  ---------    ---
    *COPY       USER1.SPF3.LIST               788K       788K        0
    ----------  ------  ----------  BOTTOM  OF  DATA  ----------  ------  ----
```

Figure 110. Successful Completion of the RESTORE Line Operator

The asterisk next to the RESTORE line operator in the line operator column and the short informational message RESTORE JOB CREATED indicate that the job has been successfully submitted.

Deleting Data Sets with the DELETE Line Operator

This example shows how to use the DELETE line operator to delete two data sets.

1. Enter the DELETE line operator in the line operator column of the data sets that you want to delete. Enter the first line operator in normal mode so that you see the DELETE Entry Panel. Enter the second line operator in last-use mode, as shown in Figure 111.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  -------------------------------------------------------------------------
                            DATA SET LIST              RESTORE JOB CREATED
  Command ===>                                            SCROLL ===> DATA
                                                       Entries 1-7 of 7
  Enter Line Operators Below:                          Data Columns 3-5 of 41

     LINE                                   ALLOC     ALLOC    % NOT
     OPERATOR        DATA SET NAME          SPACE     USED     USED
    ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
    *COPY       USER1.DEB.LISTING1           ---------  ---------   ---
    *COPY       USER1.ISMF.SYSIN.D880125.      46K       40K       13
    *COPY         T105441
    *COPY       USER1.ISPFILE                 139K       93K       33
    *RESTORE    USER1.ISPPROF                 185K      185K        0
    delete      USER1.SPFLOG1.LIST            371K      371K        0
    == PY       USER1.SPFTEMP1.CNTL          ---------  ---------   ---
    *COPY       USER1.SPF3.LIST               788K      788K        0
    ----------  ------  ----------- BOTTOM  OF  DATA -----------  ------  ----
```

Figure 111. Entering the DELETE Line Operator

2. Press the ENTER key. ISMF displays the DELETE Entry Panel as shown in Figure 112 on page 144.

```
   Panel  Utilities  Help
 ----------------------------------------------------------------------------
                              DELETE ENTRY PANEL
 Command ===>

 Optionally Specify one or more to Uncatalog and Delete
   Data Set: USER10.WORK.TEXT

   Enter "/" to select option    /  Scratch Data Set

                                 /  Clear Data Set with Zeroes

                                 /  Delete even if Unexpired

   Data Set Password  . . . . .           (if password protected)




 Use ENTER to Perform DELETE;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 112. Completing the DELETE Entry Panel

Assume that backup versions exist for both of the cataloged data sets being deleted. Complete the DELETE Entry Panel with the values shown.

3. Press the ENTER key. ISMF deletes the data set on the list with the DELETE line operator entered against it and displays the DELETE Confirmation Panel for the second data set, as shown in Figure 113.

```
   Panel  Utilities  Help
 ----------------------------------------------------------------------------
                           DELETE CONFIRMATION PANEL
 Command ===>


 *****************************************************************************
 *****************************************************************************
 *****************************************************************************
 *****************************************************************************
 *******                                                      ********
 *******     Confirm Delete of                                ********
 *******      Data Set: USER1.SPFTEMP1.CNTL                   ********
 *******                                                      ********
 *******     NOTE: BACKUP VERSIONS OF THIS DATA SET EXIST.  USE ENTER   ********
 *******           TO PERFORM DELETE OF THE ONLINE DATA SET AND VIEW    ********
 *******           BACKUP VERSIONS                            ********
 *******                                                      ********
 *****************************************************************************
 *****************************************************************************
 *****************************************************************************
 *****************************************************************************


 Use ENTER to Perform DELETE;
 Use HELP Command for HELP; Use END Command to Cancel DELETE.
```

Figure 113. Confirmation Panel Displayed When DELETE Is Used in Last-Use Mode

4. Press the ENTER key. ISMF deletes the data set with the DELETE line operator in last-use mode.

   When both data sets have been deleted, the list is redisplayed, as shown in Figure 114 on page 145.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  ---------------------------------------------------------------------------
                            DATA SET LIST
  Command ===>                                           SCROLL ===> DATA
                                                  Entries 1-7 of 7
  Enter Line Operators Below:                     Data Columns 3-5 of 41

     LINE                                  ALLOC    ALLOC   % NOT
     OPERATOR        DATA SET NAME         SPACE    USED    USED
    ---(1)----  ------------(2)------------  ---(3)---  ---(4)---  -(5)-
    *COPY        USER1.DEB.LISTING1          ---------  ---------   ---
    *COPY        USER1.ISMF.SYSIN.D880125.     46K       40K       13
    *COPY         T105441
    *COPY        USER1.ISPFILE                139K       93K       33
    *RESTORE      USER1.ISPPROF                185K      185K        0
    *DELETE      USER1.SPFLOG1.LIST           371K      371K        0
    *DELETE      USER1.SPFTEMP1.CNTL         ---------  ---------   ---
    *COPY        USER1.SPF3.LIST              788K      788K        0
    ----------  ------  ----------- BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 114. Successful Completion for DELETE

The asterisks in front of the DELETE line operators in the line operator column indicate that the data sets have been successfully deleted.

Using the Data Set ALTER Line Operator

This example shows how to use the ALTER line operator to change the name of the SMS management class associated with a cataloged data set.

Generate a data set list and verify that the list has SMS-managed entries. Enter FIND 23 on the command line to display SMS columns. If a storage class name is listed for a given data set, that data set is SMS managed.

1. Enter ALTER line operator in the line operator column next to the data set for which you want to assign a new management class, as shown in Figure 115 on page 146.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 --------------------------------------------------------------------------
                            DATA SET LIST                    COLUMN FOUND
 Command ===>                                              SCROLL ===> PAGE
                                                     Entries 1-4 of 4
 Enter Line Operators Below:                         Data Columns 25-27 of 41

    LINE                                   DATA      MANAGEMENT   STORAGE
    OPERATOR         DATA SET NAME     CLASS NAME  CLASS NAME  CLASS NAME
    ---(1)----   ------------(2)------------  ---(25)---  ---(26)---  ---(27)---
              S2IISAMP.S1P01.DS102.DATA   --------   --------    --------
              S2IISAMP.S1P98.DS101        --------   --------    S1P98S01
              S2IISAMP.S1P98.DS101.DATA   --------   --------    --------
    alter     S2IISAMP.S1P98.DS103        --------   --------    S2P98S01
    ----------  ------  ----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 115. Entering the ALTER Line Operator on a Data Set List

2. Press the ENTER key. ISMF displays the Data Set ALTER Entry Panel as shown in Figure 116. Complete the Data Set ALTER Entry Panel with the values shown.

```
   Panel  Utilities  Help
 --------------------------------------------------------------------------
                         DATA SET ALTER ENTRY PANEL
 Command ===>

  Data Set Name: USER10.WORK.TEXT
  Data Set Entry Type: NONVSAM
  Data Set Environment: UNMANAGED
  Current Expiration Date: 0000/00/00

  To Alter Data Set, Specify:
    New Expiration Date  . . .            (YYYY/MM/DD, 0 to 9999, or NEVER)
    Roll-in Deferred, Rolloff GDS Only  . .      (Y or N)










 Use ENTER to Perform ALTER;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 116. Completing the ALTER Entry Panel

At this point, you can use the SPLIT SCREEN function and generate a management class list in order to list candidate management classes for your data set. However, if you know the name of the management class you want to select (in this example, s1p01m01), enter that name in the NEW MANAGEMENT CLASS field.

3. Press the ENTER key. ISMF submits the job and redisplays the list, as shown in Figure 117 on page 147.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  ------------------------------------------------------------------------------
                              DATA SET LIST
  Command ===>                                                SCROLL ===> PAGE
                                                         Entries 1-4 of 4
  Enter Line Operators Below:                            Data Columns 25-27 of 41

     LINE                                        DATA      MANAGEMENT    STORAGE
     OPERATOR          DATA SET NAME          CLASS NAME  CLASS NAME  CLASS NAME
    ---(1)----  ------------(2)------------  ---(25)---  ---(26)---  ---(27)---
               S2IISAMP.S1P01.DS102.DATA    --------    --------    --------
               S2IISAMP.S1P98.DS101         --------    --------    S1P98S01
               S2IISAMP.S1P98.DS101.DATA    --------    --------    --------
     *ALTER     S2IISAMP.S1P98.DS103         --------    --------    S2P98S01
    ----------  ------  ----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 117. Successful Submission for ALTER

The asterisk next to the ALTER line operator in the line operator column
indicates that the operation has completed successfully.

4. To verify that the new management class will be used for the data set, refresh
   the list with the REFRESH command and display the management class
   column to make sure the new management class name is there. Figure 118
   shows the refreshed data set list, which verifies the successful data set alter.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  ------------------------------------------------------------------------------
                              DATA SET LIST                    LIST REFRESHED
  Command ===>                                                SCROLL ===> PAGE
                                                         Entries 1-4 of 4
  ENTER LINE OPERATORS BELOW:                            Data Columns 25-27 of 41

     LINE                                        DATA      MANAGEMENT    STORAGE
     OPERATOR          DATA SET NAME          CLASS NAME  CLASS NAME  CLASS NAME
    ---(1)----  ------------(2)------------  ---(25)---  ---(26)---  ---(27)---
               S2IISAMP.S1P01.DS102.DATA    --------    --------    --------
               S2IISAMP.S1P98.DS101         --------    --------    S1P98S01
               S2IISAMP.S1P98.DS101.DATA    --------    --------    --------
               S2IISAMP.S1P98.DS103         --------    S1P01M01    S2P98S01
    ----------  ------  ----------  BOTTOM  OF  DATA  -----------  ------  ----
```

Figure 118. Verifying a Successful Data Set Alter

Generating a DASD Volume List

This example shows how to generate a DASD volume list. Generating a volume
list is similar to generating a data set list.

Choose the Volume Application (option 2) from the ISMF Primary Option Menu.
Once this is done, select DASD (option 1) on the Volume List Selection Menu.

1. Complete the Volume Selection Entry Panel with the values shown in Figure 119.

```
   Panel  Defaults  Utilities  Scroll  Help
  ------------------------------------------------------------------------------
                        VOLUME SELECTION ENTRY PANEL            Page 1 of 3
  Command ===>

  Select Source to Generate Volume List  . . 2  (1 - Saved list, 2 - New list)

    1  Generate from a Saved List         Query Name To
         List Name  . .                   Save or Retrieve
    2  Generate a New List from Criteria Below
         Specify Source of the New List  . . 1  (1 - Physical, 2 - SMS)
         Optionally Specify One or More:
         Enter "/" to select option  _    Generate Exclusive list
           Type of Volume List . . . 1          (1-Online,2-Not Online,3-Either)
           Volume Serial Number  . . *          (fully or partially specified)
           Device Type . . . . . . .            (fully or partially specified)
           Device Number . . . . . .            (fully specified)
             To Device Number  . . .            (for range of devices)
           Acquire Physical Data . . N           (Y or N)
           Acquire Space Data  . . . N          (Y or N)
           Storage Group Name  . . .            (fully or partially specified)
           CDS Name . . . . . . .
                                               (fully specified or 'Active')
  Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
  Use HELP Command for Help; Use END Command to Exit.
```

Figure 119. Completing Page 1 of the Volume Selection Entry Panel

In this example, a new list of SMS volumes is generated from a partially specified volume serial number.

2. Verify that pages 2 and 3 of the Volume Selection Entry Panel are blank. If they are not blank, you receive the short informational message OTHER VALUES PRESENT.

3. Press the ENTER key. ISMF generates and displays the completed volume list shown in Figure 120. This list conforms to the selection criteria.

```
   Panel  List  Utilities  Scroll  Help
  ------------------------------------------------------------------------------
                                  VOLUME LIST
  Command ===>                                          Scroll ===> PAGE
                                                     Entries 1-10 of 10
  Enter Line Operators below:                        Data Columns 3-8 of 43


     LINE        VOLUME  FREE        %     ALLOC      FRAG   LARGEST    FREE
     OPERATOR    SERIAL  SPACE     FREE    SPACE      INDEX  EXTENT     EXTENTS
     ---(1)----  -(2)--  ---(3)--- -(4)-  ---(5)---  -(6)-  ---(7)---  --(8)--
                 HSM920  644498K   23     2127002K    356     82174K    31
                 HSM921  752513K   27     2018987K    264    501122K   263
                 HSM922  825336K   30     1946164K    230    406996K    38
                 HSM923  735581K   27     2035919K    207    436158K    45
                 HSM924  860861K   31     1910639K    191    555241K    35
                 HSM925  827604K   30     1943896K    115    659051K    28
                 USER00  288300K   10     2483200K     28    277344K    27
                 USER01  819415K   30     1952085K    307    297984K    51
                 1P0302  835241K   30     1936259K    178    540355K    39
                 1P0303  791913K   29     1979587K    290    298593K    43
```

Figure 120. Completed Volume List

Defragmenting a DASD Volume

This example shows how to use the DEFRAG line operator to reduce the free space fragmentation of a DASD volume.

1. Enter the DEFRAG line operator in the line operator column next to the item in the DASD volume list that you are interested in, as shown in Figure 121.

```
   Panel  List  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                               VOLUME LIST
 Command ===>                                          Scroll ===> PAGE
                                                   Entries 1-10 of 10
 Enter Line Operators below:                       Data Columns 3-8 of 43


   LINE        VOLUME  FREE      %      ALLOC     FRAG   LARGEST   FREE
   OPERATOR    SERIAL  SPACE    FREE    SPACE     INDEX  EXTENT    EXTENTS
   ---(1)----  -(2)--  ---(3)---  -(4)- ---(5)---  -(6)-  ---(7)---  --(8)--
   defrag      HSM920  644498K    23    2127002K   356     82174K      31
               HSM921  752513K    27    2018987K   264    501122K     263
               HSM922  825336K    30    1946164K   230    406996K      38
               HSM923  735581K    27    2035919K   207    436158K      45
               HSM924  860861K    31    1910639K   191    555241K      35
               HSM925  827604K    30    1943896K   115    659051K      28
               USER00  288300K    10    2483200K    28    277344K      27
               USER01  819415K    30    1952085K   307    297984K      51
               1P0302  835241K    30    1936259K   178    540355K      39
               1P0303  791913K    29    1979587K   290    298593K      43
```

Figure 121. Defragmenting a Volume

2. Press the ENTER key. ISMF displays the DEFRAG Entry Panel as shown in Figure 122.

```
   Panel  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                          DEFRAG ENTRY PANEL                 Page 1 of 2
 Command ===>

 Optionally Specify One or More for Volume: USER01

   To Control Obtaining Access to Volume, Specify:
     Maximum Number of Retries . . . . . . 2     (0 to 99)
     Number of Seconds Between Retries . . 2     (0 to 255)
     Password Dsn  . .
   To Conditionally Perform Defrag, Specify:
     Minimum Fragmentation Index  . . .      (0 to 999)

   Debug(FRmsg) . . . . . . . . .     (M=Min, S=Sum, D=Detailed or blank)
     Trace  . . . . . . . . . . .     (Y or N)
   Fastreplicate  . . . . . . . .     (R=Required, P=Preferred, N=None or blank)
   No of Free Tracks Required in a Contiguous Area        (1 to 999999)
   % of Free Tracks Required in a Contiguous Area . .     (1 to 99)
   No of Passes to Assemble the Above Tracks  . . . . 1   (1 to 99)
   Time Delay between the Passes  . . . . . . . . . 999   (0 to 9999)
   Process Checkpointed Data Sets . . . . . . . . . .     (0-255,or Blank)
 Use ENTER to Perform DEFRAG;Use DOWN Command to View next Panel;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 122. Completing the DEFRAG Entry Panel

   Complete the DEFRAG Entry Panel with the values shown.

3. Press the ENTER key. ISMF submits the job and redisplays the list, as shown in Figure 123 on page 150. The asterisk next to the DEFRAG line operator in the

line operator column indicates that the operation has completed successfully.

```
   Panel  List  Utilities  Scroll  Help
 -------------------------------------------------------------------------------
                                VOLUME LIST
 Command ===>                                            Scroll ===> PAGE
                                                     Entries 1-10 of 10
 Enter Line Operators below:                         Data Columns 3-8 of 43


   LINE        VOLUME  FREE       %     ALLOC      FRAG   LARGEST    FREE
   OPERATOR    SERIAL  SPACE      FREE  SPACE      INDEX  EXTENT     EXTENTS
   ---(1)----  -(2)--  ---(3)---  -(4)  ---(5)---  -(6)-  ---(7)---  --(8)--
   *DEFRAG     HSM920  644498K    23    2127002K   356      82174K     31
               HSM921  752513K    27    2018987K   264     501122K    263
               HSM922  825336K    30    1946164K   230     406996K     38
               HSM923  735581K    27    2035919K   207     436158K     45
               HSM924  860861K    31    1910639K   191     555241K     35
               HSM925  827604K    30    1943896K   115     659051K     28
               USER00  288300K    10    2483200K    28     277344K     27
               USER01  819415K    30    1952085K   307     297984K     51
               1P0302  835241K    30    1936259K   178     540355K     39
               1P0303  791913K    29    1979587K   290     298593K     43
```

Figure 123. Successful Submission of the DEFRAG Line Operator

Generating a Mountable Optical Volume List

This example shows how to generate a mountable optical volume list. Generating a mountable optical volume list is similar to generating a DASD volume list or a data set list.

1. Choose the Volume Application (option 2) from the ISMF Primary Option Menu. ISMF displays the Volume List Selection Menu shown in Figure 124.

```
   Panel  Help
 ---------------------------------------------------------------------------
                       VOLUME LIST SELECTION MENU
 Enter Selection or Command ===>

 1  DASD                  - Generate a List of DASD Volumes
 2  Mountable Optical     - Generate a List of Mountable Optical Volumes
 3  Mountable Tape        - Generate a List of Mountable Tape Volume










 Use HELP Command for Help; Use END Command to Exit.
```

Figure 124. Volume List Selection Menu

Select mountable optical (option 2).

2. Press the ENTER key. ISMF displays the Mountable Optical Volume Selection Entry Panel, as shown in Figure 125 on page 151.

```
   Panel  Utilities  Help
 ------------------------------------------------------------------------------
                   MOUNTABLE OPTICAL VOLUME SELECTION ENTRY PANEL
 Command ===>

 Select Source to Generate Volume List  . . 2  (1 - Saved list, 2 - New list)

      1 Generate from a Saved List
          List Name  . .

      2 Generate a New List from Criteria Below
          Volume Serial Number . . . vol*      (fully or partially specified)
          Library Name . . . . . . . . *       (fully or partially specified)
          Storage Group Name . . . . *         (fully or partially specified)
          Optical Media Type . . . . ALL       (See help for valid values)




          Enter "/" to select option       Respecify View Criteria
                                            Respecify Sort Criteria

 Use ENTER to Perform Selection;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 125. Completing the Mountable Optical Volume Selection Entry Panel

Complete the Mountable Optical Volume Selection Panel with the values
shown.

3. Press the ENTER key. ISMF displays the completed mountable optical volume
   list of volumes shown in Figure 126. This list conforms to the selection criteria.

