



SERENA[®]

StarTool[®] FDM 7.7.1

User's Guide

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Welcome to StarTool FDM

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About This Book

This document describes StarTool® FDM (File and Data Manager) Version 7.7.1, a product of Serena® Software, Inc. It explains the concepts and facilities of StarTool FDM, describes the product's ISPF-based, menu-driven interface, and provides usage information for the functions included in the base product.

Information about the command-line interface and functions specific to the separately licensed StarBat Option, DB2 Option, IMS Option, and Extended Compare Option are described elsewhere.

StarTool FDM StarTool FDM is a multi-purpose file and data management utility for IBM mainframe systems. It provides an ISPF-based, menu-driven, integrated interface to a variety of file editors and data management tools for PDS, PDSE, VSAM, direct-access, IMS, and DB2 files. A TSO command-line interface is supported concurrently, and bulk file updates in batch mode are also supported. Separately licensed product options allow users to purchase only the capabilities they need.

Audience The intended audience for this document is IBM mainframe systems programmers and application specialists who want to manage or edit a variety of files and data formats using a single, flexible tool.

Before You Begin

New Information Change bars in the left margin (shown at left) identify substantive changes to this publication since StarTool FDM Version 7.7.

Corrections and Technical Support The Readme file on the product media contains updates and corrections to this manual issued after the publication date. It also provides contact information for Serena Customer Support.

Conventions

Terminology Throughout this document:

- z/OS refers to the z/OS™ operating system.

- StarTool FDM may also be referenced as StarTool or FDM.
- *somnode* is the high-level qualifier you specify for StarTool FDM installation libraries.
- *vrm* is the version, release, and modification level of StarTool FDM without punctuation; for example, for StarTool FDM Version 7.7.1, the value of *vrm* is 771.

Typographic Conventions

The following textual conventions are used throughout this document to highlight special information:

Convention	Meaning
Bold	Panel title or field name.
<i>Italics</i>	Introduces new terms, sets off important information, or marks document titles.
UPPERCASE	Indicates keys or key combinations; for example, the ENTER key.
Bright blue	Clickable cross-reference or active hyperlink.
Monospaced	JCL, source code, or message text. Also used for member names, file names, and commands if these are not clear from context.
MONOSPACED UPPERCASE	Required value or literal in code or JCL parameter.
monospaced lowercase	<p>Pattern for a field value or parameter you specify. Number of characters is significant. Upper-case characters are literals. Lower-case characters are placeholders that indicate data type, where:</p> <ul style="list-style-type: none"> y = year m = month d = day a = alphanumeric n = numeric x = other or mixed ? = one-character wild card * = n-character wild card <p>Punctuation other than wild cards must be reproduced in the position shown.</p> <p><i>Examples:</i></p> <ul style="list-style-type: none"> ■ yyyy/mm/dd ■ C'aa' ■ B'nn' ■ D'nn' ■ X'nn'
<i>monospaced italics</i>	Descriptive placeholder for value or parameter you specify, but not a pattern; for example, <i>filename</i> .

Convention	Meaning
Square braces []	Optional parameter or choice of values. May be nested.
Vertical bar	Inside braces, a vertical bar separates mutually exclusive parameter choices or values.
Ellipsis . . .	Optional repetitions of a pattern in a list.
Greater-than symbol >	Separates items in a chain of menu or command selections on a GUI client. For example, Start > All Programs > Serena > <i>product_name</i> .

Documentation

A complete set of electronic product documentation for StarTool FDM is available on the product distribution media. You can also download the complete documentation suite from the Serena Customer Support Web site at <http://www.serena.com/support/>.

Printed installation guides and *Quick Reference* documents are shipped with the physical product media.