```
   Panel  List  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                       MOUNTABLE OPTICAL VOLUME LIST
 Command ===>                                              SCROLL ==> PAGE
                                                       ENTRIES 1-14 OF 260
 ENTER LINE OPERATORS BELOW:                           Data Columns 3-9 of 20

     LINE      VOLUME  FREE   %     FULL    VOLUME   LIBRARY   SLOT  STORAGE
   OPERATOR    SERIAL  SPACE  USED  STATUS  TYPE     NAME      NAME  GRP NAME
   ---(1)----  -(2)--  -(3)-  (4)-  -(5)--  --(6)---  --(7)---  (8)-  --(9)---
               VOL001   489    50   NO      BACKUP   PSEUDO1   ---   OBJBKSG
               VOL002   391    60   NO      BACKUP   PSEUDO1   ---   OBJBKSG
               VOL003   264    73   NO      GROUP    REAL1     001   OBJSG
               VOL004   225    77   NO      GROUP    REAL1     001   OBJSG
               VOL005     0   100   YES     GROUP    REAL1     002   OBJSG
               VOL006   215    78   NO      GROUP    REAL1     002   OBJSG
               VOL007   225     0   NO      SCRATCH  REAL1     003   --------
               VOL008   264     0   NO      SCRATCH  REAL1     003   --------
               VOL009   225    77   NO      GROUP    REAL1     004   OBJSG
               VOL010   264    73   NO      GROUP    REAL1     004   OBJSG
               VOL011   225    77   NO      GROUP    REAL1     005   OBJSG
               VOL012   215    78   NO      GROUP    REAL1     005   OBJSG
               VOL013   225    77   NO      NONGROUP REAL1     006   --------
               VOL014   215    78   NO      NONGROUP REAL1     006   --------
```

Figure 126. Completed Volume List

Generating a Mountable Tape Volume List

This example shows how to generate a mountable tape volume list. Generating a
mountable tape volume list is similar to generating a mountable optical volume
list.

1. Choose the Volume Application (option 2) from the ISMF Primary Option
   Menu. ISMF displays the Volume List Selection Menu shown in Figure 127 on
   page 152

page 152.

```
  Panel  Help
 -------------------------------------------------------------------------------
                           VOLUME LIST SELECTION MENU
 Enter Selection or Command ===> 3

 1 DASD             - Generate a list of DASD volumes
 2 Mountable Optical  - Generate a list of Mountable Optical Volumes
 3 Mountable Tape     - Generate a list of Mountable Tape Volumes

















 Use HELP Command for HELP; Use END Command to Exit.
```

Figure 127. Volume List Selection Menu

Select mountable tape (option 3).

2. Press the ENTER key. ISMF displays the Mountable Tape Volume Selection Entry Panel, as shown in Figure 128.

```
  Panel  Utilities  Help
 -------------------------------------------------------------------------------
                   MOUNTABLE TAPE VOLUME SELECTION ENTRY PANEL
 Command ===>

 Select Source to Generate Volume List  . . 2  (1 - Saved list, 2 - New list)

      1 Generate from a Saved List
          List Name  . .

      2 Generate a New List from Criteria Below
          Volume Serial Number . . . *          (fully or partially specified)
          Library Name . . . . . . . *          (fully or partially specified)
          Storage Group Name . . . . *          (fully or partially specified)

         Enter "/" to select option      Respecify View Criteria
                                         Respecify Sort Criteria




 Use ENTER to Perform Selection;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 128. Completing the Mountable Tape Volume Selection Entry Panel

Complete the Mountable Tape Volume Selection Panel with the values shown.

3. Press the ENTER key. ISMF displays the completed mountable tape volume list of volumes shown in Figure 129 on page 153. This list conforms to the selection criteria.

```
   Panel  List  Utilities  Scroll  Help
 -----------------------------------------------------------------------------
                      MOUNTABLE TAPE VOLUME LIST
 Command ===>                                          SCROLL ===> PAGE
                                                    Entries 1-11 of 11
 Enter Line Operators below:                        Data Columns 3-7 of 20

     LINE       VOLUME  USE      VOLUME          CHECKPT  LIBRARY  STORAGE
   OPERATOR     SERIAL  ATTR     ERROR STATUS    VOLUME   NAME     GRP NAME
   ---(1)----   -(2)--  --(3)--  -------(4)-------- -- (5)--  --(6)---  --(7)---
                VOL01   PRIVATE  I/O ERROR        NO       SHELF    TAPE1
                VOL02   SCRATCH  UNEXPIRED SCRATCH ---     SHELF    *SCRTCH*
                VOL101  SCRATCH  NO ERROR         NO       SHELF    *SCRTCH*
                VOL102  SCRATCH  PASSWORD CONFLICT NO      LIB1     *SCRTCH*
                VOL103  SCRATCH  SECURITY CONFLICT NO      LIB2     *SCRTCH*
                VOL104  PRIVATE  SCRATCH IN USE   ---      LIB3     TAPE1
                VOL105  PRIVATE  VOLSER MISMATCH  NO       LIB1     TAPE1
                VOL106  SCRATCH  CHKPOINT CONFLICT YES     LIB2     *SCRTCH*
                VOL107  SCRATCH  WRITE CONFLICT   YES      LIB1     *SCRTCH*
                VOL108  PRIVATE  VOLUME MISPLACED NO       LIB1     TAPE1
                VOL109  PRIVATE  NO ERROR         NO       LIB1     TAPE1
   ----------   ------  ----------- BOTTOM  OF DATA  --------------  ------  ---
```

Figure 129. Completed Volume List

Generating a Data Class List

This example shows how to generate a data class list. Generating a data class list is similar to generating a data set list or a volume list.

From the ISMF Primary Option Menu, choose the data class application (option 4). This takes you to the Data Class Application Selection Panel shown in Figure 130.

1. Complete the Data Class Application Selection Panel with the values shown in Figure 130.

```
   Panel  Utilities  Help
 -----------------------------------------------------------------------------
                      DATA CLASS APPLICATION SELECTION
 Command ===>

 To perform Data Class Operations, Specify:
   CDS Name . . . . . . 'ACTIVE'
                            (1 to 44 character data set name or 'Active'
   Data Class Name  . . DC*   (For Data Class List, fully or partially
                               specified or * for all)

 Select one of the following options  :
   1  1. List    - Generate a list of Data Classes
      2. Display - Display a Data Class


 If List Option is chosen,
    Enter "/" to select option       Respecify View Criteria
                                      Respecify Sort Criteria




 Use ENTER to Perform Selection;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 130. Data Class Application Selection Panel

This generates a list of data classes with names that begin with DC*.

2. Press the ENTER key. ISMF generates and displays the completed data class list shown in Figure 131. This list conforms to the selection criteria.

```
   Panel  List  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                             DATA CLASS LIST
 Command ===>                                             Scroll ===> HALF
                                                   Entries 1-9 of 16
                                                   Data Columns 43-47 of 47

 CDS Name : ACTIVE

 Enter Line Operators below:

      LINE      DATACLAS RLS CF       EXT CON  RLS ABOVE  OVERRIDE
     OPERATOR   NAME     CACHE        REMOVAL  THE BAR    SPACE     SDB
     ---(1)---- --(2)--- ---(43)----  -(44)--  --(45)---  --(46)--  -(47)-
                DCA1     ALL          NO       NO         NO        NO
                DCA11    NONE         NO       NO         NO        NO
                DCA7     UPDATESONLY  NO       YES        NO        NO
                DCC1     ALL          YES      NO         NO        NO
                DCC7     ALL          NO       NO         NO        YES
                DCT1     ALL          NO       NO         YES       NO
                DC1      NONE         NO       YES        NO        NO
                DC11     ALL          NO       NO         NO        NO
                DC2      NONE         NO       NO         NO        NO
```

Figure 131. Completed Data Class List

Displaying a Data Class

This example shows how to use the DISPLAY line operator to display the attributes of one of the data classes in the Data Class List built in the previous example.

1. Enter DISPLAY in the line operator column next to the data class whose attributes you want to display, as shown in Figure 132.

```
   Panel  List  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                             DATA CLASS LIST
 Command ===>                                             Scroll ===> HALF
                                                   Entries 1-10 of 10
                                                   Data Columns 39-43 of 47

 CDS Name : ACTIVE

 Enter Line Operators below:

      LINE      DATACLAS REDUCE   REC ACC  BLOCK SIZE           RLS CF
     OPERATOR   NAME     SPC UPT  BIAS     LIMIT      FRLOG     CACHE
     ---(1)---- --(2)--- -(39)--  -(40)--  ---(41)--- -(42)-    ---(43)----
     display    ABC1     --       ------   ---------- ----      ALL
                DCA11    --       ------   ---------- ----      NONE
                DCA7     --       ------   ---------- REDO      UPDATESONLY
                DCC1     --       ------       102400 ----      ALL
                DCC7     50       ------   ---------- ----      -----------
                DCT1     --       ------   ---------- ----      ALL
                DC1      --       ------   ---------- NONE      NONE
                DC11     --       ------   ---------- ----      ALL
                ESV00005 0        USER     ---------- ----      NONE
                ESV00006 0        SYSTEM   ---------- ----      NONE
     ---------- -------- ------   BOTTOM  OF  DATA  ------  --------  ---------
```

Figure 132. Entering the DISPLAY Line Operator on the Data Class List Panel

2. Press the ENTER key. ISMF displays the first page of the Data Class Display Panel shown in Figure 133 on page 155. This panel shows the attributes of the data class.

```
   Panel  Utilities  Scroll  Help
--------------------------------------------------------------------------
                          DATA CLASS DISPLAY              Page 1 of 5
Command ===>

CDS Name  . . . : ACTIVE
Data Class Name : ABC1

Description :

Recfm  . . . . . . . . . :
Lrecl  . . . . . . . . . :
Override Space . . . . . : NO
Space Avgrec . . . . . . :
      Avg Value  . . . . :
      Primary  . . . . . :
      Secondary  . . . . :
      Directory  . . . . :
Retpd Or Expdt . . . . . :
Volume Count . . . . . . : 1
Add'l Volume Amount  . . :

Use DOWN Command to View next Panel;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 133. Page 1 of the Data Class Display Panel

Chapter 10. ISMF Command and Line Operator Reference Summary

This chapter describes ISMF line operators and commands. The minimum abbreviations you can use are also given.
- Line operators are listed in Table 12.
- Commands are listed in Table 13 on page 159.

The ISMF application in which each line operator or command can be used is listed. The following list shows the abbreviations that are used for applications:

DC   Data Class
DS   Data Set
DVOL
    DASD Volume
LA   List Application
MC   Management Class
OVOL
    Mountable Optical Volume
TVOL Mountable Tape Volume
SC   Storage Class

ISMF End User Line Operators

Table 12 lists ISMF line operators.

Table 12. ISMF Line Operators

Line Operator	Minimum Abbreviation	Description	Application	Processed By
ALTER	AL	Alter the management class, the storage class name, the GDG limit, limit disposition, and expiration date assigned to a cataloged data set.	DS	DFSMSdfp
BROWSE	B	Look at a sequential data set or a member of a PDS.	DS	DFSMSdfp
CATLIST		Obtain an IDCAMS LISTCAT output for a particular data set.	DS	DFSMSdfp
CGCREATE	CGCREATE	Allow I/O activity to resume on the volumes residing in the logical subsystems receiving the command.	DVOL	DFSMSdss
CLIST	CLI	Call a TSO CLIST.	DS, DVOL, OVOL, TVOL	DFSMSdfp
COMPRESS	COM	Reclaim embedded, unused space from a PDS.	DS, DVOL	DFSMSdss
CONDENSE	CON	Free unused space at the end of a data set; compress a PDS.	DS	DFSMShsm

Table 12. ISMF Line Operators (continued)

Line Operator	Minimum Abbreviation	Description	Application	Processed By
CONSOLID	CONS	Enables you to perform extent reduction of data sets by combining multi-extent data sets residing on a single volume.	DVOL	DFSMSdss
COPY	COP	Copy a data set or volume to a DASD volume of like or unlike device type.	DS, DVOL	DFSMSdss
DEFRAG	DEF	Reduce fragmentation on a volume.	DVOL	DFSMSdss
DELETE	DEL	Delete an online, backup, or DFSMShsm-migrated data set.	DS, LA	DFSMSdfp or DFSMShsm
DISPLAY	DI	Display the attributes of a class or group.	MC, DC, SC	DFSMSdfp
DUMP	DU	Dump a data set or volume to tape, DASD, or mass storage volumes.	DS, DVOL	DFSMSdss
EDIT	E	Edit a sequential data set or member of a PDS.	DS	DFSMSdfp
ERASE	ERA	Erase or delete an online, backup, DFSMShsm-migrated data set, or a saved list.	DS, LA	DFSMSdfp or DFSMShsm
HALTERDS	HA	Change the number of backup versions of a data set; change frequency of backup.	DS	DFSMShsm
HBACKDS	HBA	Create a backup version of a data set.	DS	DFSMShsm
HBDELETE	HBD	Delete backup versions of a data set.	DS	DFSMShsm
HDELETE	HDE	Delete a migrated data set.	DS	DFSMShsm
HIDE	H	Hide a list entry.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
HMIGRATE	HM	Migrate a data set to a DFSMShsm level 1 or level 2 volume.	DS	DFSMShsm
HRECALL	HRECA	Recall a data set that has been migrated by DFSMShsm.	DS	DFSMShsm
HRECOVER	HRECO	Recover a backup version of a data set.	DS	DFSMShsm
LIST	LI	Reuse a previously saved list.	LA	DFSMSdfp
MESSAGE	MES	Display message text for the last operation performed on a list entry.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
RELEASE	REL	Free unused space at the end of data sets.	DS, DVOL	DFSMSdss

Table 12. ISMF Line Operators (continued)

Line Operator	Minimum Abbreviation	Description	Application	Processed By
=		Repeat the last line operator that was executed.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
RESTORE	REST	Restore data sets that have been dumped by DFSMSdss.	DS, DVOL	DFSMSdss
SECURITY	SE	Invoke a RACF panel to protect data sets.	DS, MC, SC	RACF
STATUS	ST	Displays up to 32 SMS and MVS volume statuses.	DVOL	DFSMSdfp
TSO commands and CLISTs		Invoke TSO commands and CLISTs.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
VTOCLIST		Obtain an IEHLIST LISTVOC for a selected data set.	DS	DFSMSdfp

Tip: If you specify an equal sign after any DFSMSdss or DFSMShsm line operator, processing occurs in last-use mode, and ISMF does not display an entry panel. See "Line Operator Mode" on page 80 for more information.

ISMF End User Commands

Table 13 lists ISMF end user commands.

Table 13. ISMF Commands

Command	Minimum Abbreviation	Description	Application	Processed By
BOTTOM	BOT	Scroll to the last page of a list of entries.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
CANCEL	CA	Return to the previous dialog without performing any of the current dialog functions.	OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
CLEAR	CL	Clear line operator history.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
CLEAR ALL	CL ALL	Clear the fields on all pages of a selection entry panel or filter panel.	DS, DVOL	DFSMSdfp
CLEAR PAGE	CL PA	Clear the fields on the current page of a selection entry panel or filter panel.	DS, DVOL, OVOL, TVOL, LA	DFSMSdfp
CLEAR PAGEx	CL PAx	Clear the fields on a designated page of a selection entry panel or filter panel.	DS, DVOL	DFSMSdfp
COMPRESS	COM	Reclaim embedded, unused space from a list of PDSs.	DS	DFSMSdss
COPY	COP	Copy a list of data sets to a DASD volume of like or unlike device type.	DS	DFSMSdss

Table 13. ISMF Commands (continued)

Command	Minimum Abbreviation	Description	Application	Processed By
DOWN	DO	Scroll down one page or a specified amount of list entries.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
DSUTIL		Invoke the PDF Data Set Utility to allocate, rename, delete, catalog, and uncatalog entire data sets.	DS	DFSMSdfp
DUMP	DU	Dump a list of data sets to tape, DASD, or mass storage volumes.	DS, DVOL	DFSMSdss
END	END	Exit the current ISMF function or panel.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
ERTB	ER	Display the ISMF Error Table.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
FILTER	FIL	Tailor the list to include only specific entries.	DS, DVOL, LA	DFSMSdfp
FILTER CLEAR	FIL C	Clear the filter entries but bypass the entry panel.	DS, DVOL, LA	DFSMSdfp
FIND	FIN	Find a specific data column.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
FOLD	FO	Extend or shorten the data set name data column.	DS	DFSMSdfp
HELP	H	Obtain information about an ISMF panel or an error.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
LEFT	L	Scroll left one page or a specified amount of data columns.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
LIBRARY		Invoke the PDF Library Utility to browse, print, rename, and delete members of a PDS or PDSE.	DS	DFSMSdfp
PROFILE	P	Invoke the ISMF profile. (This command cannot be invoked from ISMF menu panels, the panels listed under the ISMF Profile Option Menu, and abend panels.)	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
REFRESH	REF	Display the updated list.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
RELEASE	REL	Free unused space at the end of a list of data sets.	DS	DFSMSdss
RESHOW	RESH	Redisplay hidden list entries.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp

Table 13. ISMF Commands (continued)

Command	Minimum Abbreviation	Description	Application	Processed By
RESTORE	REST	Restore a list of data sets that have been dumped by DFSMSdss.	DS	DFSMSdss
RIGHT	RI	Scroll right one page or a specified amount of data columns.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
SAVE	SA	Save a copy of a list.	DS, DVOL, OVOL, TVOL, MC, DC, SC	DFSMSdfp
SORT	SO	Reorder list entries based on entries in specific data columns.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
TOP	TOP	Scroll to the first page of a list of entries.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
TSO commands and CLISTs		Invoke TSO commands and CLISTs.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
UP	U	Scroll up one page or a specified amount of list entries.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp
VIEW	VI	Select and reorder the columns to display on list panels.	DS, DVOL, OVOL, TVOL, MC, DC, SC, LA	DFSMSdfp

Appendix A. Special Considerations

This section contains preliminary information about listing your data sets and using the data set list to perform storage management tasks (see Figure 134 on page 164 and Figure 135 on page 165). The topics covered include: differences between lists generated from the catalog and lists generated from the VTOC, information about migrated data sets, considerations about VSAM data sets, and temporary data sets.

Using a List Generated from the Catalog or the VTOC

There are several considerations to keep in mind when you decide whether to generate a list from the catalog or the VTOC. The source of the list affects the job streams ISMF generates for DUMP and COPY and the way ISMF determines if a data set is multivolume.

Differences between a VTOC List and a Catalog List

Both the DUMP and COPY commands are sensitive to the type of list you use.

If you enter **DUMP** or **COPY** on a list generated from the *VTOC*, ISMF builds a job stream that contains input DD statements for every volume on which the data sets in the list reside. If the data set to be processed is cataloged on another volume, DFSMSdss ignores the cataloged volume and processes the data set from the specified volume. The output is a physical dump in the case of the DUMP operation.

If you use either command on a list generated from the catalog, ISMF does not provide input DD statements for individual volumes. When the DFSMSdss background job executes, DFSMSdss uses a catalog search to determine which volumes the data set resides on. DFSMSdss dumps or copies the data set from all volumes indicated in the catalog. The output is a logical dump in the case of the DUMP operation.