Related Publications

Available StarTool FDM publications include:

Title	Description
<i>Serena StarTool FDM Installation Guide</i>	System requirements, installation instructions, and configuration information for StarTool FDM.
<i>Serena SER10TY User's Guide</i>	Installation information for SER10TY licensing software and instructions on how to apply license key SERTificates.
<i>Serena StarTool FDM Quick Reference</i>	Overview of StarTool FDM commands, with syntax details for frequently used functions. Includes PEDIT and StarBat subcommands.
<i>Serena StarTool FDM User's Guide</i>	StarTool FDM concepts and facilities, with instructions for using the ISPF-based menu-driven interface.
<i>Serena StarTool FDM Command Reference</i>	TSO command-line syntax and parameter reference, organized alphabetically. Interactive subcommands included for major functions.
<i>Serena StarTool FDM System Services</i>	Advanced reference to operating system calls used by StarTool FDM.
<i>Serena StarTool FDM StarBat Option</i>	Batch-mode interface for bulk changes to data sets. StarTool FDM functions invoked by JCL procedures.
<i>Serena StarTool FDM DB2 Option</i>	StarTool FDM data management functions for DB2 relational database tables, columns, and rows, with SQL processing support.
<i>Serena StarTool FDM IMS Option</i>	StarTool FDM data management functions for IMS hierarchical database files and structures.

Title	Description
<i>Serena StarTool FDM Extended Compare Option</i>	Integrated file comparison utility based on Serena Comparex. Data file versus text file comparison logic.
<i>Serena StarTool FDM Messages</i>	Consolidated message reference for base product and all licensed product options, with error recovery recommendations.

Accessing the Electronic Documentation

Electronic documentation is stored two different locations on the product distribution media. The Readme file, the Master License and Services Agreement (MLSA), and the *StarTool FDM Installation Guide* are located in the Documentation folder in the root directory. They can be accessed without installing the product.

The PC client installer unloads the full document set from the binary product files to the location you designate on your client PC during installation. The documentation is provided in Adobe's Portable Document Format (PDF).

Using the PDF Documentation

To view PDF files, use Adobe® Reader®, which is freely available from Adobe on the World Wide Web at <http://www.adobe.com>. Reader Version 7.0.5 or higher is recommended.



TIP Be sure to download the *full version* of Reader. The more basic version does not include the cross-document search feature.

This section highlights some of the main Reader features. For more detailed information, see the Adobe Reader online help system.

The PDF manuals include the following features:

- **Bookmarks.** All of the online manuals contain predefined bookmarks that make it easy for you to quickly jump to a specific topic. By default, the bookmarks appear to the left of each online manual.
- **Links.** Cross-reference links within an online manual enable you to jump to other sections within the manual and to other manuals with a single mouse click. These links appear in blue.
- **Printing.** While viewing a manual, you can print the current page, a range of pages, or the entire manual.
- **Advanced search.** Starting with Version 6, Adobe Reader includes an advanced search feature that enables you to search across multiple PDF files in a specified directory. (This is in addition to using any search index created by Adobe Catalog—see step 3 below.)

To search across multiple PDF documents at once, perform the following steps (requires Adobe Reader Version 6 or higher):

- 1 In Adobe Reader, select Edit > Search (or press CTRL+F).
- 2 In the text box, enter the word or phrase for which you want to search.

- 3 Select the **All PDF Documents in** option, and browse to select the folder in which you want to search. (If you have a document open that has an Adobe Catalog index attached, you can leave the **In the index named...** option selected to search across all the manuals in the index.)
- 4 Optionally, select one or more of the additional search options, such as **Whole words only** and **Case-Sensitive**.
- 5 Click the **Search** button.



NOTE Optionally, you can click the **Use Advanced Search Options** link near the lower right corner of the application window to enable additional, more powerful search options. (If this link says **Use Basic Search Options** instead, the advanced options are already enabled.) For details, see Adobe Reader's online help.

Chapter 1

Concepts and Facilities

Serena[®] StarTool[®] FDM (File and Data Manager) is a multi-purpose file and data management utility for IBM mainframe systems. It provides an ISPF-based, menu-driven, integrated interface to a variety of file editors and data management tools for PDS, PDSE, VSAM, direct-access, IMS, and DB2 files. A TSO command-line interface is also supported.

This chapter describes the following FDM concepts, terminology, features, and functions: .

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Execution Modes

StarTool FDM executes under the IBM z/OS operating system. In addition, the following environments should be available:

- ISPF and ISPF/PDF (*version 4.1 or above*)
- TSO/E

FDM runs as a normal ISPF dialog. It also operates as a normal TSO command processor in the background under the terminal monitor program. Except for the functions that are available in dialog mode only, a user who is familiar with FDM operating under the ISPF dialog manager can enter the same subcommands in TSO native mode, in a batch input stream, or under started task control.

ISPF dialog facilities are also available in batch executions of StarTool FDM if an ISPF environment is available. Even though line commands are not supported in batch mode (except with the global APPLY command) and StarTool FDM cannot prompt for input data, you can perform all of the major ISPMODE functions. A batch StarTool FDM application can save MEMLIST, LISTC/LISTF, or WORKPAD tables for later interactive use, or process multiple data sets in a table with global commands.

Data Set Processing

StarTool FDM can process disk files with partitioned, partitioned extended, sequential, VSAM, or direct organization. Compressed files and multivolume files are supported. Any record format is acceptable; StarTool FDM assumes that any partitioned data set with record format U is a load library and other libraries are source libraries.

Members in record format U PDSE libraries (program objects) are supported in functions or subcommands that examine the internal structure of load members. Subcommands that update program objects (such as REPLACE and ZAP) are not yet supported.

==>??Is the preceding statement still true??<==

The StarTool FDM StarBat Option supports IBM's Large Block Interface (LBI) feature for tape I/O. This requires an appropriately configured IBM tape drive and controller, and a level of DFSMSdfp which includes the Large Block Interface. Refer to the *StarTool FDM StarBat Option Getting Started Guide* for further details.

Interactive Interface

StarTool FDM differs in look and feel from ISPF panels, commands, and member lists. This difference is due to its direct approach in managing data sets and its indirect method of managing members.

StarTool FDM is command driven, much like ISPF Edit and Browse. StarTool FDM supports line commands, which are entered on the left side of an individual table line (in the CMD

field) to operate on a single table entry. Primary commands are entered on the top line (or OPTION line) of a panel. Primary commands are categorized as one of the following:

function commands	control different ISPF tables; these functions support their own commands
subcommands	request operations that are available in all modes of StarTool FDM usage
commands	request StarTool FDM operations that are available in ISPMODE only
dynamic commands	request StarTool FDM, TSO or ISPF facilities; they may be programmed from a panel
ISPF commands	request ISPF services such as HELP, SPLIT, SWAP, DOWN and UP

Member Lists

All ISPF features of editing, browsing, renaming, copying and deleting members are accessible from a single member list, which can be built on over 90 different criteria. You can select members by partial member names, member contents or member attributes such as ISPF statistics or linkage-edit date for load members.

Once a member group is built, StarTool FDM is able to treat it as an object, grouping all of these members together for use by different subcommands. Various functions ranging from the creation of member lists, copying, searching, updating, comparing, browsing, editing or deleting objects is possible.

Utility Commands

Complete data set management through utility commands that search catalogs, volumes or TSO allocations for a list of data sets are available through StarTool FDM. You can save these data set lists across TSO sessions to maintain a working set of commonly accessed data sets. Complimenting these features are a group of utilities, described below, that are unique to StarTool FDM.

StarTool FDM provides on-line facilities to act on information usually obtained from IBM batch utilities such as module linkage-edit dates, CSECT maps and module update history. You can perform many common linkage-editor functions interactively such as assigning member aliases, altering member attributes or creating batch JCL to relink multiple modules. Copying members is another StarTool FDM strength. You can copy load members to a data set with a smaller blocksize, copy members into the same library with a new name, copy PDS members to a sequential data set and convert CLISTS from fixed format to variable format (and vice-versa).