For more information on the difference between a physical and logical dump, refer to *z/OS DFSMSdss Storage Administration*.

Multivolume Data Sets

The way ISMF determines if a data set is multivolume depends on the source of the list (VTOC or catalog).

A list generated from the VTOC

If you generate the list from the VTOC, ISMF uses the VTOC entry to determine if a data set is multivolume. However, the multivolume information could be incorrect in the following cases:

- Data sets that have been defined but unopened can appear in the list as multivolume.
- Data sets defined as multivolume can appear as single volume if the second volume has not been used.

- VSAM data sets can appear as multivolume data sets since VSAM does not update the FMT1 Data set control block (DSCB).

A list generated from the catalog

If you generate the list from the catalog, ISMF determines if the data set is multivolume by the way the data set is defined in the catalog. ISMF checks for multiple volume serial number entries in the catalog. When the list is built, a data set with more than one volume serial number appears as multivolume. If you define a VSAM data set with the IMBED option, it may appear as multivolume.

ALLOC SPACE value in a catalog generated data set list shows only the prime volser. The candidate volser with guaranteed space is not shown. This is because catalog does not return any space value to ISMF. Catalog returns a space value of zero. ISMF will show the candidate volser when there is data on the volume and catalog returns a space value.

Using ISMF for Migrated Data Sets

You may choose to generate a data set list and obtain information about migrated data sets. When completing page 1 of the Data Set Selection Entry Panel, generate a list from the catalog (as opposed to the VTOC) and complete the ACQUIRE DATA IF DFSMShsm MIGRATED field. (See "Completing Page 1 of the Data Set Selection Entry Panel" on page 25 for details.) This field lets you choose whether to retrieve information about data sets that DFSMShsm has migrated. Whether you select Y (yes) or N (no), the VOLUME SERIAL data column indicates MIGRAT.

When Data Is Not Acquired from the Migrated Version of the Data Set

If a data set is migrated and you specify an N, the processing time will be reduced. The devices ISMF generates for the DEVICE TYPE column are the device types (mostly tapes) *after* migration occurred. See Figure 134.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  ------------------------------------------------------------------------------
                           DATA SET LIST
  Command ===>                                            SCROLL ===> HALF

                                                  Entries 1-9 of 9
  Enter Line Operators Below:                     Data Columns 16-19 of 41

    LINE                             BLOCK   VOLUME  MULT  DEVICE
    OPERATOR        DATA SET NAME    UNUSED  SERIAL  VOL   TYPE
  ---(1)----  ------------(2)------------  -(16)--  -(17)-  (18)  -(19)--
              USER230.DASD1.DTYPE2        -------  MIGRAT  NO    3390
              USER230.DASD1.DTYPE3        -------  MIGRAT  NO    3390
              USER230.DASD1.DTYPE4        -------  MIGRAT  NO    3390
              USER230.DASD1.DTYPE6        -------  MIGRAT  NO    3390
              USER230.DATASET1.DTYPE1     -------  MIGRAT  NO    3590-1
              USER230.DATASET1.DTYPE3     -------  MIGRAT  NO    3590-1
              USER230.DATASET1.DTYPE4     -------  MIGRAT  NO    3590-1
              USER230.DATASET1.DTYPE5     -------  MIGRAT  NO    3480
              USER230.DATASET1.DTYPE6     -------  MIGRAT  NO    3590-1
  ----------  ------  ---------- BOTTOM  OF  DATA  ----------  ------  ----
```

Figure 134. Data Set List When N Is Specified for the ACQUIRE DATA IF DFSMShsm MIGRATED Field

When Data Is Acquired from the Migrated Version of the Data Set

If a data set is migrated and you specify a Y for the ACQUIRE DATA IF DFSMShsm MIGRATED field, the devices in the DEVICE TYPE column are DASD device types *before* migration occurred. See Figure 135.

```
   Panel  List  Dataset  Utilities  Scroll  Help
  -------------------------------------------------------------------------------
                              DATA SET LIST
  Command ===>                                              SCROLL ===> HALF
                                                       Entries 1-9 of 9
  Enter Line Operators Below:                          Data Columns 16-19 of 39

      LINE                                 BLOCK   VOLUME  MULT  DEVICE
     OPERATOR          DATA SET NAME       UNUSED  SERIAL  VOL   TYPE
    ---(1)----   ------------(2)-----------  -(16)--  -(17)-  (18)  -(19)--
              USER230.DASD1.DTYPE2      -------  MIGRAT  NO    3390
              USER230.DASD1.DTYPE3      -------  MIGRAT  NO    3390
              USER230.DASD1.DTYPE4      -------  MIGRAT  NO    3380
              USER230.DASD1.DTYPE6      -------  MIGRAT  NO    3380
              USER230.DATASET1.DTYPE1   -------  MIGRAT  NO    3380
              USER230.DATASET1.DTYPE3   -------  MIGRAT  NO    3380
              USER230.DATASET1.DTYPE4   -------  MIGRAT  NO    3380
              USER230.DATASET1.DTYPE5   -------  MIGRAT  NO    3380
              USER230.DATASET1.DTYPE6   -------  MIGRAT  NO    3380
    ----------  ------  ----------  BOTTOM  OF  DATA  --------  ---     ---  ----
```

Figure 135. Data Set List When Y Is Specified for the ACQUIRE DATA IF DFSMShsm MIGRATED Field

In addition to the columns shown in Figure 135, ISMF also retrieves data for a number of other columns, including: ALLOCATED SPACE, DATA SET ORGANIZATION, RECORD FORMAT, BLOCK/CI SIZE, LAST REFERENCE DATE, and CHANGE INDICATOR. RECORD FORMAT is not completed for VSAM data sets.

Migrating an Entire List of Data Sets

The MIGRATE CLIST, along with the RECALL CLIST and SENDC CLIST, is included with ISMF to show some of the functions that can be created with ISMF CLIST support.

MIGRATE is invoked as a list command from the Data Set List Panel. MIGRATE issues the HMIGRATE line operatorfor each data set in the list. "Using DFSMShsm for Migration of Data" on page 96 describes the HMIGRATE line operator.

MIGRATE migrates each data set in the list panel. If a data set is already migrated, the CLIST sets the history symbol prefix to a not sign (^) and continues processing the list. See "Line Operator and List Command Feedback and Fixes" on page 81 for information on history symbols. If a serious error occurs while MIGRATE is executing, the CLIST stops processing.

You can use the MESSAGE line operator to review the result of the CLIST for each data set. (See "MESSAGE Line Operator" on page 20.)

Recalling an Entire List of Migrated Data Sets

The RECALL CLIST is used as a list command from the Data Set List Panel. RECALL issues the HRECALL line operator for each data set in the list. "Using DFSMShsm for Migration of Data" on page 96 describes the HRECALL line operator.

RECALL recalls each migrated data set in the list panel. If a data set is not migrated, the CLIST sets the history symbol prefix to a not sign (^) and continues processing the list. If a serious error occurs while RECALL is executing, the CLIST halts processing.

You can use the MESSAGE line operator to review the result of the CLIST for each data set.

Sending a Data Set to Another User

The SENDC CLIST is invoked as a line operator from the Data Set List Panel. SENDC performs the XMIT function on a single data set. When you invoke SENDC against a data set, the panel shown in Figure 136 is displayed.

```
   Panel  Utilities  Help
 --------------------------------------------------------------------------
                         XMIT OPTIONS PANEL

Optionally Specify One or More for USER10.HCD.TERM:

   Type of Xmit . . .          (1-entire data set, 2-member only, 3-a note)

   Data Set Name  . . USER10.HCD.TERM

   If Type of Xmit is '2', then Specify:
     Member Name . .            (1 to 8 character member name)

   To User Id  . . .
      At Node Id . .

   Enter "/" to select option      Log Xmit
                                    Notification



Use ENTER to Perform Xmit;
Use HELP Command for Help; Use END Command to Exit.
```

Figure 136. Data Entry Panel for the SENDC CLIST

The data set name is already filled in when the panel is displayed. With the other fields on the panel you can:
- Send the entire data set or just a member
- Log the transaction
- Receive notification that the data set or member was transmitted.

If the data set is not transmitted, the CLIST sets the history symbol prefix to a question mark (?) for the data set. You can use the MESSAGE line operator to review the result of the SENDC execution.

Using ISMF with VSAM Data Sets

ISMF handles VSAM data sets differently from other types of data sets. When you generate a list that contains VSAM data sets, you should understand the following processes:

- How VSAM data sets appear in the list
- How the last reference date is determined
- How COPY, DUMP, and RESTORE work with VSAM data sets.

How VSAM Data Sets Appear in the List

In general, all of the components of a VSAM data set appear in the list. When the list is originally displayed, it is sorted by data set name. If all the components have the same high-level qualifier, they are grouped together in the list. If any of the components have different names, they could appear separately depending on the names of the other data sets in the list.

Specifying a User Catalog

If you generate the list from a user catalog and specify the user catalog in the catalog name, only the data component of the user catalog appears in the list. If you specify '**' as the data set name, both the data component and the cluster appear.

Last Reference Date

The last reference date is based on date stamp processing. However, VSAM provides a date stamp control module that causes date stamp processing to be skipped for VSAM data sets. Because of this, the data set list does not contain last reference dates for VSAM data sets unless you have substituted your own module to perform date stamp processing. For more information about providing a date stamp routine for VSAM data sets, refer to *z/OS DFSMS Using Data Sets* .

DUMP, RESTORE, and COPY Considerations

Special considerations apply when you generate the list from the Catalog or the VTOC.

If the list is generated from the VTOC,

you can enter COPY, DUMP, and RESTORE against either the data or index component. ISMF tries to find the associated cluster name to perform the line operator or command. However, if the index component name of a user catalog appears in the list, you will not be able to use COPY, DUMP, or RESTORE against this list entry because ISMF cannot locate the index component cluster name. The cluster name is system generated; it is not in the default order of search.

If the list is generated from the catalog,

COPY, DUMP, and RESTORE can only be entered against the cluster name of a VSAM data set.

Temporary Data Sets Created When Using ISMF

Two types of temporary data sets are created when you use ISMF to generate the background jobs for DFSMSdss line operators and list commands:
- Filter data sets
- ISPF work data sets

These data sets are automatically deleted when they are no longer needed, but while they are still in use they can appear as entries in the data set list.

Filter Data Sets

A filter data set is a sequential data set created for DFSMSdss list commands. It is deleted when the job runs. For all the commands except RELEASE the data set consists of the INCLUDE keyword and all the data set names from the list. For RELEASE, ISMF creates a separate filter data set for each different device type.

If a filter data set appears in the data set list, it looks like this:

```
K665941.ISMF.COMP.D860309.T073029
```

The data set name identifies your TSO prefix or user ID (or both, if you use a TSO prefix different from your user ID), the name of the list command, the date, and the time. For RELEASE, you also get the last two characters of the generic device name. For a 3380, the filter data set looks like this:

```
K665941.ISMF.R80.D86039.T073029
```

ISPF Work Data Sets for Background Jobs

The other temporary data sets that can appear in a data set list are ISPF work data sets created as part of generating a background job. These data sets are deleted when you exit ISPF. However, if ISPF ends abnormally, the temporary data sets might not be deleted. If an ISPF work data set appears in the list, it looks like this:

```
K665941.SPFTEMP0.CNTL
```

Appendix B. Acquiring Data for a User-Created CLIST

This topic contains general-use programming interface and associated guidance information.

As part of the support ISMF provides for user-created CLISTs, there is a shared variable pool. You can use the variables in this pool to control processing and supply information to your CLIST. There are five different sets of variables:
- Variables that control processing
- Variables that supply information about the list panel
- Variables that save message text
- Variables that supply information about the list panel entries
- Variables that supply information about the selection criteria

For detailed information on how to write CLISTs, see *TSO Programming* and *ISPF/PDF Guide and Reference*.

Variables That Control Processing

The *control variables* allow your CLIST to direct the processing of a command. The following list describes the control variables and their valid values.

DGTCONTN

This variable directs the processor to either continue or stop processing the list depending on the return code. DGTCONTN has a character attribute with a length of one character. You can set this variable to one of the following values:

' ' The default value for this variable is a blank. This value directs the processor to continue processing the list entries until all the entries have been processed or until an error occurs. The processor reacts to the different error codes as described in "Line Operator and List Command Feedback and Fixes" on page 81.

N This value directs the processor to stop processing the list entries. No entries are processed after a DGTCONTN with a value of N is found.

Y This value directs the processor to continue processing the list entries regardless of the return code. The list entries that cause the error are not processed. However, processing continues until all the entries have been processed.

You can also code your CLIST to be interruptible. This support allows you to interrupt a CLIST with your ATTN key when the CLIST is invoked as a list command. See *TSO Programming* for an example of how to code this attention support.

DGTLISTC

This variable affects the line operator history for the current list entry. DGTLISTC has a character attribute with a length of one character. You can set this variable to one of the following values:

Y This value updates the line operator history for the current list entry. This value is the default.

N   This value does not update the line operator history for the current entry.

Variables That Supply Information about the List Panel

The *informational variables* supply your CLIST with information about the list panel. They do not affect processing. These variables resolve to a certain value that you can use to provide your CLIST with this information.

ZAPPLID

This ISPF variable indicates to your CLIST which application is running. ZAPPLID has a character attribute with a length of eight characters. See *ISPF Dialog Management Services* for more information on this variable.

DGTCOUNT

This variable contains the number of the list entry that the CLIST is being invoked against.

DGTTOTAL

This variable contains the total number of entries in the list. This number does not include hidden entries or entries that have been filtered out of the list. DGTTOTAL has a character attribute with a length of six characters.

DGTLASTU

This variable indicates whether the command was invoked in last-use mode or normal mode. DGTLASTU has a character attribute with a length of one character. This variable can hold one of the following values:

Y   This value indicates last-use mode.

N   This value indicates normal mode.

DGTTYPEC

This variable indicates the type of command in control. DGTTYPEC has a character attribute with a length of one character. This variable can hold one of the following values:

C   This value indicates that the command in control was invoked as a list command.

L   This value indicates that the command in control was invoked as a line operator.

DGTCMDNM

This variable contains the name of the current list command. DGTCMDNM has a character attribute with a length of eight characters.

DGTGDRBA

This variable contains the GDRB address in zoned format.

Variables That Save Message Text

The *message variables* allow your CLIST to save the long and short message text for any command or line operator. The following variables contain the message information supplied by your CLIST.

DGTMSGID

This variable can contain a message ID if one is supplied by your CLIST. DGTMSGID has a character attribute with a length of eight characters.

DGTCSMSG and DGTCLMSG

These variables allow your CLIST to save message text while the CLIST is in control.

DGTCSMSG
> This variable saves the short message text. DGTCSMSG has a character attribute and can hold 35 characters.

DGTCLMSG
> This variable saves the long message text. DGTCLMSG has a character attribute and can hold 79 characters.

The message text is saved depending on the conditions described in Table 14.

Table 14. Using Message Variables

Is message text supplied?	Is message ID supplied?	The CLIST will:
Yes	No	Save messages from DGTCSMSG and DGTCLMSG.
Yes	Yes	Save messages from DGTCSMSG and DGTCLMSG.
No	Yes	Obtain a message by using the message ID supplied through DGTMSGID.
No	No	Use default messages.

Variables That Supply Information about the List Entries

All the data on the list panel entries is available through the shared variable pool. A variable is assigned to each of the data columns on the list panel. These variables resolve to the value in the data column for the current list entry. The tables on pages "Contents of the List Panels" on page 49 through Table 23 on page 179 list the variables for the data columns on an application list panel.

Tip: If you print a list saved from a previous release, you might see fields that no longer exist in the current release.

Variable Names, Attributes, and Lengths for the Data Set List

Table 15 on page 172 lists the variable names, attributes, and lengths for the Data Set List data columns.

Table 15. Variable Names, Attributes and Lengths for the Data Set List Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
1	LINE OPERATOR	CLINEOP	character	10
2	DATA SET NAME	COBJ	character	44
3	ALLOC SPACE	CALLOCSP	character	7
4	ALLOC USED	CALLOCUS	character	7
5	% NOT USED	CALLOCNU	character	5
6	COMPRESSED FORMAT	CCMPRSFT	character	3
7	% USER DATA REDUCTION	CPUDRDUC	character	11
8	NUM EXT	CNUMEXT	character	3
9	ALLOC UNIT	CALLOCUT	character	5
10	SEC ALLOC	CSECALLO	character	8
11	DS ORG	CDSORG	character	3
12	REC FMT	CRECFMT	character	5
13	RECORD LENGTH	CRECLEN	character	7
14	BLK SZ CI SIZE	CBLKSIZE	character	7
15	OPTIMAL SIZE	COPTIMAL	character	7
16	BLOCK UNUSED	CBLOCKNU	character	7
17	VOLUME SERIAL	CVOLSER	character	6
18	MULT VOL	CMULTV	character	4
19	DEVICE TYPE	CDEVTYPE	character	7
20	CREATE DATE	CCREATD2	character	10
21	EXPIRE DATE	CEXPIRD2	character	10
22	LAST REF DATE	CLASTRE2	character	10
23	LAST BACKUP DATE	CLASBKDT	character	10
24	CHG IND	CCHNGIND	character	3
25	DATA CLASS NAME	CDATACLS	character	8
26	MANAGEMENT CLASS NAME	CMGMTCLS	character	8
27	STORAGE CLASS NAME	CSTORCLS	character	8
28	OWNER	COWNERID	character	8
29	DATA SET ENVIRONMENT	CDSENVIR	character	9
30	DATA SET NAME TYPE	CDSNTYPE	character	8
31	NUM OF STRIPES	CNOSTRPS	character	7
32	DATA SET ENTRY TYPE	CENTRYTY	character	8
33	REBLOCK INDICATOR	CREBLOCK	character	3
34	DDM ATTRIBUTES	CDDMATTR	character	3
35	CCSID DESCRIPTION	CCCSID	character	17
36	CF STATUS INDICATOR	CCFSTI	character	16
37	CF MONITOR STATUS	CCFMNST	character	3
38	CF CACHE STRUCTURE NAME	CCFCSTNM	character	16
39	CF CACHE SET NAME	CCFCSET	character	8
40	CF LOCK STRUCTURE NAME	CCFLSTNM	character	16
41	CF LOCK SET NAME	CCFLSET	character	8
42	EATTR	CCEATTR	character	3

Related reading: See *z/OS DFSMSdfp Storage Administration* for a list of CCSIDs and default LOCALNAMEs.

Variable Names, Attributes, and Lengths for the DASD Volume List

Table 16 lists the variable names, attributes and lengths for the DASD Volume List data columns.

Table 16. Variable Names, Attributes and Lengths for the DASD Volume List Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
1	LINE OPERATOR	CLINEOP	character	10
2	VOLUME SERIAL	COBJ	character	6
3	FREE SPACE	CFREESPA	character	8
4	% FREE	CFREE	character	4
5	ALLOC SPACE	CALLOCSP	character	8
6	FRAG INDEX	CFRAGIND	character	5
7	LARGEST EXTENT	CLGSTEXT	character	8
8	FREE EXTENTS	CFREEXTN	character	7
9	INDEX STATUS	CINDXSTS	character	8
10	FREE DSCBs	CFREDSCB	character	7
11	FREE VIRS	CFREVIRS	character	7
12	DEVICE TYPE	CDEVTYPE	character	7
13	DEV NUM	CDEVNUM	character	4
14	SHR DASD	CSHRDASD	character	3
15	USE ATTR	CUSEATTR	character	4
16	RD CACHE STATUS	CCACHEST	character	8
17	DASD FW STATUS	CFSTWRST	character	8
18	CACHE FW STATUS	CNONRTST	character	8
19	DUPLEX STATUS	CDUPLXST	character	8
20	OTHER DEVICE	COTHRDEV	character	6
21	SUBSYS ID	CSBSYSID	character	6
22	PHYSICAL STATUS	CPHYSCST	character	7
23	STORAGE GRP NAME	CSTORGRP	character	8
24	CF VOLUME STATUS	CCFVLST	character	9
25	RESERVED SYSTEM1 SMS	CSY01SMS	character	8
26	RESERVED SYSTEM1 MVS	CSY01MVS	character	8
27	RESERVED SYSTEM2 SMS	CSY02SMS	character	8
28	RESERVED SYSTEM2 MVS	CSY02MVS	character	8
29	RESERVED SYSTEM3 SMS	CSY03SMS	character	8
30	RESERVED SYSTEM3 MVS	CSY03MVS	character	8
31	RESERVED SYSTEM4 SMS	CSY04SMS	character	8
32	RESERVED SYSTEM4 MVS	CSY04MVS	character	8
33	RESERVED SYSTEM5 SMS	CSY05SMS	character	8
34	RESERVED SYSTEM5 MVS	CSY05MVS	character	8
35	RESERVED SYSTEM6 SMS	CSY06SMS	character	8
36	RESERVED SYSTEM6 MVS	CSY06MVS	character	8

Table 16. Variable Names, Attributes and Lengths for the DASD Volume List Data Columns (continued)

Column Tag	Column Name	Variable Name	Attribute	Length
37	RESERVED SYSTEM7 SMS	CSY07SMS	character	8
38	RESERVED SYSTEM7 MVS	CSY07MVS	character	8
39	RESERVED SYSTEM8 SMS	CSY08SMS	character	8
40	RESERVED SYSTEM8 MVS	CSY08MVS	character	8
41	FREE SPACE TRK-MANAGED	CFRSPTRK	character	9
42	ALLOC SPACE TRK-MANAGED	CALSPTRK	character	9
43	LARGEST EXTENT TRK-MANAGED	CLGEXTRK	character	9

Variable Names, Attributes, and Lengths for the Mountable Optical Volume List

Table 17 lists the variable names, attributes and lengths for the Mountable Optical Volume List data columns.

Table 17. Variable Names, Attributes and Lengths for the Mountable Optical Volume List Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
1	LINE OPERATOR	CLINEOP	character	10
2	VOLUME SERIAL	COBJ	character	6
3	FREE SPACE	CVFREESP	character	4
4	% USED	CVPUSED	character	4
5	FULL STATUS	CVFULLST	character	3
6	VOLUME TYPE	CVVOLTYP	character	8
7	LIBRARY NAME	CVLIBNAM	character	8
8	SLOT NAME	CVSLOTNM	character	4
9	STORAGE GRP NAME	CVSTGPNM	character	8
10	LAST WRITTEN DATE	CVLWRITD	character	10
11	VOLUME MOUNT DATE	CVVOLMDT	character	10
12	VOLUME EXPIRE DATE	CVVOLEXD	character	10
13	VOLUME LOCATION	CVVOLLOC	character	7
14	SHELF LOCATION	CVSHLFLO	character	32
15	MEDIA TYPE	CVMEDTYP	character	8
16	FRAG INDEX	CVFRGIND	character	5
17	VOLUME ERROR STATUS	CVVERRST	character	20
18	CAPACITY	CVCPCITY	character	8
19	VOLUME CREATE DATE	CVVOLCDT	character	8
20	ENTER OR EJECT DATE	CVENEJDT	character	10

Variable Names, Attributes, and Lengths for the Mountable Tape Volume List

Table 18 on page 175 lists the variable names, attributes and lengths for the Mountable Tape Volume List data columns.

Table 18. Variable Names, Attributes and Lengths for the Mountable Tape Volume List Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
1	LINE OPERATOR	CLINEOP	character	10
2	VOLUME SERIAL	COBJ	character	6
3	USE ATTRIBUTE	CVUSEATT	character	7
4	VOLUME ERROR STATUS	CVERRSTA	character	18
5	CHECK POINT VOLUME	CVCHCKPT	character	3
6	LIBRARY NAME	CVLIBNAM	character	8
7	STORAGE GROUP NAME	CVSTGPNM	character	8
8	MEDIA TYPE	CVMEDTYP	character	6
9	RECORDING TECHNOLOGY	CVRECTEC	character	7
10	COMPACTION TYPE	CVCOMTEC	character	4
11	SPECIAL ATTRIBUTES	CVACCESS	character	8
12	LAST WRITTEN DATE	CVLWRITD	character	10
13	LAST MOUNT DATE	CVLMNTDT	character	10
14	LAST ENTRY/EJECTDATE	CVLEJEND	character	10
15	VOLUME EXPIRE DATE	CVVEXPDT	character	10
16	VOLUME CREATE DATE	CVVCREDT	character	10
17	WRITE PROTECT	CVWRITPR	character	3
18	VOLUME LOCATION	CVVOLLOC	character	7
19	SHELF LOCATION	CVSHLFLO	character	32
20	OWNER INFORMATION	CVOWNERI	character	56

Variable Names, Attributes, and Lengths for the Management Class List

Table 19 lists the variable names, attributes and lengths for the Management Class List data columns.

Table 19. Variable Names, Attributes and Lengths for the Management Class List Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
	CDS NAME	FMUVCDSN	character	44
1	LINE OPERATOR	CLINEOP	character	10
2	MGMTCLAS NAME	COBJ	character	8
3	EXPIRE NON-USAGE	CEXPIRNU	character	9
4	EXPIRE DATE/DAYS	CEXPIRDD	character	10
5	RET LIMIT	CMAXRET	character	7
6	PARTIAL RELEASE	CPARTREL	character	11
7	PRIMARY DAYS	CPRIMDAY	character	8
8	LEVEL 1 DAYS	CLVL1DAY	character	7
9	CMD/AUTO MIGRATE	CMIGRATE	character	8
10	# GDG ON PRIMARY	CGDGPRIM	character	8
11	ROLLED-OFF GDS ACTION	CGDSACTN	character	10
12	BACKUP FREQUENCY	CBAKFREQ	character	9
13	# BACKUPS (DS EXISTS)	CDSEXIST	character	11
14	# BACKUPS (DS DELETED)	CDSDELET	character	12
15	RETAIN® DAYS ONLY BACKUP	CONLYBAK	character	11
16	RETAIN DAYS EXTRA BACKUPS	CXTRABAK	character	13

Table 19. Variable Names, Attributes and Lengths for the Management Class List Data Columns (continued)

Column Tag	Column Name	Variable Name	Attribute	Length
17	ADM/USER BACKUP	CADMUBAK	character	8
18	AUTO BACKUP	CAUTOBAK	character	6
19	LAST MOD USERID	CLUSERID	character	8
20	LAST DATE MODIFIED	CLDATE	character	10
21	LAST TIME MODIFIED	CLTIME	character	8
22	TIME SINCE CREATION YEARS	CTIMESCY	character	8
23	TIME SINCE CREATION MONTHS	CTIMESCM	character	8
24	TIME SINCE CREATION DAYS	CTIMESCD	character	8
25	TIME SINCE LAST USE YEARS	CTIMESUY	character	8
26	TIME SINCE LAST USE MONTHS	CTIMESUM	character	8
27	TIME SINCE LAST USE DAYS	CTIMESUD	character	8
28	MONTHLY ON DAY	CMONDAY	character	7
29	QUARTERLY ON DAY	CQONDAY	character	9
30	QUARTERLY IN MONTH	CQINMON	character	9
31	YEARLY ON DAY	CYONDAY	character	6
32	YEARLY IN MONTH	CYINMON	character	8
33	# VERSIONS	CNUMVERS	character	10
34	RETAIN ONLY VERSION	CROVERS	character	11
35	RETAIN ONLY UNIT	CROVERSU	character	9
36	RETAIN EXTRA VERSIONS	CREVERS	character	12
37	RETAIN EXTRA UNIT	CREVERSU	character	10
38	COPY SERIAL	CCOPYSER	character	8
39	BACKUP COPY TECHNIQUE	CBKCOPY	character	20
40	ABACKUP COPY TECHNIQUE	CABKCOPY	character	20

Variable Names, Attributes, and Lengths for the Data Class List

Table 20 lists the variable names, attributes and lengths for the Data Class List data columns.

Table 20. Variable Names, Attributes and Lengths for the Data Class List Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
	CDS NAME	FMUVCDSN	character	44
1	LINE OPERATOR	CLINEOP	character	10
2	DATACLAS NAME	COBJ	character	8
3	RECORG	CRECORG	character	6
4	RECFM	CRECFM	character	5
5	LRECL	CLRECL	character	5
6	KEYLEN	CKEYLEN	character	6
7	KEYOFF	CKEYOFF	character	6
8	AVGREC	CAVGREC	character	6
9	AVG VALUE	CAVGVALU	character	5
10	SPACE PRIMARY	CSPCPRIM	character	7
11	SPACE SECONDARY	CSPCSEC	character	9
12	SPACE DIRECTORY	CSPCDIR	character	9
13	RETPD OR EXPDT	CRETEXP	character	10

Table 20. Variable Names, Attributes and Lengths for the Data Class List Data Columns (continued)

Column Tag	Column Name	Variable Name	Attribute	Length
14	VOLUME COUNT	CVOLCNT	character	6
15	ADDITIONAL VOLUME AMT	CADDLVOL	character	9
16	DYNAMIC VOLUME COUNT	CMVCNT	character	6
17	VSAM SMB	CSMBSP	character	8
18	CISIZE DATA	CCISIZE	character	6
19	% FREE SPACE CA	CSPACECA	character	8
20	% FREE SPACE CI	CSPACECI	character	8
21	SHARE XREGION	CXREGION	character	7
22	SHARE XSYSTEM	CXSYSTEM	character	7
23	LAST MOD USERID	CLUSERID	character	8
24	LAST DATE MODIFIED	CLDATE	character	10
25	LAST TIME MODIFIED	CLTIME	character	8
26	DATA SET NAME TYPE	CDSNTYPE	character	18
27	EXTENDED ADDRESSABILITY	CVSAMEXT	character	3
28	COMPACTION	CCOMPACT	character	4
29	MEDIA TYPE	CMEDINT	character	6
30	RECORDING TECHNOLOGY	CRECTEC	character	8
31	PERFORMANCE SCALING	CPFSC	character	3
32	REUSE	CVSREUSE	character	3
33	INITIAL LOAD	CVSILOAD	character	8
34	SPANNED/NONSPANNED	CSPANNED	character	10
35	BWO	CBWO	character	8
36	LOG	CLOG	character	4
37	LOGSTREAM ID	CLOGSMID	character	26
38	SPACE CONSTRAINT RELIEF	CSCR	character	3
39	REDUCE SPACE UP TO	CRSU	character	2
40	RECORD ACCESS BIAS	CRAB	character	6
41	BLOCK SIZE LIMIT	CBLMT	character	10
42	FRLOG	CFRLOG	character	4
43	RLSCFCACHE	CCFS	character	11
44	EXTENT CONSTRAINT REMOVAL	CEXTC	character	3
45	RLS ABOVE THE 2-GB BAR	CA2GB	character	3
46	OVERRIDE SPACE	COVRD	character	3
47	SDB	CSDB	character	3
48	EATTR	CEATTR	character	3
49	CA RECLAIM	CCAR	character	3

Variable Names, Attributes, and Lengths for the Storage Class List

Table 21 on page 178 lists the variable names, attributes and lengths for the Storage Class List data columns.

Table 21. Variable Names, Attributes and Lengths for the Storage Class List Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
	CDS NAME (OUTPUT)	FMUVCDSN	character	44
1	LINE OPERATOR	CLINEOP	character	10
2	STORCLAS NAME	COBJ	character	8
3	DIR RESP (MSEC)	CDIRRESP	character	8
4	DIR BIAS	CDIRBIAS	character	1
5	SEQ RESP (MSEC)	CSEQRESP	character	8
6	SEQ BIAS	CSEQBIAS	character	1
7	AVAILABILITY	CAVAIL	character	10
8	GUARANTEED SPACE	CGUARSP	character	3
9	LAST MOD USERID	CLUSERID	character	8
10	LAST DATE MODIFIED	CLDATE	character	10
11	LAST TIME MODIFIED	CLTIME	character	8
12	GUARANTEED SYNC WRITE	CGUARSYN	character	3
13	INIT ACC RES	CACCRESP	character	8
14	ACCESSIBILITY	CACCESS	character	20
15	SUSTAINED DATA RATE	CSUSTAIN	character	14
16	CF CACHE SET NAME	CCSET	character	8
17	CF DIRECT WEIGHT	CDIRW	character	9
18	CF SEQUENTIAL WEIGHT	CSEQW	character	13
19	MULTI TIERED SG	CMLTISG	character	9
20	PARALLEL ACCESS VOLUME	CPAVCAP	character	10
21	OAM SUBLEVEL	COAMSL	character	1
22	CF LOCK SET NAME	CCLSET	character	8
23	DISCONNECT SPHERE AT CLOSE	CDCSP	character	6

Variable Names, Attributes, and Lengths for the Saved ISMF Lists

Table 22 lists the variable names, attributes and lengths for the Saved ISMF Lists data columns.

Table 22. Variable Names, Attributes and Lengths for the Saved ISMF Lists Data Columns

Column Tag	Column Name	Variable Name	Attribute	Length
1	LINE OPERATOR	CLINEOP	character	10
2	LIST NAME	COBJ	character	8
3	LIST TYPE	CLLTYPE	character	8
4	LAST DATE MODIFIED	CLUDATE	character	10
5	LAST TIME MODIFIED	CLUTIME	character	5
6	LAST MOD USERID	CLLUSER	character	8
7	LIST ROW COUNT	CLLRCNT	character	8
8	LIST UPDATES	CLLUPD	character	7

The first character of the special symbols used to represent errors in the data columns is replaced with the hexadecimal value listed in Table 23 on page 179.

Table 23. Characters for Special Symbols that Represent Errors

Symbol	First Character
–	X'13'
?	X'11'
>	X'FB'
<	X'14'

Variables That Supply Information about Selection Criteria

The shared variable pool contains variables that allow your CLIST to access the selection criteria information. There is a variable assigned to each of the data entry fields on the selection panels for every application. The selection variables resolve to the value entered in the field. You can use these variables in your CLIST to supply this information. The tables on pages Table 24 through Table 37 on page 187 list the variables for the data entry fields on an application selection or entry panel.

Table 24 lists the variable names, attributes and lengths for the data columns on page 1 of the Data Set Selection Panel.

Table 24. Variable Names, Attributes, and Lengths for the Data Columns for Page 1 of the Data Set Selection Panel

Selection Criteria	Variable Name	Attribute	Length
SOURCE OF GENERATED LIST	FDDSSSGL	character	1
SAVED LIST NAME	FDDSGSLN	character	8
DATA SET NAME	FDDSDSNM	character	46
SPECIFY SOURCE OF NEW LIST	FDDSSSNL	character	1
LIST FROM VTOC VOLUME SERIAL NUMBER	FDDSVSN1	character	6
CATALOG NAME	FDDSCTLN	character	44
CATALOG PASSWORD	FDDSCTLP	character	8
VOLUME SERIAL NUMBER UNDER CTLG	FDDSVSN2	character	6
ACQUIRE DATA FROM VOLUME	FDDSADFV	character	1
ACQUIRE DATA IF DFSMShsm MIGRATED	FDDSADHM	character	1

Table 25 lists the variable names, attributes and lengths for the data columns on page 2 of the Data Set Selection Panel.

Table 25. Variable Names, Attributes, and Lengths for Page 2 of the Data Set Selection Panel

Selection Criteria	Field	Variable Name	Attribute	Length
ALLOCATED SPACE	REL OP 1	FDDSASR1	character	2
	VALUE 1	FDDSASV1	character	10
	CONNECTOR	FDDSI1	character	3
	REL OP 2	FDDSASR2	character	2
	VALUE 2	FDDSASV2	character	10
BLOCK/CI SIZE	REL OP 1	FDDSBSR1	character	2
	VALUE 1	FDDSBSV1	character	10
	CONNECTOR	FDDSI2	character	3
	REL OP 2	FDDSBSR2	character	2
	VALUE 2	FDDSBSV2	character	10
BLOCK UNUSED	REL OP 1	FDDSBUR1	character	2
	VALUE 1	FDDSBUV1	character	10
	CONNECTOR	FDDSI3	character	3
	REL OP 2	FDDSBUR2	character	2
	VALUE 2	FDDSBUV2	character	10

Table 25. Variable Names, Attributes, and Lengths for Page 2 of the Data Set Selection Panel (continued)

Selection Criteria	Field	Variable Name	Attribute	Length
CREATION DATE	REL OP 1	FDDSCDR1	character	2
	VALUE 1	FDDSCDV1	character	10
	CONNECTOR	FDDSI4	character	3
	REL OP 2	FDDSCDR2	character	2
	VALUE 2	FDDSCDV2	character	10
EXPIRATION DATE	REL OP 1	FDDSEDR1	character	2
	VALUE 1	FDDSEDV1	character	10
	CONNECTOR	FDDSI5	character	3
	REL OP 2	FDDSEDR2	character	2
	VALUE 2	FDDSEDV2	character	10
LAST BACKUP DATE	REL OP 1	FDDSBDR1	character	2
	VALUE 1	FDDSBDV1	character	10
	CONNECTOR	FDDSID	character	3
	REL OP 2	FDDSBDR2	character	2
	VALUE 2	FDDSBDV2	character	10
LAST REFERENCE DATE	REL OP 1	FDDSLDR1	character	2
	VALUE 1	FDDSLDV1	character	10
	CONNECTOR	FDDSI6	character	3
	REL OP 2	FDDSLDR2	character	2
	VALUE 2	FDDSLDV2	character	10
NUMBER OF EXTENTS	REL OP 1	FDDSNER1	character	2
	VALUE 1	FDDSNEV1	character	10
	CONNECTOR	FDDSI7	character	3
	REL OP 2	FDDSNER2	character	2
	VALUE 2	FDDSNEV2	character	10
NUMBER OF STRIPES	REL OP 1	FDDSNSR1	character	2
	VALUE 1	FDDSNSV1	character	2
	CONNECTOR	FDDSNI7A	character	3
	REL OP 2	FDDSNSR2	character	2
	VALUE 2	FDDSNSV2	character	2
OPTIMAL BLOCK/CI SIZE	REL OP 1	FDDSOSR1	character	2
	VALUE 1	FDDSOSV1	character	10
	CONNECTOR	FDDSI8	character	3
	REL OP 2	FDDSOSR2	character	2
	VALUE 2	FDDSOSV2	character	10
% SPACE NOT USED	REL OP 1	FDDSPSR1	character	2
	VALUE 1	FDDSPSV1	character	10
	CONNECTOR	FDDSI9	character	3
	REL OP 2	FDDSPSR2	character	2
	VALUE 2	FDDSPSV2	character	10
% USER DATA REDUCTION	REL OP 1	FDDSPUR1	character	2
	VALUE 1	FDDSPUV1	character	2
	CONNECTOR	FDDSI9A	character	3
	REL OP 2	FDDSPUR2	character	2
	VALUE 2	FDDSPUV2	character	2
RECORD LENGTH	REL OP 1	FDDSRLR1	character	2
	VALUE 1	FDDSRLV1	character	10
	CONNECTOR	FDDSIA	character	3
	REL OP 2	FDDSRLR2	character	2
	VALUE 2	FDDSRLV2	character	10
SECONDARY ALLOCATION	REL OP 1	FDDSSAR1	character	2
	VALUE 1	FDDSSAV1	character	10
	CONNECTOR	FDDSIB	character	3
	REL OP 2	FDDSSAR2	character	2
	VALUE 2	FDDSSAV2	character	10

Table 26 on page 181 lists the variable names, attributes and lengths for the data columns on page 3 of the Data Set Selection Panel.

Table 26. Variable Names, Attributes, and Lengths for Page 3 of the Data Set Selection Panel

Selection Criteria	Field	Variable Name	Attribute	Length
USED SPACE	REL OP 1	FDDSUSR1	character	2
	VALUE 1	FDDSUSV1	character	10
	CONNECTOR	FDDSIC	character	3
	REL OP 2	FDDSUSR2	character	2
	VALUE 2	FDDSUSV2	character	10
CCSID DESCRIPTION	REL OP	FDDSCSR1	character	2
	VALUE 1	FDDSCSV1	character	17
	VALUE 2	FDDSCSV2	character	17
	VALUE 3	FDDSCSV3	character	17
	VALUE 4	FDDSCSV4	character	17
CF CACHE STRUCTURE NAME	REL OP	FDDSCTR1	character	2
	VALUE 1	FDDSCTV1	character	16
	VALUE 2	FDDSCTV2	character	16
	VALUE 3	FDDSCTV3	character	16
	VALUE 4	FDDSCTV4	character	16

Table 27 lists the variable names, attributes and lengths for the data columns on page 4 of the Data Set Selection Panel.

Table 27. Variable Names, Attributes, and Lengths for Page 4 of the Data Set Selection Panel

Selection Criteria	Field	Variable Name	Attribute	Length
ALLOCATION UNIT	REL OP	FDDSAUR1	character	2
	VALUE 1	FDDSAUV1	character	8
	VALUE 2	FDDSAUV2	character	8
	VALUE 3	FDDSAUV3	character	8
	VALUE 4	FDDSAUV4	character	8
CF CACHE SET	REL OP	FDDSCHR1	character	2
	VALUE 1	FDDSCHV1	character	8
	VALUE 2	FDDSCHV2	character	8
	VALUE 3	FDDSCHV3	character	8
	VALUE 4	FDDSCHV4	character	8
CF MONITOR STATUS	REL OP	FDDSMSR1	character	2
	VALUE 1	FDDSMSV1	character	3
	VALUE 2	FDDSMSV2	character	3
	VALUE 3	FDDSMSV3	character	3
	VALUE 4	FDDSMSV4	character	3
CF STATUS INDICATOR	REL OP	FDDSSIR1	character	2
	VALUE 1	FDDSSIV1	character	4
	VALUE 2	FDDSSIV2	character	4
	VALUE 3	FDDSSIV3	character	4
	VALUE 4	FDDSSIV4	character	4
CHANGE INDICATOR	REL OP	FDDSCIR1	character	2
	VALUE 1	FDDSCIV1	character	8
	VALUE 2	FDDSCIV2	character	8
	VALUE 3	FDDSCIV3	character	8
	VALUE 4	FDDSCIV4	character	8
COMPRESSED FORMAT	REL OP	FDDSCFR1	character	2
	VALUE 1	FDDSCFV1	character	3
	VALUE 2	FDDSCFV2	character	3
	VALUE 3	FDDSCFV3	character	3
	VALUE 4	FDDSCFV4	character	3
DATA CLASS NAME	REL OP	FDDSDCR1	character	2
	VALUE 1	FDDSDCV1	character	8
	VALUE 2	FDDSDCV2	character	8
	VALUE 3	FDDSDCV3	character	8
	VALUE 4	FDDSDCV4	character	8

Table 27. Variable Names, Attributes, and Lengths for Page 4 of the Data Set Selection Panel (continued)

Selection Criteria	Field	Variable Name	Attribute	Length
DATA SET ENVIRONMENT	REL OP	FDDSDER1	character	2
	VALUE 1	FDDSDEV1	character	9
	VALUE 2	FDDSDEV2	character	9
	VALUE 3	FDDSDEV3	character	9
	VALUE 4	FDDSDEV4	character	9
DATA SET NAME TYPE	REL OP	FDDSDSR1	character	2
	VALUE 1	FDDSDSV1	character	2
	VALUE 2	FDDSDSV2	character	2
	VALUE 3	FDDSDSV3	character	2
	VALUE 4	FDDSDSV4	character	2
DATA SET ORGANIZATION	REL OP	FDDSDOR1	character	2
	VALUE 1	FDDSDOV1	character	8
	VALUE 2	FDDSDOV2	character	8
	VALUE 3	FDDSDOV3	character	8
	VALUE 4	FDDSDOV4	character	8
	VALUE 5	FDDSDOV5	character	8
	VALUE 6	FDDSDOV6	character	8
	VALUE 7	FDDSDOV7	character	8
	VALUE 8	FDDSDOV8	character	8
DDM ATTRIBUTES	REL OP	FDDSDMR1	character	2
	VALUE 1	FDDSDMV1	character	3
	VALUE 2	FDDSDMV2	character	3
	VALUE 3	FDDSDMV3	character	3
	VALUE 4	FDDSDMV4	character	3
DEVICE TYPE	REL OP	FDDSDTR1	character	2
	VALUE 1	FDDSDTV1	character	8
	VALUE 2	FDDSDTV2	character	8
	VALUE 3	FDDSDTV3	character	8
	VALUE 4	FDDSDTV4	character	8
	VALUE 5	FDDSDTV5	character	8
	VALUE 6	FDDSDTV6	character	8
	VALUE 7	FDDSDTV7	character	8
	VALUE 8	FDDSDTV8	character	8

Table 28 lists the variable names, attributes and lengths for the data columns on page 5 of the Data Set Selection Panel.

Table 28. Variable Names, Attributes, and Lengths for Page 5 of the Data Set Selection Panel

Selection Criteria	Field	Variable Name	Attribute	Length
ENTRY TYPE	REL OP	FDDSETR1	character	2
	VALUE 1	FDDSETV1	character	8
	VALUE 2	FDDSETV2	character	8
	VALUE 3	FDDSETV3	character	8
	VALUE 4	FDDSETV4	character	8
	VALUE 5	FDDSETV5	character	8
	VALUE 6	FDDSETV6	character	8
	VALUE 7	FDDSETV7	character	8
	VALUE 8	FDDSETV8	character	8
	VALUE 9	FDDSETV9	character	8
	VALUE 10	FDDSETVA	character	8
	VALUE 11	FDDSETVB	character	8
	VALUE 12	FDDSETVC	character	8
MANAGEMENT CLASS NAME	REL OP	FDDSMCR1	character	2
	VALUE 1	FDDSMCV1	character	8
	VALUE 2	FDDSMCV2	character	8
	VALUE 3	FDDSMCV3	character	8
	VALUE 4	FDDSMCV4	character	8

Table 28. Variable Names, Attributes, and Lengths for Page 5 of the Data Set Selection Panel (continued)

Selection Criteria	Field	Variable Name	Attribute	Length
MULTIVOLUME DATA SET	REL OP	FDDSMVR1	character	2
	VALUE 1	FDDSMVV1	character	8
	VALUE 2	FDDSMVV2	character	8
	VALUE 3	FDDSMVV3	character	8
	VALUE 4	FDDSMVV4	character	8
OWNER	REL OP	FDDSOWR1	character	2
	VALUE 1	FDDSOWV1	character	8
	VALUE 2	FDDSOWV2	character	8
	VALUE 3	FDDSOWV3	character	8
	VALUE 4	FDDSOWV4	character	8
REBLOCKABLE INDICATOR	REL OP	FDDSRIR1	character	2
	VALUE 1	FDDSRIV1	character	8
	VALUE 2	FDDSRIV2	character	8
	VALUE 3	FDDSRIV3	character	8
	VALUE 4	FDDSRIV4	character	8
RECORD FORMAT	REL OP	FDDSRFR1	character	2
	VALUE 1	FDDSRFV1	character	8
	VALUE 2	FDDSRFV2	character	8
	VALUE 3	FDDSRFV3	character	8
	VALUE 4	FDDSRFV4	character	8
	VALUE 5	FDDSRFV5	character	8
	VALUE 6	FDDSRFV6	character	8
	VALUE 7	FDDSRFV7	character	8
	VALUE 8	FDDSRFV8	character	8
STORAGE CLASS NAME	REL OP	FDDSSCR1	character	2
	VALUE 1	FDDSSCV1	character	8
	VALUE 2	FDDSSCV2	character	8
	VALUE 3	FDDSSCV3	character	8
	VALUE 4	FDDSSCV4	character	8

Variable Names, Attributes, and Lengths for DASD Volume Selection Panels

Table 29 lists the variable names, attributes and lengths for the data columns on page 1 of the DASD Volume Selection Panel.

Table 29. Variable Names, Attributes, and Lengths for Page 1 of the DASD Volume Selection Panel

Selection Criteria	Variable Name	Attribute	Length
SELECT SOURCE TO GENERATE VOLUME LIST	FVVASSLG	character	1
LIST NAME	FVVALTNM	character	8
SPECIFY SOURCE OF THE NEW LIST	FVVASSNL	character	1
TYPE OF VOLUME LIST	FVVATOVL	character	1
VOLUME SERIAL NUMBER	FVVAVMSN	character	6
DEVICE TYPE	FVVADVTP	character	8
DEVICE NUMBER (first)	FVVADVN1	character	3
DEVICE NUMBER (second)	FVVADVN2	character	3
ACQUIRE PHYSICAL DATA	FVVAPHDA	character	1
ACQUIRE SPACE DATA	FVVASPDA	character	1
STORAGE GROUP NAME	FVVASTGP	character	8
CDS NAME	FVVACDSN	character	46

Table 30 on page 184 lists the variable names, attributes and lengths for the data columns on page 2 of the DASD Volume Selection Panel.

Table 30. Variable Names, Attributes, and Lengths for Page 2 of the DASD Volume Selection Panel

Selection Criteria	Field	Variable Name	Attribute	Length
ALLOCATED SPACE	REL OP 1	FVVAASR1	character	2
	VALUE 1	FVVAASV1	character	8
	CONNECTOR	FVVAJ1	character	3
	REL OP 2	FVVAASR2	character	2
	VALUE 2	FVVAASV2	character	8
FRAGMENTATION INDEX	REL OP 1	FVVAFIR1	character	2
	VALUE 1	FVVAFIV1	character	8
	CONNECTOR	FVVAJ2	character	3
	REL OP 2	FVVAFIR2	character	2
	VALUE 2	FVVAFIV2	character	8
FREE DSCBs	REL OP 1	FVVAFDR1	character	2
	VALUE 1	FVVAFDV1	character	8
	CONNECTOR	FVVAJ3	character	3
	REL OP 2	FVVAFDR2	character	2
	VALUE 2	FVVAFDV2	character	8
FREE EXTENTS	REL OP 1	FVVAFER1	character	2
	VALUE 1	FVVAFEV1	character	8
	CONNECTOR	FVVAJ4	character	3
	REL OP 2	FVVAFER2	character	2
	VALUE 2	FVVAFEV2	character	8
FREE SPACE	REL OP 1	FVVAFSR1	character	2
	VALUE 1	FVVAFSV1	character	8
	CONNECTOR	FVVAJ5	character	3
	REL OP 2	FVVAFSR2	character	2
	VALUE 2	FVVAFSV2	character	8
FREE VIRS	REL OP 1	FVVAFVR1	character	2
	VALUE 1	FVVAFVV1	character	8
	CONNECTOR	FVVAJ6	character	3
	REL OP 2	FVVAFVR2	character	2
	VALUE 2	FVVAFVV2	character	8
LARGEST EXTENT	REL OP 1	FVVALER1	character	2
	VALUE 1	FVVALEV1	character	8
	CONNECTOR	FVVAJ7	character	3
	REL OP 2	FVVALER2	character	2
	VALUE 2	FVVALEV2	character	8
OTHER DEVICE	REL OP 1	FVVASER1	character	2
	VALUE 1	FVVASEV1	character	8
	CONNECTOR	FVVAJ9	character	3
	REL OP 2	FVVASER2	character	2
	VALUE 2	FVVASEV2	character	8
PERCENT FREE SPACE	REL OP 1	FVVAPFR1	character	2
	VALUE 1	FVVAPFV1	character	8
	CONNECTOR	FVVAJ8	character	3
	REL OP 2	FVVAPFR2	character	2
	VALUE 2	FVVAPFV2	character	8
SUBSYSTEM IDENTIFIER	REL OP 1	FVVASIR1	character	2
	VALUE 1	FVVASIV1	character	8
	CONNECTOR	FVVAJ10	character	3
	REL OP 2	FVVASIR2	character	2
	VALUE 2	FVVASIV2	character	8

Table 31 on page 185 lists the variable names, attributes and lengths for the data columns on page 3 of the DASD Volume Selection Panel.

Table 31. Variable Names, Attributes, and Lengths for Page 3 of the DASD Volume Selection Panel

Selection Criteria	Field	Variable Name	Attribute	Length
CACHE FAST WRITE STATUS	REL OP	FVVACFR1	character	2
	VALUE 1	FVVACFV1	character	8
	VALUE 2	FVVACFV2	character	8
	VALUE 3	FVVACFV3	character	8
	VALUE 4	FVVACFV4	character	8
CF VOLUME STATUS	REL OP	FVVACVR1	character	2
	VALUE 1	FVVACVV1	character	9
	VALUE 2	FVVACVV2	character	9
	VALUE 3	FVVACVV3	character	9
	VALUE 4	FVVACVV4	character	9
DASD FAST WRITE STATUS	REL OP	FVVADFR1	character	2
	VALUE 1	FVVADFV1	character	8
	VALUE 2	FVVADFV2	character	8
	VALUE 3	FVVADFV3	character	8
	VALUE 4	FVVADFV4	character	8
DUPLEX STATUS	REL OP	FVVADSR1	character	2
	VALUE 1	FVVADSV1	character	8
	VALUE 2	FVVADSV2	character	8
	VALUE 3	FVVADSV3	character	8
	VALUE 4	FVVADSV4	character	8
INDEX STATUS	REL OP	FVVAISR1	character	2
	VALUE 1	FVVAISV1	character	8
	VALUE 2	FVVAISV2	character	8
	VALUE 3	FVVAISV3	character	8
	VALUE 4	FVVAISV4	character	8
PHYSICAL STATUS	REL OP	FVVAPSR1	character	2
	VALUE 1	FVVAPSV1	character	8
	VALUE 2	FVVAPSV2	character	8
	VALUE 3	FVVAPSV3	character	8
	VALUE 2	FVVAPSV4	character	8
READ CACHE STATUS	REL OP	FVVACSR1	character	2
	VALUE 1	FVVACSV1	character	8
	VALUE 2	FVVACSV2	character	8
	VALUE 3	FVVACSV3	character	8
	VALUE 4	FVVACSV4	character	8
SHARED DASD	REL OP	FVVASDR1	character	2
	VALUE 1	FVVASDV1	character	8
	VALUE 2	FVVASDV2	character	8
	VALUE 3	FVVASDV3	character	8
	VALUE 4	FVVASDV4	character	8
USE ATTRIBUTES	REL OP	FVVAUAR1	character	2
	VALUE 1	FVVAUAV1	character	8
	VALUE 2	FVVAUAV2	character	8
	VALUE 3	FVVAUAV3	character	8
	VALUE 4	FVVAUAV4	character	8

Variable Names, Attributes, and Lengths for the Mountable Optical Volume Lists

Table 32 lists the variable names, attributes and lengths for the data columns on the Mountable Optical Volume List Selection Panel.

Table 32. Variable Names, Attributes, and Lengths for the Mountable Optical Volume List Selection Panel

Selection Criteria	Variable Name	Attribute	Length
SELECT SOURCE TO GENERATE VOLUME LIST	FVOVSSLG	character	1
LIST NAME	FVOVLTNM	character	8

Table 32. Variable Names, Attributes, and Lengths for the Mountable Optical Volume List Selection Panel (continued)

Selection Criteria	Variable Name	Attribute	Length
VOLUME SERIAL NUMBER	FVOVVMSN	character	6
LIBRARY NAME	FVOVLIBN	character	8
STORAGE GROUP NAME	FVOVSTGP	character	8
OPTICAL MEDIA TYPE	FVOVMDTP	character	8
RESPECIFY SORT CRITERIA	FVOVSORT	character	1
RESPECIFY VIEW CRITERIA	FVOVVIEW	character	1

Variable Names, Attributes, and Lengths for the Mountable Tape Volume Lists

Table 33 lists the variable names, attributes and lengths for the data columns on the Mountable Tape Volume List Selection Panel.

Table 33. Variable Names, Attributes, and Lengths for the Mountable Tape Volume List Selection Panel

Selection Criteria	Variable Name	Attribute	Length
SELECT SOURCE TO GENERATE VOLUME LIST	FTTVSSLG	character	1
LIST NAME	FTTVLTNM	character	8
VOLUME SERIAL NUMBER	FTTVVMSN	character	6
LIBRARY NAME	FTTVLIBN	character	8
STORAGE GROUP NAME	FTTVSTGP	character	8
RESPECIFY SORT CRITERIA	FTTVSORT	character	1
RESPECIFY VIEW CRITERIA	FTTVVIEW	character	1

Variable Names, Attributes, and Lengths for the Saved ISMF Lists

Table 34 lists the variable names, attributes and lengths for the data columns on the Saved List Filter Entry Panel.

Table 34. Variable Names, Attributes, and Lengths for the Saved List Filter Entry Panel

Selection Criteria	Field	Variable Name	Attribute	Length
LIST NAME		FLFILSNM	character	8
LAST MOD USERID	REL OP	FLFIUSR1	character	2
	VALUE 1	FLFIUSV1	character	8
	VALUE 2	FLFIUSV2	character	8
	VALUE 3	FLFIUSV3	character	8
	VALUE 4	FLFIUSV4	character	8
LIST TYPE	REL OP	FLFITPR1	character	2
	VALUE 1	FLFITPV1	character	8
	VALUE 2	FLFITPV2	character	8
	VALUE 3	FLFITPV3	character	8
	VALUE 4	FLFITPV4	character	8
LAST DATE MODIFIED	REL OP 1	FLFIDTR1	character	2
	VALUE 1	FLFIDTV1	character	10
	CONNECTOR	FLFIDTAO	character	3
	REL OP 2	FLFIDTR2	character	2
	VALUE 2	FLFIDTV2	character	10

Selection Criteria	Field	Variable Name	Attribute	Length
LAST TIME	REL OP 1	FLFITIR1	character	2
MODIFIED	VALUE 1	FLFITIV1	character	5
	CONNECTOR	FLFITIAO	character	3
	REL OP 2	FLFITIR2	character	2
	VALUE 2	FLFITIV2	character	5
LIST ROW COUNT	REL OP 1	FLFIRCR1	character	2
	VALUE 1	FLFIRCV1	character	7
	CONNECTOR	FLFIRCAO	character	3
	REL OP 2	FLFIRCR2	character	2
	VALUE 2	FLFIRCV2	character	7
LIST UPDATES	REL OP 1	FLFIUCR1	character	2
	VALUE 1	FLFIUCV1	character	7
	CONNECTOR	FLFIUCAO	character	3
	REL OP 2	FLFIUCR2	character	2
	VALUE 2	FLFIUCV2	character	7

Variable Names, Attributes, and Lengths for Storage Management Subsystem Classes

Table 35 lists the variable names, attributes and lengths for the data columns on the Management Class Selection Panel.

Table 35. Variable Names, Attributes, and Lengths for the Management Class Selection Panel

Selection Criteria	Variable Name	Attribute	Length
CDS NAME (with quotation marks)	FMUVCDSQ	character	46
CDS NAME (with user ID)	FMUVCDSN	character	44
MANAGEMENT CLASS NAME	FCMCSCN	character	8
SELECT ONE OF THE FOLLOWING OPTIONS	FCMCSLOP	character	1
RESPECIFY SORT CRITERIA	FCMCSORT	character	1
RESPECIFY VIEW CRITERIA	FCMCVIEW	character	1

Table 36 lists the variable names, attributes and lengths for the data columns on Data Class Selection Panel.

Table 36. Variable Names, Attributes, and Lengths for the Data Class Selection Panel

Selection Criteria	Variable Name	Attribute	Length
CDS NAME (with quotation marks)	FMUVCDSQ	character	46
CDS NAME (with user ID)	FMUVCDSN	character	44
DATA CLASS NAME	FCDCDCN	character	8
SELECT ONE OF THE FOLLOWING OPTIONS	FCDCSLOP	character	1
RESPECIFY SORT CRITERIA	FCDCSORT	character	1
RESPECIFY VIEW CRITERIA	FCDCVIEW	character	1

Table 37 lists the variable names, attributes and lengths for the data columns on Storage Class Selection Panel.

Table 37. Variable Names, Attributes, and Lengths for the Storage Class Selection Panel

Selection Criteria	Variable Name	Attribute	Length
CDS NAME (with quotation marks)	FMUVCDSQ	character	46
CDS NAME (with user ID)	FMUVCDSN	character	44

Table 37. Variable Names, Attributes, and Lengths for the Storage Class Selection Panel (continued)

Selection Criteria	Variable Name	Attribute	Length
STORAGE CLASS NAME	FCSCSCN	character	8
SELECT ONE OF THE FOLLOWING OPTIONS	FCSCSLOP	character	1
RESPECIFY SORT CRITERIA	FCSCSORT	character	1
RESPECIFY VIEW CRITERIA	FCSCVIEW	character	1

Appendix C. Customizing the Interactive Storage Management Facility

This appendix contains diagnosis, modification, or tuning information.

General Guidance

Because ISMF was written using the procedures described in *ISPF Dialog Management Services* it can be modified using the same techniques. DFSMSdss/ISMF, DFSMShsm/ISMF, ICKDSF/ISMF, and DFSORT/ISMF can also be modified with these techniques. IBM provides replaceable modules that allow you to extend the function of ISMF.

Restrictions to Customizing

Before you change ISMF, you must be aware of the following three restrictions:

- Make a backup copy of ISMF before you make any changes. Keep this unmodified version of the product for diagnostic purposes. IBM support and maintenance are provided for **only** the unmodified version of ISMF.
- Do not delete or rename any of the parts of ISMF. Deleting or renaming a part could severely impact processing, or cause ISMF to fail.
- ISMF is copyrighted. Under the IBM licensing agreement you may modify ISMF for your own use. You may not modify it for commercial resale.

Other restrictions apply to the individual parts. These are presented with the detailed descriptions of how to modify each part throughout the remainder of this section.

The Parts of ISMF That You Can Customize

ISMF allows you to customize the following parts for all ISMF applications:
- Panels
- Messages
- Job skeletons
- Command tables
- CLISTs

The parts are shipped in individual libraries. The changes you can make to each library are discussed in "The Panel Library."

The Panel Library

ISMF allows you to make the following changes to the panel library:
- Change the initial priming values that ISMF ships
- Change the default values for data entry panels
- Provide additional restrictions to values entered for certain fields on panels
- Remove fields from functional panels
- Change highlighting and color
- Change the format of the panel
- Modify existing functional panel text and help text
- Add new fields to panels
- Add new panels

The Message Library

In the message library you can modify existing messages and add new messages.

The Skeleton Library

In the skeleton library you can modify the job skeletons for ISMF commands and line operators.

The Table Library

In the table library you can modify the ISPF command tables.

The Load Library

In the load library you can modify the ISMF command and line operator tables. The tables are contained in nonexecutable CSECTs in the load library.

The CLIST Library

In the CLIST library you can modify the options on the CLIST CONTROL statement.

Finding the Libraries You Want to Customize

If you are currently running ISMF, you can use the procedures described in this section to find the ISMF libraries you want to customize. If you are not running ISMF, and you need information about linking to the correct libraries, these books will help you:
- *z/OS DFSORT Installation and Customization*
- *ICKDSF System Control Programming Specifications*

Once you are linked to ISMF, the method you use to find the ISMF libraries depends on the library you want to modify.

Panel, Message, Skeleton, and Table Libraries

To find the correct libraries for panels, messages, skeletons, and tables, use the TSO LISTALC STATUS command to determine the data set name associated with the DDNAME for the library. Table 38 lists the DDNAMEs that ISMF uses:

Table 38. DDNAMEs for the Panel, Message, Skeleton, and Table Libraries

Library	DDNAME
Panel	ISPPLIB
Message	ISPMLIB
Skeleton	ISPSLIB
Table	ISPTLIB[1] ISPTABL[2]

Notes:
1. Input table library
2. Output table library

Load and CLIST Library

The placement of the load library and the CLIST library is determined by the way ISMF is installed. The CLIST library DDNAME is SYSPROC. The load library may be given a DDNAME ISPLLIB or STEPLIB, or it may be made a part of the link pack area or the system link library.

Restriction: You cannot allocate the load library using the ISPF/PDF LIBDEF service because ISMF issues the LOAD macro.

Table 39 lists the DDNAME for the CLIST library and location or DDNAME for the load library.

Table 39. DDNAMEs or Locations for the Load and CLIST Libraries

Library	Location/DDNAME
Load	ISPLLIB *or* STEPLIB *or* System link library *or* Link pack area
CLIST	SYSPROC

Making and Testing Changes

The best way to make and test changes in any of the ISMF libraries is to copy the member you want to modify from the ISMF library into a personal library. Add your library to the beginning of the existing concatenation that you or your installation uses. This ensures that you can safely make changes without impacting the other libraries in the concatenation.

Once you've tested the changes, you can then change the concatenation to make the modified part available to a larger group of people, your department for example. If you want the change to be used by the entire installation, you can copy the member from your personal library back into the ISMF library.

For members of the panel, message, skeleton, table, and CLIST libraries you can note the changes in the comment section at the beginning of the modified member. Remember to keep an unmodified copy for service and maintenance.

Exception: The load library is an exception to the above guidelines. The methods you can use to modify the static text and ISMF tables in the load library are discussed in "Customizing the ISMF Command and Line Operator Tables" on page 207.

Customizing Panels

This section describes how to customize panels. It explains the changes you can make in the panel library. There are several restrictions to keep in mind both as you plan the way you want to customize panels, and as you use the procedures described in this chapter. They are listed at the beginning of each section.

The panel examples shown on the following pages are scaled for a terminal size of 24 lines by 80 columns.

Before you begin, read the following restrictions.

Restrictions

- If you decide to change the initial priming values or default values on data entry or data selection panels, the new values must be set to run through the same verification code as the values supplied by ISMF. Otherwise, you may pass a value that is invalid.
- If you remove a field from a panel by removing it from the)BODY section of the panel, you still need to supply an acceptable value for it in the)PROC section.
- You can add new fields to existing panels, or create new panels, but ISMF will not have reference to them.
- You cannot move input fields from one panel to another.
- You can change the format of most ISMF panels. However, if you decide to modify the FILTER Entry Panel or the SORT Entry Panel, you should look carefully at the validity checking in the)PROC section. The checking on these panels is done from left to right; changing the order of the input fields on these panels might impact the processing of values entered on the panels.
- ISPF can display screens with a maximum of 24 lines. So, even if you use terminals that can display larger panels, you should be careful not to increase the number of lines in the)BODY section beyond 24. If the)BODY section is larger than 24 lines, the panel display will fail.
- ISMF entry panels for Data Set and Volume Applications are designed to display default values if the user blanks out any of the fields on the panel. ISMF entry panels for all other applications display blanks if user blanks out any of the fields on the panel. In either case, because of the cursor positioning, you should preserve the order of the statements in the)PROC section that control the default redisplay. The)PROC section of each entry panel contains comments that identify the statements that should be kept in order.

Finding the Panel You Want to Change

Most of the changes you can make to ISMF panels are done in the panel library. The member name for an individual panel in the library is the panel ID that appears in the upper left hand corner of the panel when you use the ISPF PANELID command (see Figure 137).