StarTool FDM provides data validation and recovery facilities found in no other product. These include the ability to restore a deleted source or load member from a partitioned data set, verify a data set or any individual members and expand the allocation (either directory blocks or secondary space) without disrupting normal processing. All of these features are supplemented by an audit trail that tracks all issued subcommands and their results in a viewable, scrollable, editable, printable and savable log.

Function Commands

Major function commands control ISPF tables. You enter these commands as primary commands (from the top command entry line of a panel). The ISPF tables are activated when first referenced and remain active until the StarTool FDM session terminates. An exception is made for the MEMLIST, CSECTS, PBROWSE, PEDIT and ZAP functions; they are inactivated for a CHANGE subcommand.

The following function commands control ISPMODE function tables:

LOG/8	for the log
MEMLIST	for a load or source member list
CSECTS	for a module CSECTS map
ZAP	for a module CSECT display for updates
LISTA/DDNAME	for TSO session file allocations
LISTC/LISTF	for data sets from a catalog and/or volume source
LISTV	for volume statistics and attributes
CAX	for active system catalog data sets
WORKPAD	for TSO commands, StarTool FDM subcommands and/or data set names
CALC	for floating point calculations
HEX	for hexadecimal calculations
CMDTBL	for command tables
PBROWSE	for parallel browse
PEDIT	for parallel edit

The above functions are listed in logical hierarchical order, which means that this is the order for selecting uncompleted (or pending) line commands when you type an END command. To see the current status of all functions or to select any function, type a STATUS command.

Line Commands

Line commands in StarTool FDM are from one to four characters long and are entered in the CMD column next to the item (member, data set, CSECT, ...) to which they refer. To get a directory of supported line commands in any function, type the M line command (for the menu system) and an O (for the options system) and an ultimate syntax assist panel.

Several block line commands are supported as well. To specify a block command, type its name on the first entry on which it will operate, and then position (by scrolling, with the F command or with the LOCATE command) to the last entry and place the same block command name on that entry. When you press ENTER, all entries are processed, in top-to-bottom order. You can type multiple line commands and/or block commands in StarTool FDM tables at the same time.

Primary Commands and Subcommands

You type commands and subcommands in StarTool FDM as primary commands. While operating in a StarTool FDM session, commands are ISPMODE-only requests for an operation. Subcommands are requests for an operation that are supported in all StarTool FDM environments.

For a directory of commands and subcommands, type M (menu) and O (options) and an ultimate syntax assist panel. For help on all subcommands and functions, type INDEX to go to the directory of StarTool FDM tutorials.

Features and Functions

StarTool FDM offers many one-step solutions through its many utilities, most of which are concentrated in four areas.

- 1 StarTool FDM informs the user of the structure of the current data set. It also bends and reshapes, cleans and renews the entire data set, without additional allocation.
- 2 StarTool FDM possesses tools for easily selecting subsets of PDS members. StarTool FDM performs complex or simple utility functions on all the members in the selected group, as easily as it does on one single member.
- 3 StarTool FDM contains several new or novel utility constructs.
- 4 In conjunction with ISPF/PDF, StarTool FDM provides a unified work place for getting your work done. The facilities you use are tied together with a collection of new, useful utilities to produce a powerful, integrated combination. A user can:
 - Add and delete directory blocks on the fly, without any reallocation of the data set.
 - Change any DCB attributes of the data set.
 - Release excess space in any amount, or add a new extent of any size even if the data set VTOC entry does not allow secondary extents.
 - Change the secondary allocation type (BLK, TRK or CYL) and size.
 - Display and format the entire contents of the data set VTOC entry.
 - Produce physical and logical block size statistics for the entire data set or on a member-by-member basis.
 - Flag or select all bad members or check for inconsistencies between members.
 - Compress the data set online.
 - Copy all or carefully selected members, to a new data set or a previously created data set.
 - Clone a new copy of a data set.



NOTE There is no need to do explicit data set allocation during any of these operations.

The following are operations that you can do about member selection capability:

- Select large groups of members by one or more of their attributes, for either source or load libraries.
- Select members whether or not a given character string is found, or not found, in the data.
- Change the load module attributes of groups of modules at one time, yet under careful member selection, without relinking the modules.
- Mass scan and replace of strings over all members, or only over carefully selected groups of members, for all types and block size of data sets, both source and load.
- Instant and automatic location of all alias members associated with any current group of PDS members, source or load.
- Generation of IEBCOPY select statements, either for direct call by StarTool FDM or for inclusion in a batch job.
- Disassembly of load modules into source code, and reconstruction back to equivalent load modules, for either single members, or entire load libraries. Delink of load modules into object decks, and reconstruction back to load modules.

Typical utility functions available in StarTool FDM include:

- A well-equipped deleted member restore facility.
- Compare PDS directories and members, for differences or matches.
- Display of PDS directory entries, formatted and with explanations of the various fields.
- Display of all external names associated with a load module. This includes module cross-reference by name, and external references.
- List of source and load modules in various formats.
- Comparison of source or load members by interfacing to SuperC or COMPAREX comparison utilities. COMPAREX can compare identically named CSECTS in two load members and identify any differences.
- Copy any source or load module in the current data set. ISPF statistics are preserved.
- Create or delete ISPF statistics for groups of members, or for individual members. This also works for members with LRECL greater than 255.
- Create JCL to relink load modules. Map the structure of load modules.
- Format the information in load module identification records. For example, display the PTF update history of IBM system modules, with ZAP history, in date order. Format COBOL compile options by CSECT.
- Correctly create aliases (with the proper entry points).
- Correctly rename load modules that have aliases, or aliases of load modules (without mixing up the proper main member names).

StarTool FDM also provides a small glimpse of ISPF conveniences:

- Convenient multi-function member and data set lists.
- Selectable menuing system with familiar ISPF functions and additional StarTool FDM functions.
- The Common User Access (CUA) compliant pull-down menus, pop-up tutorials and scrollable panels to make a friendlier user interface.

- The M command that provides primary and line command entry assistance.
- The O command that provides primary and line command syntax assistance.
- Dynamic commands that allow you to define new primary and line commands with corresponding actions.
- Multiple concurrent sessions with easy shifting between sessions.
- The WORKPAD for storing frequently used commands, subcommands and data set names across sessions.
- Global subcommands that apply to all data sets in a LISTA/DDNAME, LISTC/LISTF or WORKPAD table.
- List allocations of all data sets, catalogs and SYSOUT connected with the current session.
- Display information about all or groups of mounted disk volumes on the system.
- Multiple logs to save the outputs from StarTool FDM subcommands and other programs.
- Active catalog list with convenient LISTCAT of active usercatalogs on the system.
- Thorough tutorials and prompting for correction of syntax mistakes in entering commands.

There are many more work-saving facilities built into the ISPMODE part of StarTool FDM. All regular ISPF/PDF facilities are also available with the ISPF subcommand.

Member Groups

In StarTool FDM, you can execute a subcommand on an entire group of members. You select the criteria defining the members of the group, then StarTool FDM tests the members in your current data set against that criteria to create the group. The selection criteria can be member names, a list of member names, patterns, ranges, and placeholders. The criteria is called the Current Member Group, and you can recall the last used Current Member Group criteria by using an asterisk (*) with a subcommand.

When you perform a subcommand and use an asterisk (*) as the member group parameter (which signifies to use the Current Member Group), StarTool FDM does the following:

- 1 Selects the members in the current data set that meet the Current Member Group criteria.
- 2 Performs that subcommand on the selected members.

For example, if the Current Member Group criteria is AB/ (members that contain the pattern AB), and you issue the following command:

```
COPY * SOMNODE . DATA
```

StarTool FDM copies all members in the current data set that contain AB, such as ABSED, EABED, and CREAB to the data set, **SOMNODE.DATA**.

Once you define a Current Member Group, it remains intact with CHANGE subcommands. This allows you to apply the same Member Group criteria across multiple data sets.

However, if you select a new data set without any members that meet the Member Group criteria and issue an asterisk (*) as the member group parameter, an error message displays.