```
   Panel  Defaults  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
 DGTDDDS1                   DATA SET SELECTION ENTRY PANEL
 COMMAND ===>
```

Figure 137. Displaying the Panel ID

Testing the Changes

There are three ways to test the changes you have made:

- Invoke ISPF in test mode.

  This causes ISPF to refresh the panel when you display it after you've made changes.
- Test your changes using the ISPF Dialog Test option.

  This causes ISPF to refresh the panel when you display it after you've made changes.
- Make your changes and then exit and reinvoke ISPF.

  When you invoke ISMF the modified panel is displayed.

Changing Initial Priming Values on Data Entry Panels

The initial priming values for data entry panels are controlled by the)INIT section of each panel, with the exception of the profile entry panels. When you invoke a panel, ISPF executes the)INIT section before displaying the panel. The statements in the)INIT section look at the value stored in the application profile pool (APP) for each field on the panel. If the value in the APP is blank, ISPF substitutes the value from the)INIT section of the panel. Because the initial priming values for the profile entry panels are already stored in the APP, they cannot be changed.

To change the priming values for a particular panel, you change the statements in the)INIT section of that panel. For example, Figure 138 is the Delete Entry Panel as it is initially displayed.

Figure 139 on page 194 shows the priming values from the)INIT section of the panel.

```
  Panel  Utilities  Help
 ------------------------------------------------------------------------------
                          DELETE ENTRY PANEL
 Command ===>

 Optionally Specify one or more to Uncatalog and Delete
   Data Set: USER10.HCD.TRACE

   Enter "/" to select option   /  Scratch Data Set

                                /  Clear Data Set with Zeroes

                                /  Delete even if Unexpired

   Data Set Password  . . . . .            (if password protected)




 Use ENTER to Perform DELETE;
 Use HELP Command for Help; Use END Command to Exit.
```

Figure 138. Entry Panel for Delete

For example, the following statement states that if the value for SCRATCH DATA SET is blank in the APP, ISMF substitutes a Y when the)INIT section is executed before the panel is displayed:

```
IF (&FDDLSCDS = '')       &FDDLSCDS = 'Y'
```

If you want that field to be primed with an N, you can change the statement to read:

```
IF (&FDDLSCDS = '')       &FDDLSCDS = 'N'
```

```
)INIT
  &ZHINDEX = DGTHIX00
  .HELP = DGTHDL02
  &DGTMHELP = DGTHDL02

  .ZVARS = '(FDDLSCDS FDDLCDWZ FDDLDEIU)'

  IF (&FDDLSCDS = '' )     &FDDLSCDS = 'Y'
  IF (&FDDLCDWZ = '' )     &FDDLCDWZ = 'Y'
  IF (&FDDLDEIU = '' )     &FDDLDEIU = 'N'
  &FDDLDSPW = '

  .CURSOR = &FDDLFLDP;
  .CSRPOS = &FDDLCPOS;
```

Figure 139. Values in the INIT Section of the Delete Entry Panel

Changing Default Values for Data Entry Panels

When you blank out fields on a Data Set or Volume Application data entry panel, ISMF supplies the defaults. The defaults come from the statements in the)PROC section of each entry panel. Figure 140 shows the default values in the)PROC section of the Delete Entry Panel.

```
)REINIT
 REFRESH(*)
)PROC

/**********************************************************************/
/*                                                                    */
/*  Default values for variables left blank                           */
/*                                                                    */
/**********************************************************************/

  &DDDL2RD   = 'N'
  IF (&FDDLCDWZ = '' )     &FDDLCDWZ = 'Y'
     &DDDL2RD = 'Y'
  IF (&FDDLDEIU = '' )     &FDDLDEIU = 'N'
     &DDDL2RD = 'Y'
/*  The following two statements MUST remain together to ensure       */
/*  correct cursor positioning on the re-display of the panel.        */
  IF (&FDDLSCDS = '' )     &FDDLSCDS = 'Y'
     &DDDL2RD = 'Y'
  IF (&DDDL2RD = 'Y')
      .MSG = DGTUV091
```

Figure 140. ISMF Default Values for the Delete Entry Panel

If you want to change the value ISMF displays when you blank out a specific field, you can change the statement corresponding to that field in the)PROC section of the panel. To be sure that the cursor is positioned in the correct place when the panel is redisplayed, be sure to preserve the order of the statements identified by the comments in the)PROC section.

Restricting Values for Specific Input Fields

The)PROC section also checks each value entered on a panel to make sure that it is valid. Figure 141 on page 195 is the first page of the Data Set Selection Entry Panel. Figure 142 on page 196 shows the validity checking that ISMF does for the values entered on this panel.

```
   Panel  Defaults  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                      DATA SET SELECTION ENTRY PANEL            Page 1 of 5
Command ===>

For a Data Set List, Select Source of Generated List  . . 2  (1 or 2)

  1  Generate from a Saved List         Query Name To
       List Name  . .                   Save or Retrieve

  2  Generate a new list from criteria below
       Data Set Name . . . **
       Enter "/" to select option    _  Generate Exclusive list
       Specify Source of the new list  . . 2    (1 - VTOC, 2 - Catalog)
       1 Generate list from VTOC
          Volume Serial Number . . .         (fully or partially specified)
       2 Generate list from Catalog
          Catalog Name . . .
            Catalog Password . . . .         (if password protected)
          Volume Serial Number . . .         (fully or partially specified)
          Acquire Data from Volume . . . . . . . N  (Y or N)
          Acquire Data if DFSMShsm Migrated  . . N  (Y or N)
Use ENTER to Perform Selection; Use DOWN Command to View next Selection
Use HELP Command for Help; Use END Command to Exit.
```

Figure 141. Page 1 of the Data Set Selection Entry Panel

```
/********************************************************************/
/*                                                                  */
/*  Check input variables for erroneous values.                     */
/*                                                                  */
/*  If SPECIFY SOURCE OF NEW LIST is 1 then VOLUME SERIAL NUMBER     */
/*    must be specified. Note that VOLUME SERIAL cannot be *.        */
/*                                                                  */
/*  If SPECIFY SOURCE OF NEW LIST is 2 then the following things     */
/*    must be checked:                                               */
/*                                                                  */
/*    1. If DATA SET NAME is '*' or '**' then the CATALOG NAME must  */
/*       be specified.                                               */
/*    2. ACQUIRE DATA FROM VOLUME must be specified. (Y or N)        */
/*    3. ACQUIRE DATA IF HSM MIGRATED must be specified. (Y or N)    */
/*    4. Note that CATALOG NAME must be a valid DSN but it cannot    */
/*       be a member of a PDS.                                       */
/*                                                                  */
/********************************************************************/
   VER (&FDDSSSGL NB LIST 1 2)

   IF (&FDDSSSGL = '1')
     VER (&FDDSGSLN NB)
     VER (&FDDSGSLN,DSNAME,MSG=DGTSL005)

   IF (&FDDSSSGL = '2')
     VER (&FDDSDSNM NB)

     VER (&FDDSSSNL NB LIST 1 2)

     IF (&FDDSSSNL = '1')
       VER (&FDDSVSN1 NB)
       IF (&FDDSVSN1 = '*')
         VER (&FDDSVSN1 LIST '' MSG=DGTUV019)

     IF (&FDDSSSNL = '2')

       &DSNCK1 = TRUNC(&FDDSDSNM,'.')

       IF (&DSNCK1 = '*','**','*','**'')
          VER (&FDDSCTLN NB)

       IF (&ZPREFIX = '')
         IF (&DSNCK1 = '*','**')
           VER (&FDDSCTLN NB)

       VER (&FDDSADFV NB LIST Y N MSG=DGTUV005)
       VER (&FDDSADHM NB LIST Y N MSG=DGTUV005)
)END
```

Figure 142. Validity Checking on the Data Set Selection Entry Panel

If you want to further restrict valid values for any of the fields on the panel, you
can add your own statements to the part of the)PROC section that does validity
checking. For example, to prevent users from accessing the system residence
volume, you could add a statement that makes '******' an invalid entry for the
VOLUME SERIAL NUMBER field. The format of the statement would be

```
IF (&FDDSVSN1 = '******')
  VER (&FDDSVSN1 LIST '' MSG=XXXXXXXX)
```

The message ID, XXXXXXXX, is a message you have added explaining the restriction.
In this case the user will not be able to generate a data set list until the value in
the VOLUME SERIAL NUMBER field is valid. For more information on creating
messages, see "Customizing Messages" on page 203, and *ISPF Dialog Management
Services*.

Removing Fields

You can remove a field from a panel by deleting it from the)BODY section of the
coding for the panel. However, you should keep in mind that there may be more
work involved than simply deleting the field. When you plan to remove a field
you should look carefully at the)INIT and)PROC sections of the panel to see how
that field is referenced. To accommodate changes you make to the body of the
panel, you may need to modify the statements for defaulting in the)INIT and
)PROC sections, and the verification code in the)PROC section. For example, to
remove the CATALOG NAME field from the Data Set Selection Entry Panel, you
would look at the code from the panel that applies to CATALOG NAME:

1. The initial default value supplied by the)INIT section
2. The default supplied by the)PROC section if the user enters a blank
3. The verification code that corresponds to the field

Because ISMF does not ship a default for CATALOG NAME in the APP, and both
of the default statements supply a blank, as follows, you do not need to modify
either of the default statements to remove the field:

```
IF (&FDDSCTLN = '')     &FDDSCTLN = ''
```

Changing Verification Code

You need to change the verification code. The code that applies to the CATALOG
NAME field is

```
IF (&FDDSSSGL = '2')
   VER (&FDDSDSNM NB)

   VER (&FDDSSSNL NB LIST 1 2)

   IF (&FDDSSSNL = '1')
     VER (&FDDSVSN1 NB)
     IF (&FDDSVSN1 = '*')
       VER (&FDDSVSN1 LIST '' MSG=DGTUV019)

   IF (&FDDSSSNL = '2')

     &DSNCK1 = TRUNC(&FDDSDSNM,'.')