For example, if your Current Member Group equals the list of member names (AAA,BBB), and your current data set does not contain members with the names AAA or BBB, issuing `COPY * SOMNODE.DATA` results in an error.

The Current Member Group criteria displays in the **MEM=** field, or you can display the Current Member Group criteria by issuing the `LISTGRP` command.

The Current Member Group is temporary and is reset whenever you issue a subcommand that contains a member group parameter other than an asterisk (*).

Setting the Current Member Group

The `MEMBERS` subcommand sets the Current Member Group; however, any StarTool FDM subcommand that requires a member group parameter sets the Current Member Group to the entered member group parameter.

For example, the following commands set the Current Member Group to the pattern `AB/`:

```
MEMBERS AB/
COPY AB/ MYNODE .DATA
```

The following commands require a member group parameter:

ABE	DCF	EXCLUDE	MAP	REPLACE	TSOEDIT
ACFCOMP	DELETE	FIND	MEMBERS	REPRO	TSOLIST
ATTRIB	DELINK	FSE	MEMLIST	REVIEW	VERIFY
BROWSE	DIRENTRY	HISTORY	OUTCOPY	SMPGEN	VPRINT
COMBINE	DISASM	IF	PGMDOC	SPFEDIT	XREF
COMPDIR	DUP	LIST	PRINT	SUBLIST	
COPY	EDIT	LLA	READOBJ	SUBMIT	

These commands accept patterns, placeholders, ranges, and lists, in addition to member names.

The `MEMLIST` subcommand allows you to build a member list that can be manipulated and used as the Member Group.

To include all members that satisfy several rules, place the rules, separated by commas, in parentheses. For example, to include all members beginning with A or K, or including the string ZZ somewhere in the member name, use:

```
MEMBERS (A* , K* , ZZ/)
```

To add members to the Current Member Group, add the former Member Group denoted by an asterisk (*) then the additional members. For example, to add members whose names contain the string XYZ to the Current Member Group, issue the command:

```
MEMBERS (* , XYZ/)
```

To define the Current Member Group as a list of member names, separate the member names with a comma and enclose them in parentheses:

```
MEMBERS (ABCED , RTU , FREMD)
```

The SUBLIST subcommand resets the Current Member Group to a list of member names from the current data set. For example, if you enter `SUBLIST ABC/`, the Current Member Group changes to a list of members from the current data set whose member names contain the pattern `ABC`.

Use the SUBLIST subcommand with the IF or FIND subcommands as the operand for THEN or ELSE. THEN(SUBLIST) has the effect of selecting the members you want, so that the found members become the new Member Group. For example, `IF ABC/ ALIAS THEN(SUBLIST)` forms a new Member Group containing all members defined by the rule `ABC/` that were also alias members.

You can refine a member group with repeated invocations of the IF command against each Current Member Group using different criteria. This is a logical AND function.

Example 1

To make the Member Group a list of member names that contain two strings, `ABC`, and `XYZ`, issue the following commands:

```
FIND : 'ABC' THEN(SUBLIST)
FIND * 'XYZ' THEN(SUBLIST)
```

The first command selects from all members only those containing `ABC`. The second command then, from the previous group, selects only those members containing `XYZ`.

Example 2

There are two data sets `SOMNODE.DATA` and `SOMNODE.DATB`. `SOMENODE.DATA` contains the members `AAB` and `AAC`. `SOMNODE.DATB` contains the member `AXY`.

If the current data set is `SOMNODE.DATA`, and the current Member Group is defined by `MEMBERS A*`, the current member group lists `AAB` and `AAC`. (However, the current member group is defined by a rule). If you change the current data set to `SOMNODE.DATB` (with `CHANGE SOMNODE.DATB` command), the current Member Group is still defined by the rule `A*`, therefore the list contains member `AXY`.