     IF (&DSNCK1 = '*','**','*','**'')
         VER (&FDDSCTLN NB)

     IF (&ZPREFIX = '')
       IF (&DSNCK1 = '*','**')
         VER (&FDDSCTLN NB)
```

If option 2 is specified for SELECT SOURCE OF GENERATED LIST (the variable
&FDDSSSGL) and the data set name (the variable &DSNCK1) is either quoted
with an asterisk as the high level qualifier ('*.LOAD'), or a quoted double
asterisk ('**'), the code checks to ensure that a catalog name has been supplied.
Thus to remove the CATALOG NAME field from the panel you need to change the
verification code. The new code should refer to a message explaining that for a list
generated from the catalog, '*' and '**' are not valid ways of specifying the data
set name:

```
IF (&DSNCK1 = '*','**','*','**'')
  .MSG = XXXXXXXX
```

Highlighting and Color

The highlighting and color on ISMF panels are controlled by the statements in the)ATTR section of the panel.

For highlighting, the attribute characters are set explicitly by ISMF. For example:

```
^ TYPE(INPUT) INTENS(NON)
$ TYPE(INPUT) INTENS(HIGH) JUST(RIGHT)
+ TYPE(TEXT) INTENS(LOW) SKIP(ON)
% TYPE(TEXT) INTENS(HIGH) SKIP(ON)
```

Color is based on ISPF defaults for the protection and intensity attributes specified with the TYPE and INTENS keywords. Color is also dependent on the hardware capabilities of the terminals you use. Table 40 shows the ISPF defaults.

Table 40. Default Colors

Color	Field Type	Intensity
Green	input	low
Blue	text/output	low
Red	input	high
White	text/output	high

If you want to change the color you can add the COLOR keyword to the statements in the)ATTR section and remove the INTENS keyword. For example, the following statement sets pink as the color for the characters entered in fields with the $ attribute:

```
$ TYPE(INPUT) COLOR(PINK)
```

If you code both the INTENS keyword and the COLOR keyword, the COLOR keyword is ignored. For more information on specifying color and highlighting, and how the two are related, see *ISPF Dialog Management Services*.

Changing the Format

You can change the format of a panel by changing the position of the fields. If you do there are several things to keep in mind:

Field Length: Each field has its own length. When you move a field you need to make sure that you do not change the length. This will ensure that none of the fields on the panel is truncated.

Attribute Characters:Each field starts with an attribute character and ends with another attribute character, or the end of the line. When you move a field, you need to identify the attribute characters and decide whether to modify them to accommodate the change.

Autoskip:The panels are coded to use autoskip to move from one input field to the next. If you move a field, you may need to adjust the attribute characters that control autoskip.

Input Fields:Many of the input fields are grouped together because they supply related information, or because they are dependent on each other. If you move a field, you may need to move some of the fields around it to preserve the structure and logic of the panel.

Validity Checking:The logic of the validity checking in the)PROC section generally matches the order of the fields on the panel; the checking is done from top to bottom. When you move a field, you should make sure the validity checking parallels the new order.

Double Lines for Input Fields: Whenever you move input fields around on a panel, you need to move all the lines associated with that field. For example, for Data Set Application, both the FILTER Entry Panel and the Data Set Selection Entry Panel have fields that allow input on two lines (DATA SET ORGANIZATION, DEVICE TYPE, and RECORD FORMAT). If you move these fields around, you need to move both lines.

Number of Lines in the)BODY Section: ISPF can display screens with a maximum of 24 lines. So, even if you use terminals that can display larger panels, you should be careful not to increase the number of lines in the)BODY section beyond 24. If the)BODY section is larger than 24 lines, panel display will fail.

Modifying Text

You can modify text on any of the functional panels or help panels by editing the)BODY section. Remember that the attribute character to the left and right of the text you are working with controls the field length, spacing, indentation, and centering.

Adding Fields

When you add a field, you need to look at the)ATTR section of the panel and pick an attribute character to make the new field consistent with the rest of the panel. For example, you could use the ISPF ZTIME and ZDATE system variables to display the current time and date on the Data Set List panel. Figure 143 shows the)ATTR section and the original coding for the top of list panel. Figure 144 on page 200 shows the coding for the added fields. The next time you invoke the list panel, it will display the current date and time. Figure 145 on page 200 is the customized list panel as it is displayed.

```
  * AREA(DYNAMIC) EXTEND(OFF) SCROLL(OFF)
  ^ TYPE(INPUT) INTENS(NON)
  $ TYPE(INPUT) INTENS(HIGH) JUST(RIGHT)
  ø TYPE(INPUT) JUST(ASIS) COLOR(GREEN)
  - TYPE(OUTPUT) INTENS(HIGH) SKIP(ON) JUST(ASIS) CAPS(OFF)
  + TYPE(TEXT) INTENS(HIGH) SKIP(ON)
  # TYPE(TEXT) INTENS(LOW) SKIP(ON)
  ! TYPE(DATAOUT) INTENS(LOW) SKIP(ON) /*@LIA*/
)BODY  WIDTH(&ZSCREENW)  EXPAND(//)
+                                     +DATA SET LIST
+COMMAND ===>_ZCMD                                        +SCROLL ===>_ZAMT+
+                                              #&FDDSENTR;
#ENTER LINE OPERATORS BELOW:                    &FDDSDCOL;
```

Figure 143. Original Version of the List Panel

```
   * AREA(DYNAMIC) EXTEND(OFF) SCROLL(OFF)
   ^ TYPE(INPUT) INTENS(NON)
   $ TYPE(INPUT) INTENS(HIGH) JUST(RIGHT)
   ø TYPE(INPUT) JUST(ASIS) COLOR(GREEN)
   - TYPE(OUTPUT) INTENS(HIGH) SKIP(ON) JUST(ASIS) CAPS(OFF)
   + TYPE(TEXT) INTENS(HIGH) SKIP(ON)
   # TYPE(TEXT) INTENS(LOW) SKIP(ON)
   ! TYPE(DATAOUT) INTENS(LOW) SKIP(ON) /*@LIA*/
)BODY  WIDTH(&ZSCREENW)  EXPAND(//)
+                                            +DATA SET LIST
+COMMAND ===>_ZCMD                                       +SCROLL ===>_ZAMT+
#DATE:øZDATE                               #&FDDSENTR;
#TIME:øZTIME                               #&FDDSDCOL;
+
```

Figure 144. Adding Date and Time to the List Panel

```
   Panel  List  Dataset  Utilities  Scroll  Help
 --------------------------------------------------------------------------
                             DATA SET LIST
Command ===>                                      SCROLL ===> HALF
Date: 89/11/02                                    Entries 1-9 of 9
Time: 12:08                                       Data Columns 3-7 of 39
```

Figure 145. List Panel Customized to Show Date and Time

Creating Panels

You can use the panel definition procedures described in *ISPF Dialog Management Services* to add your own panels to those provided by ISMF. When you add panels you should consider:

- Assign unique variable names to make sure the names you use do not conflict with existing names, unless the function that uses the new panel runs from a different ISPF function pool.
- For ease-of-use and to prevent errors, make your new panels consistent with ISMF style. Use the same format and operational characteristics. For example, input fields on ISMF panels are denoted by a white or intensified arrow to the left of the field. To avoid confusion, input fields on panels you add should look the same. Or, for example, if you add a functional panel, the ENTER key should start the function.

Modifying Fields on the List Panel

You may modify the following fields on ISMF's List Panel:

1. Column Headings.
2. "Entries" line in the fixed area located in the upper right corner of the ISMF List Panel. See Figure 146 on page 201.
3. "Data Columns" line in the fixed area.
4. "BOTTOM OF DATA" line located at the end of the list.

```
   Panel  List  Dataset  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                             DATA SET LIST
 Command ===>                                          SCROLL ===> PAGE
                                                    Entries 1-3 of 3
 Enter Line Operators Below:                         Data Columns 10-13 of 41

    LINE                                 SEC    DS    REC   RECORD
   OPERATOR         DATA SET NAME        ALLOC  ORG   FMT   LENGTH
 ---(1)----  ------------(2)------------ -(10)-- (11)  (12)- -(13)-
            USER2.CLIST.CLIST              93   PO    VB      255
            USER2.ISMF.ISPPLIB            93   PO    FB       80
            USER2.ISPF.PROFILE            93   PO    FB       80
 ----------  ------ ----------- BOTTOM  OF  DATA ----------- ------  ----
```

Figure 146. ISMF Data Set List Panel

Knowing What Files to Change When Modifying Column Headings

You can modify the following members of the message library to change the
column headings:

Application	Member Names
Data Set	DGTDS05, DGTDS06, DGTDS07, DGTDS08, DGTDS09, DGTDS10, DGTDS11, DGTDS12, DGTDS13, DGTDS14, DGTDS15, DGTDS16, DGTDS17, DGTDS18
DASD Volume	DGTVA05, DGTVA06, DGTVA07, DGTVA08, DGTVA09, DGTVA10, DGTVA11, DGTVA12, DGTVA13, DGTVA14, DGTVA15, DGTVA16, DGTVA17, DGTVA18
Management Class	DGTML00, DGTML01, DGTML02, DGTML03, DGTML04, DGTML05, DGTML06, DGTML07, DGTML08, DGTML09, DGTML10, DGTML11, DGTML12, DGTML13
Data Class	DGTBL00, DGTBL01, DGTBL02, DGTBL03, DGTBL04, DGTBL05, DGTBL06, DGTBL07, DGTBL08, DGTBL09, DGTBL10, DGTBL11, DGTBL12, DGTBL13, DGTBL14
Storage Class	DGTSC01, DGTSC02, DGTSC03, DGTSC04, DGTSC06, DGTSC07
Storage Group	DGTGL00, DGTGL01, DGTGL02, DGTGL03, DGTGL04, DGTGL05, DGTGL06, DGTGL07, DGTGL08, DGTGL09, DGTGL10, DGTGL11, DGTGL12, DGTGL13
Aggregate Group	DGTAG05, DGTAG06, DGTAG07, DGTAG08, DGTAG09, DGTAG10, DGTAG11, DGTAG12
Optical Volume	DGTOV01, DGTOV02, DGTOV03, DGTOV04, DGTOV05, DFT0V06
Tape Volume	DGTTV11, DGTTV12, DGTTV13, DGTTV14, DGTTV15, DFTTV16, DGTTV17
Optical Library Configuration	DGTLC01, DGTLC02, DGTLC03, DGTLC04, DGTLC05, DGTLC07, DGTLC20
Optical Drive Configuration	DGTRC01, DGTRC02, DGTRC03, DGTRC04, DGTRC05
Tape Library Configuration	DGTLM10, DGTLM11, DGTLM12, DGTLM13, DGTLM14, DGTLM15, DGTLM16, DGTLM17

Application	Member Names
List	DGTJL05, DGTJL06, DGTJL07

The statements in the fixed area can be modified from the member, DGTFO00, of the message library. The fixed areas that can be modified are identified in items 2 on page 200 and 3 on page 200.

There are five panels for each application, based on terminal size. You can modify one or more of the following members of the panel library to change the "BOTTOM OF DATA" line:

Application	Screen Size 24x80	Screen Size 27x132	Screen Size 32x80	Screen Size 43x80	Screen Size 31x160
Data Set, folded	DGTLGP11	DGTLGP12	DGTLGP13	DGTLGP14	DGTLGP15
Data Set, unfolded	DGTLGP41	DGTLGP42	DGTLGP43	DGTLGP44	DGTLGP45
DASD, Optical, or Tape Volume	DGTLGP31	DGTLGP32	DGTLGP33	DGTLGP34	DGTLGP35
Data Class, **Storage Class**, **Management Class**, **Storage Group**, **Aggregate Group**, **Optical Library Configuration**, **Optical Drive Configuration**, **Tape Library Configuration**	DGTLGP21	DGTLGP22	DGTLGP23	DGTLGP24	DGTLGP25
List	DGTLGP51	DGTLGP52	DGTLGP53	DGTLGP54	DGTLGP55

When ISMF is installed, the message library name is SYS1.DGTMLIB, and the panel library is called SYS1.DGTPLIB.

Recommendations

Before you begin to modify panels, consider the following recommendations:

- Do not shorten the column headings.

  If you change the headings on the List Entry Panel, you should also change the corresponding fields and text on the selection entry panel, the VIEW and SORT Entry Panels. For Data Set, Volume, and List Applications, you should also change the corresponding fields and text on the FILTER Entry Panel. You should also change the help panels and messages that support these entry panels and the list panel.

- Make copy of the library that you modify, because the next time a link-edit or maintenance is performed on the member you have changed, your change will be lost.

- When editing ISMF libraries, do not change the NUM field in the profile and do not issue the RENUM editing command.

- You can change the wording, but you cannot change the order of the columns or the characters to the left or right of the headings. Also, you cannot add or delete columns.

- The widths of the first two columns are fixed, so any textual changes you make will not alter the size of the fields.

- You can increase the lengths of the headings, as well as modify the text, in the third through the last columns. Be sure to update the lengths associated with the text you lengthen.

```
/***********************************************************************
/*  Column 10: REC FMT
/*  Length   : 5
/***********************************************************************
DGTDS080    '5'
' REC '

DGTDS081
' FMT '

DGTDS082
'(10)-'
```

Figure 147. Column 10 of Member DGTDS08.

If, for example, you would like to change column 10 to say RECORD FORMAT
instead of REC FMT, simply perform these tasks:
1. Access member DGTDS08 of the MESSAGE library (see Figure 147).
2. Enter PROFILE on the command line and verify that NUMBER is set OFF.
3. Replace ' REC ' with 'RECORD' and replace ' FMT ' with 'FORMAT'.
4. Replace the decimal length '5' with '6' (the new length).
5. Pad the tag with dashes. In other words, '(10)-' would become '-(10)-'.
6. Compare your results to Figure 148.

```
/***********************************************************************
/*  Column 10: RECORD FORMAT
/*  Length   : 6
/***********************************************************************
DGTDS080    '6'
'RECORD'

DGTDS081
'FORMAT'

DGTDS082
'-(10)-'
```

Figure 148. Column 10 of Member DGTDS08 after Customization.

Customizing Messages

This section explains how to modify ISMF messages and how to add your own
messages. It is divided into two sections, "Modifying ISMF Messages," and
"Creating New Messages" on page 205.

Modifying ISMF Messages

This section discusses finding, changing, and creating a message. Some restrictions
to keep in mind follow.

Restrictions
- Do not change the names of any of the variables contained in ISMF messages.
- Do not change the message number.
- Short messages cannot exceed 24 characters.
- Long messages cannot exceed 78 characters.
- Message text can be entered in upper and lower case, but the other fields in the
  message—the message number, variables, keywords, and the help panel
  ID—must be in uppercase.

- When you change the text of a message you should change the corresponding message help panel.

Finding the Message You Want to Change

To find the message you want to change you need to know the message number. The message number is listed at the top of each message help panel (see Figure 149).

```
HELP----------------------------ISMF MESSAGE----------------------------HELP
COMMAND ===>

   MESSAGE NUMBER:  DGTUS009

   SHORT MESSAGE:   COMPRESS FAILED

   LONG MESSAGE:
 COMPRESS terminated with a return code of 12
```

Figure 149. Identifying the Message Number

Related ISMF short and long messages are stored together in members of the message library. To determine where the message you want to change is stored, truncate the last digit of the message number. This will give you the member name. Thus, the message DGTUS009 is stored in DGTUS00 with other messages that begin with DGTUS00.

Making the Change

Once you have identified the member where the message is stored, you are ready to make the change. Modify the message and save your changes. Then modify the message help panel that is pointed to by HELP. For example, to change message DGTUS009, you would edit the message itself in member DGTUS00 and the related text in the message help panel DGTMUS09. Figure 150 shows the entry in the message library for DGTUS009. The HELP field is highlighted.

```
DGTUS001   '&DGTCMDNM FAILED      '   .HELP= DGTMUS01   .ALARM= YES
'An error occurred while processing the &DGTCMDNM list command

DGTUS002   '&DGTCMDNM FAILED      '   .HELP= DGTMUS02   .ALARM= YES
'An error occurred while processing the &DGTCMDNM list command

DGTUS005   '&DGTCSMSG             '   .HELP= DGTMUS05   .ALARM= YES
'&DGTCLMSG;

DGTUS006   '&CURLIOP FAILED       '   .HELP= DGTMUS06   .ALARM= YES
'&CURLIOP line operator failed due to an ISMF internal error

DGTUS007   '&DGTCMDNM CANCELLED    '                    .ALARM= YES
'&DGTCMDNM terminated with a return code of 4

DGTUS008   '&DGTCMDNM FAILED       '                    .ALARM= YES
'&DGTCMDNM terminated with a return code of &DGTRCODE;

DGTUS009   '&DGTCSMSG             '   .HELP= DGTMUS09   .ALARM= YES
'&DGTCLMSG;
```

Figure 150. Changing the Short and Long Messages

Creating New Messages

You can use the procedures for message definition described in *ISPF Dialog Management Services* to add your messages to those provided by ISMF. When you add messages you should consider:

Message numbers: Make sure that the message numbers you assign do not duplicate existing ones.

Consistency: ISMF uses short and long messages, and message help panels to identify errors. If you add short messages, you should add the supporting long messages and message help panels. The style of the message help panels should be consistent with ISMF panels.

Customizing Job Skeletons

This section explains how to tailor the job skeletons that ISMF uses to generate the job streams used by DFSMSdss, ICKDSF, IEBPTPCH, and IDCAMS.

Restrictions

- You can remove variables from the skeletons, but you should make sure that a variable you remove from one part of a skeleton isn't needed by some other part.
- Do not change any of the variable names in the skeletons. ISMF code is dependent on these names.
- If you add variables, make sure that the names you use do not duplicate existing ones.

Finding the Skeleton You Want to Change

The ISMF skeletons for DFSMSdfp and DFSMSdss line operators and list commands are kept in their respective skeleton libraries. DFSMSdfp and DFSMSdssmembers begin with DGTK. The remaining characters in the name identify the line operator or command. Thus the member DGTKCY01 contains the job skeleton for the COPY line operator.

Note: When ISMF is installed, the skeleton library name is SYS1.DGTSLIB.

Making the Changes

There are several ways to customize the ISMF skeletons for DFSMSdfp and DFSMSdss jobs:

- You can add statements to imbed skeletons of your own.
- You can modify the variables in the skeletons to override the input that the skeletons get from the values entered on the data entry and job submission panels.
- You can add pre- and postprocessing steps to the job stream.

For example, if you want to imbed your own skeleton in the ISMF skeleton, you begin by creating the skeleton you want to imbed. The new skeleton might contain statements that add new steps. Then you imbed the name of this skeleton in the original skeleton. The job stream that is generated from the tailored skeleton contains the new steps.

Customizing Tables

This section describes how to customize command tables. It is divided into two sections, "Customizing the ISPF Command Tables" and "Customizing the ISMF Command and Line Operator Tables" on page 207. Restrictions to customizing the tables are listed at the beginning of each section.

Customizing the ISPF Command Tables

This section explains the additions you can make to the ISPF command tables in the table library.

Restrictions
- Do not delete any of the entries in the command tables
- Do not delete any of the tables

Finding the Table You Want to Change

The ISPF command tables are kept in the table library. The tables you can change have a name that ends in CMDS.

Making the Changes

You can make changes to the table library using the ISPF command table utility (option 3.9). Figure 151 is an example of a table displayed using option 3.9.

```
     VERB      T  ACTION
                   DESCRIPTION

''  CLEAR     0  PASSTHRU

''  COMPRESS  0  PASSTHRU

''  COPY      0  PASSTHRU

''  DOWN      0  PASSTHRU

''  DUMP      0  PASSTHRU

''  FILTER    0  PASSTHRU

''  FIND      0  PASSTHRU

''  LEFT      0  PASSTHRU

''  PROFILE   0  PASSTHRU

''  RELEASE   0  PASSTHRU

''  RESHOW    0  PASSTHRU
```

Figure 151. Using Command Table Utility to Update ISPF Tables

The command table utility reads the table from ISPTLIB and writes it out to ISPTABL. If you use the utility to update a command table, you should make sure that both libraries use the same data set for the table you want to change. When you add a command to the ISPF command tables, you should also add it to the ISMF tables. The method you use to do this is described in "Customizing the ISMF Command and Line Operator Tables" on page 207.

Controlling Truncation

Truncation is determined by the ZCTTRUNC and the ZTACT fields in the command table. All ISMF commands in the ISPF table are set with a truncation of 0 and an action of PASSTHRU. This passes the entire command to the ISMF dialog for resolution. When you add a command, you should coordinate the truncation value you specify with the values specified for the existing commands in the ISPF tables, the system tables, and the tables for ISMF commands. For more information on the structure of ISPF command tables, and how to alter them, see *ISPF Dialog Management Services*.

Customizing the ISMF Command and Line Operator Tables

This section explains the changes and additions you can make to the ISMF command and line operator tables in the load library.

Restrictions

- Do not change the name of the command or line operator. You can, however, change the name of the routine that gets control.
- You can replace one of the empty command or line operator tables that ISMF ships with a table of your own, but your table should use the same format as the ISMF tables.The control block, DGTMCTAP, in "ISMF Command Table Format DGTMCTAP," contains the format for the command tables. The control block, DGTMLPAP, in "ISMF Line Operator Table Format DGTMLPAP," contains the format for the line operator tables. If new commands are added to the tables, ISMF will recognize them.

ISMF Command Table Format DGTMCTAP

```
CTAP
Offsets      Type    Length  Name          Description
===========================================================================
       COMMAND TABLE - APPLICATION TABLE (CTAP)
===========================================================================
     0   (0) CHARACTER    *  CTAP
     0   (0) CHARACTER    8  CTAPMAIN
     0   (0) CHARACTER    4  CTAPVID       VISUAL ID: 'CTAP'
     4   (4) FIXED        2  CTAPLEN       LENGTH OF CTAP
     6   (6) FIXED        2  CTAPCNT       # OF COMMAND ENTRIES
     8   (8) CHARACTER   28  CTAPENT(*)
     8   (8) CHARACTER    8  CTAPNAME      COMMAND NAME

    16  (10) FIXED        1  CTAPTRUN      MIN. # OF CHARACTERS USED IN
                                          TRUNCATION
    17  (11) BITSTRING    1  CTAPFLAG      FLAG FIELD
          1... ....          CTAPST        COMMAND STATUS
          .1.. ....          CTAPIMED      IMMEDIATE COMMAND
          ..1. ....          CTAPLIST      LIST COMMAND
          ...1 ....          CTAPACMD      ALTERNATE COMMAND
          .... 1111          CTAPRSVD      RESERVED
    18  (12) CHARACTER    8  CTAPRTNM      COMMAND ROUTINE NAME
    26  (1A) CHARACTER    8  CTAPTENM      CMD TERMINATION ROUTINE
    34  (22) BITSTRING    2  *             FILL UP END OF WORD
Constants
Length  Type      Value     Name          Description
===========================================================================
       END OF COMMAND TABLE - APPLICATION TABLE (CTAP) DEFINE
       COMMAND STATUS BITS
===========================================================================
       BIT       1         CMDENABL      COMMAND STATUS IS ENABLE
       BIT       1         CMDDSABL      COMMAND STATUS IS DISABL
```

ISMF Line Operator Table Format DGTMLPAP

```
        LPAP
        Offsets     Type    Length   Name          Description
        ==========================================================================
            LINE OPERATOR TABLE - APPLICATION TABLE (LPAP)
        ==========================================================================
            0    (0) CHARACTER     *   LPAP
            0    (0) CHARACTER     8   LPAPMAIN
            0    (0) CHARACTER     4   LPAPVID       VISUAL ID: 'LPAP'
            4    (4) FIXED         2   LPAPLEN       LENGTH OF LPAP
            6    (6) FIXED         2   LPAPCNT       # OF LINE OPERATORS
            8    (8) CHARACTER    28   LPAPENT(*)
            8    (8) CHARACTER     8   LPAPLONM      LINE OPERATOR NAME
           16   (10) FIXED         1   LPAPTRUN      MIN. # OF CHARACTERS USED IN
                                                     TRUNCATION
           17   (11) CHARACTER     3   *             RESERVED, UNUSED
           20   (14) CHARACTER     8   LPAPRTNM      LINE OP ROUTINE NAME
           28   (1C) CHARACTER     8   LPAPTENM      TERMINATION ROUTINE
```

Finding the Tables

The ISMF tables for line operators and commands are kept in the load library. They are grouped by function. Table 41 lists the application member names for line operators. Table 42 on page 210 lists the application member names for commands.

Table 41. Member Names for Line Operator Tables

Function:	DFSMSdfp ISMF	DFSMShsm ISMF	DFSMSdss ISMF	ICKDSF ISMF	unused
Data Set Member	DGTTLPD1	DGTTLPD2	DGTTLPD3	none	DGTTLPD5 DGTTLPD6 DGTTLPD7 DGTTLPD8
DASD Volume Member	DGTTLPV1	none	DGTTLPV2	DGTTLPV5	DGTTLPV3 DGTTLPV4 DGTTLPV6 DGTTLPV7 DGTTLPV8
Management Class Member	DGTTLPM1	none	none	none	DGTTLPM2 DGTTLPM3 DGTTLPM4 DGTTLPM5 DGTTLPM6 DGTTLPM7 DGTTLPM8
Data Class Member	DGTTLPB1	none	none	none	DGTTLPB2 DGTTLPB3 DGTTLPB4 DGTTLPB5 DGTTLPB6 DGTTLPB7 DGTTLPB8
Storage Class Member	DGTTLPS1	none	none	none	DGTTLPS2 DGTTLPS3 DGTTLPS4 DGTTLPS5 DGTTLPS6 DGTTLPS7 DGTTLPS8

Table 41. Member Names for Line Operator Tables (continued)

Function:	DFSMSdfp ISMF	DFSMShsm ISMF	DFSMSdss ISMF	ICKDSF ISMF	unused
Storage Group Member	DGTTLPG1	none	none	none	DGTTLPG2 DGTTLPG3 DGTTLPG4 DGTTLPG5 DGTTLPG6 DGTTLPG7 DGTTLPG8
Aggregate Group Member	DGTTLPH1	none	none	none	DGTTLPH2 DGTTLPH3 DGTTLPH4 DGTTLPH5 DGTTLPH6 DGTTLPH7 DGTTLPH8
Optical Volume Member	DGTTLPO1	none	none	none	DGTTLPO2 DGTTLPO3 DGTTLPO4 DGTTLPO5 DGTTLPO6 DGTTLPO7 DGTTLPO8
Optical Library Configuration Member	DGTTLPL1	none	none	none	DGTTLPL2 DGTTLPL3 DGTTLPL4 DGTTLPL5 DGTTLPL6 DGTTLPL7 DGTTLPL8
Optical Drive Configuration Member	DGTTLPR1	none	none	none	DGTTLPR2 DGTTLPR3 DGTTLPR4 DGTTLPR5 DGTTLPR6 DGTTLPR7 DGTTLPR8
Tape Library Configuration Member	DGTTLPY1	none	none	none	DGTTLPY2 DGTTLPY3 DGTTLPY4 DGTTLPY5 DGTTLPY6 DGTTLPY7 DGTTLPY8
List Application Member	DGTTLPZ1	none	none	none	DGTTLPZ2 DGTTLPZ3 DGTTLPZ4 DGTTLPZ5 DGTTLPZ6 DGTTLPZ7 DGTTLPZ8

Table 41. Member Names for Line Operator Tables (continued)

Function:	DFSMSdfp ISMF	DFSMShsm ISMF	DFSMSdss ISMF	ICKDSF ISMF	unused
Mountable Tape Volume Member	DGTTLPT1	none	none	none	DGTTLPT2 DGTTLPT3 DGTTLPT4 DGTTLPT5 DGTTLPT6 DGTTLPT7 DGTTLPT8

Table 42. Member Names for Command Tables

Function:	DFSMSdfp ISMF	DFSMSdss ISMF	NaviQuest	unused
Data Set Member	DGTTCTD1	DGTTCTD2	DGTTCTD6	DCTTCTD3 DGTTCTD4 DGTTCTD5 DGTTCTD7 DGTTCTD8
DASD Volume Member	DGTTCTV1	none	DGTTCTV6	DGTTCTV2 DCTTCTV3 DGTTCTV4 DGTTCTV5 DGTTCTV7 DGTTCTV8
Management Class Member	DGTTCTM1 DGTTCTM2	none	none	DGTTCTM3 DGTTCTM4 DGTTCTM5 DGTTCTM6 DGTTCTM7 DGTTCTM8
Data Class Member	DGTTCTB1 DGTTCTB2	none	none	DGTTCTB3 DGTTCTB4 DGTTCTB5 DGTTCTB6 DGTTCTB7 DGTTCTB8
Storage Class Member	DGTTCTS1 DGTTCTS2	none	none	DGTTCTS3 DGTTCTS4 DGTTCTS5 DGTTCTS6 DGTTCTS7 DGTTCTS8
Storage Group Member	DGTTCTG1 DGTTCTG2	none	none	DGTTCTG3 DGTTCTG4 DGTTCTG5 DGTTCTG6 DGTTCTG7 DGTTCTG8
Aggregate Group Member	DGTTCTH1 DGTTCTH2	none	none	DGTTCTH3 DGTTCTH4 DGTTCTH5 DGTTCTH6 DGTTCTH7 DGTTCTH8
ACS Member	DGTTCTA1 DGTTCTA2	none	none	DGTTCTA3 DGTTCTA4 DGTTCTA5 DGTTCTA6 DGTTCTA7 DGTTCTA8

Table 42. Member Names for Command Tables (continued)

Function:	DFSMSdfp ISMF	DFSMSdss ISMF	NaviQuest	unused
CDS Member	DGTTCTC1 DGTTCTC2	none	none	DGTTCTC3 DGTTCTC4 DGTTCTC5 DGTTCTC6 DGTTCTC7 DGTTCTC8
Optical Volume Member	DGTTCTO1	none	none	DGTTCTO2 DCTTCTO3 DGTTCTO4 DGTTCTO5 DGTTCTO6 DGTTCTO7 DGTTCTO8
Optical Library Configuration Member	DGTTCTL1	none	none	DGTTCTL2 DGTTCTL3 DGTTCTL4 DGTTCTL5 DGTTCTL6 DGTTCTL7 DGTTCTL8
Optical Drive Configuration Member	DGTTCTR1	none	none	DGTTCTR2 DGTTCTR3 DGTTCTR4 DGTTCTR5 DGTTCTR6 DGTTCTR7 DGTTCTR8
Tape Library Configuration Member	DGTTCTY1	none	none	DGTTCTY2 DGTTCTY3 DGTTCTY4 DGTTCTY5 DGTTCTY6 DGTTCTY7 DGTTCTY8
List Application Member	DGTTCTZ1	none	none	DGTTCTZ2 DGTTCTZ3 DGTTCTZ4 DGTTCTZ5 DGTTCTZ6 DGTTCTZ7 DGTTCTZ8
Mountable Tape Volume Member	DGTTCTT1	none	none	DGTTCTT2 DGTTCTT3 DGTTCTT4 DGTTCTT5 DGTTCTT6 DGTTCTT7 DGTTCTT8

Table 43 lists the member names for the profile application command tables. The tables are used for all applications.

Table 43. Member Names for Profile Application Command Tables

Function	Member Name
DFSMSdfp ISMF commands	DGTTCTP1
DFSMSdss ISMF commands	DGTTCTP2
unused	DCTTCTP3
unused	DGTTCTP4

Function	Member Name
unused	DGTTCTP5
unused	DGTTCTP6
unused	DGTTCTP7
unused	DGTTCTP8

Making the Changes

There are two ways to change the ISMF tables for line operators and commands. You can add new entries to the existing tables or to one of the unused tables ISMF ships. If you add entries to the ISMF tables, you should also update the ISPF command table.

Whenever a new command is added to an application in ISMF, it must be added to the command table for all applications in ISMF, not only for the application affected.

Modifying the Existing Tables

Because the tables are stored in the load library, you cannot edit them directly.

If you want to make extensive changes
- Create your own table following the format that ISMF uses. See "ISMF Line Operator Table Format DGTMLPAP" on page 207 for the format of the line operator tables.
- Enter the line operators along with the ISMF entries in the new table.
- Link-edit the new table under the original member name. This will overlay the original table with your new table.

If you want to make minor changes

you can SUPERZAP the member that contains the table you want to change. However, the next time a link-edit or maintenance is performed on the member, the change will be lost. For information on how to use SUPERZAP, see the publication, *z/OS MVS Diagnosis: Tools and Service Aids*.

Using One of the Unused Tables

ISMF ships some unused command and line operator tables in the load library. You can use the line operator tables to add your own entries. Table 41 on page 208, Table 42 on page 210, and Table 43 on page 211 list the member names for the unused tables. To make entries in one of the unused tables:
- Create a table following the format that ISMF uses.
- Enter the new line operators in the table. For new commands, set the CTAPACMD bit to 1. Also, be sure to update the count value in CTAPCNT to reflect the number of entries in the table. See "ISMF Command Table Format DGTMCTAP" on page 207.
- Link-edit the table using the member name for the unused table that you want to overlay.

Customizing the ISMF CLIST

This section explains how to change the CONTROL statement on the ISMF CLISTs.

Restrictions

Do not alter the CLISTs themselves. Changes to the logic may create problems with job submission. For example, jobs may be submitted incorrectly, or not submitted at all. Logging of submission may fail, or it may be incorrect. Changing the CLISTs could also cause incorrect feedback for job submission. If you wish to modify the job streams, you can do so by tailoring the job skeletons. The method you use to do this is described in "Customizing Job Skeletons" on page 205. It is easier than changing the CLISTs, and less error prone.

Finding the CLIST

CLISTs are stored in the CLIST library. The member names include, for example, DGTQSU01 for the DFSMSdss CLIST, DGTQSF01 for the DFSMSdfp CLIST, ICESRCFG for the DFSORT CLIST, and DGTQCB01 for SETCACHE.

Note: When ISMF is installed, the CLIST library name is SYS1.DGTCLIB.

Making the Changes

You can change the CONTROL statement that ISMF ships with the CLIST using any of the operands for CONTROL listed in *TSO V2 Command Reference*. Figure 152 shows the CONTROL statement in the DFSMSdss ISMF CLIST. It is located at the beginning of the data set, immediately after the comment section.

```
/*                                                                      *
/*                                                                      *
/*   PROCESSOR:  ISPF                                                   *
/*                                                                      *
/*   CHANGE ACTIVITY:  LEVEL 0                                          *
/*   $L0=ISMFREL,JAE2211,,PRGRMA:                                       *
/*                                                                      *
/**********************************************************************
CONTROL NOFLUSH PROMPT
/**********************************************************************
/*   BEGIN CLIST MAINLINE                                               *
/**********************************************************************
```

Figure 152. Control Statement in the ISMF CLIST

To change the CONTROL statement you need to edit the CLIST member in the CLIST library. For example, to change the CONTROL statement for DFSMSdss, you need to edit the DGTQSU01 member in the CLIST library. You could add the LIST operand as shown in Figure 153 on page 214.

```
/*                                                                      *
/*                                                                      *
/*   PROCESSOR:  ISPF                                                   *
/*                                                                      *
/*   CHANGE ACTIVITY:  LEVEL 0                                         *
/*   $L0=ISMFREL,JAE2211,,PRGRMA:                                      *
/*                                                                      *
/**********************************************************************
CONTROL NOFLUSH PROMPT LIST
/**********************************************************************
/*   BEGIN CLIST MAINLINE                                             *
/**********************************************************************
```

Figure 153. Changing the Control Statement

Appendix D. Accessibility

Accessible publications for this product are offered through the z/OS Information Center, which is available at www.ibm.com/systems/z/os/zos/bkserv/.

If you experience difficulty with the accessibility of any z/OS information, please send a detailed message to mhvrcfs@us.ibm.com or to the following mailing address:

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Attention: MHVRCFS Reader Comments
Department H6MA, Building 707
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USA

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size.

Using assistive technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to *z/OS TSO/E Primer*, *z/OS TSO/E User's Guide*, and *z/OS ISPF User's Guide Vol I* for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users accessing the z/OS Information Center using a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), they can appear on the same line, because they can be considered as a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1) are mutually

exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, you know that your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The * symbol can be used next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is given the format 3 * FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* * FILE indicates that syntax element * FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol giving information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, this indicates a reference that is defined elsewhere. The string following the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you should refer to separate syntax fragment OP1.

The following words and symbols are used next to the dotted decimal numbers:

- ? means an optional syntax element. A dotted decimal number followed by the ? symbol indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that syntax elements NOTIFY and UPDATE are optional; that is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.
- ! means a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicates that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the same dotted decimal number can specify a ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In this example, if you include the FILE keyword but do not specify an option, default option KEEP will be applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1!

(KEEP), and 2.1.1 (DELETE), the default option KEEP only applies to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

- * means a syntax element that can be repeated 0 or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1* data area, you know that you can include one data area, more than one data area, or no data area. If you hear the lines 3*, 3 HOST, and 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

  Note:
  1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
  2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you could write HOST STATE, but you could not write HOST HOST.
  3. The * symbol is equivalent to a loop-back line in a railroad syntax diagram.

- \+ means a syntax element that must be included one or more times. A dotted decimal number followed by the + symbol indicates that this syntax element must be included one or more times; that is, it must be included at least once and can be repeated. For example, if you hear the line 6.1+ data area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. Similar to the * symbol, the + symbol can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loop-back line in a railroad syntax diagram.

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