If the current data set was `SOMNODE.DATA` and you defined the Member Group with the command, `SUBLIST A*`, the Current Member Group now consists of a table with the two names `AAB` and `AAC`. After the `CHANGE SOMNODE.DATB` command, the Current Member Group still consists of the table with entries `AAB` and `AAC`. Since these members do not exist in data set `SOMNODE.DATB`, any reference to the Current Member Group using the character `*` (for the member group parameter) yields error messages that the members `AAB` and `AAC` do not exist.

Example 3

To make a Member Group that:

- only contains members created before a year ago
- has members containing the strings `ABC` and `XYZ` in their data
- consists of members having less than or equal to 200 records and more than 100 records
- contains every member in the data set with a `K` somewhere in its name

Do the following:

- IF : BEFORE YEAR THEN(SUBLIST) - cuts the current group to members created a year ago or more.
- FIND * /ABC/ THEN(SUBLIST) - cuts the group to members containing string ABC).
- FIND * /XYZ/ THEN(SUBLIST) - cuts the group to members containing string XYZ.
- IF * BELOW(201) THEN(SUBLIST) - cuts the group to members with 200 records or less.
- IF * ABOVE(99) THEN(SUBLIST) - cuts the group to members with 100 records or more.
- SUBLIST (*, K/) - sets the current member group equal to the list of members found so far, and merges any member containing a letter K in its name, into the former list.

You can now deal with the Member Group as a unit. To copy all members to another data set called B.DATA, type the command:

```
COPY * B.DATA
```

Using the MEMLIST Subcommand

The MEMLIST subcommand creates a list of members that can be edited, browsed, and manipulated. Build the member list using various member group names, member attributes or member contents.

To set the member list equal to all the members in your current data set, use the command:

MEMLIST :

This creates a member list with all members in your current data set, and sets your Current Member Group criteria to :

To set the member list equal to the Current Member Group, use the command:

MEMLIST * RESET

This clears out the current member list, then make the member list equal to the Current Member Group.

To set the Current Member Group equal to the members names in the MEMLIST, use an equal sign (=) as the Member Group parameter in a subcommand. For example:

```
COPY = 'target.dataset'
```

The Current Member Group is defined as the member names in the current MEMLIST, members are selected by testing the current data set against the new Current Member Group, then the subcommand performs against the selected members. If you want to set the Current Member Group equal to the current member list without performing an action on the members, issue the command, MEMBERS =.

Since MEMLIST processing is additive by default, you can add and trim members from this member list without rebuilding the entire member list:

- To add members to a member list, invoke the MEMLIST subcommand again. It merges the new members into the MEMLIST table, but it does not remove any of the ones already there. The MEMLIST subcommand performs a logical OR function on the member list table (unless its RESET operand is specified).

- To individually exclude a certain member, place an X next to its name in the MEMLIST. (A block exclude of XX.....XX works to chop a consecutive block of members out of a member list.) When you execute a following subcommand with = as the member group designation, those excluded members are not carried over to the current member subgroup, because they are not in the member list table any more.
- Another way to drop members from a MEMLIST is with the EXCLUDE subcommand. Enter EXCLUDE as a primary command using a *memgroup* as an operand followed by optional filtering operands, thereby allowing the exclusion of many members with a single subcommand. Also use EXCLUDE in the IF or FIND subcommands as THEN(EXCLUDE) or ELSE(EXCLUDE).

Build member lists using MEMLIST and NEWML as operands in the **IF** or **FIND** subcommands such as THEN(MEMLIST) or ELSE(NEWML). With the **MEMLIST** operand, add selected members to the current member list. NEWML is identical to **MEMLIST** except that any existing member list is RESET (or discarded) first.

To clear out the member list before adding the new members, use the operand **RESET**.

You can view only selected members of the member list without altering the Current Member Group by using the two subcommands, **DISPLAY** and **PATTERN**.

Source Member Utilities

Source members (members in RECFM=F or RECFM=V partitioned data sets) are composed of one or more physical records. Each physical record can be blocked (contain more than one logical record). Source partitioned data sets (or libraries) can be used as object libraries (each member contains the output of a compile or assembly intended for linkage-editor use), listing libraries (each member contains print-image data), source libraries (each member contains an assembler, COBOL, PL/I, FORTRAN or other language program), CLIST libraries (either fixed or variable format), JCL or procedure libraries and ISPF non-executable data sets (such as panel, message or profile data sets).

StarTool FDM provides several source library utilities:

ATTRIB	displays or alters member attributes such as ISPF statistics.
B	browses members using ISPF services.
COMBINE	unloads PDS members to a sequential member.
COMPARE	compares a member to another member.
COMPRESS	compresses "dead" space out of a data set.
COPY	copies members and, optionally, their aliases.
DELETE	deletes members.
E	edits members using ISPF services.
FIND	searches source members for a string and displays member segments in any of seven formats.
LIST	displays source members in any of seven formats.
M	assists with primary command selection and provides a subcommand entry assist panel.
MEMLIST	displays members with ISPF statistics in a scrollable table.

blank	<ul style="list-style-type: none"> ■ ATTR – line command to display member ISPF statistics in an entry assist panel for updates. ■ B – line command to browse a member using ISPF services. ■ COM – line command to compare a member to another member. ■ COPY – line command to copy a member and, optionally, its aliases. ■ DEL – line command to delete a member. ■ DIR – line command to document a member's directory entry. ■ E – line command to edit a member using ISPF services. ■ INFO – line command to display member ISPF statistics or SSI information. ■ FIND – line command to search for a character string in a member. ■ LIST – line command to display a source member in one of seven formats. ■ M – line command to assist in line command selection and provide an entry assist panel. ■ O – line command to assist in line command selection and provide a syntax assist panel. ■ PB – line command to browse a member using StarTool FDM services. ■ PR – line command to print a member. ■ REN – line command to rename a member. ■ REPL – line command to update a member in-place based on search and replace strings. ■ REPR – line command to reproduce a member to a new member name. ■ REST – line command to restore a deleted member displayed in a MEMLIST. ■ S – line command to select a member (this is normally EDIT and is set in SETSEL). ■ SUB – line command to submit a JCL member to JES for background execution. ■ VER – line command to validate a member. ■ X – line command to exclude a member (it is dropped from the MEMLIST table).
O	assists with primary command selection and provides a subcommand syntax assist panel.
PB	browses members using StarTool FDM services.
PRINT	prints members.
RENAME	renames members.
REPLACE	searches members for a string and updates members in-place.
RESTORE	resurrects deleted members or previous versions of saved members.
SEPARATE	reloads combined members into individual partitioned data set members.
SUBMIT	transfers JCL to JES for background processing.
VERIFY	validates a data set or individual members

Load Member Utilities

Load members (members in a RECFM=U partitioned data set or a library) are executable modules. A key to understanding load members is understanding their structure. A load member is composed of multiple CSECTS each of which can be separately assembled (or compiled) and combined (or linked) together by the linkage-editor. Each CSECT contains external references that can be used as entry points for the linked module or by the linkage-editor in linking the module to resolve symbols outside of that CSECT.

A linked module has many attributes (such as residence mode, reusability, size, and so on) that are assigned during the linkage-edit. These attributes and other information for loading a module are maintained in its directory entry.

StarTool FDM provides the following load library utilities:

ATTRIB	displays or alters member attributes.
B	browses members using ISPF services.
COMPARE	compares a member to another member.
COMPRESS	compresses "dead" space out of a data set.
COPY	copies members and, optionally, their aliases.
CSECTS	<p>maps a module by CSECT in a scrollable table.</p> <ul style="list-style-type: none"> ■ DELI – line command to delink a CSECT ■ DISA – line command to disassemble a CSECT ■ FIND – line command to search a CSECT ■ HIS – – line command to display historical information for a CSECT ■ LIST – line command to list a CSECT ■ REPL – line command to update a CSECT in-place ■ S – line command to select a CSECT (this is normally LIST set in SETSEL) ■ X – line command to exclude a CSECT line from the table ■ ZAP – line command to display a CSECT in a scrollable format for ZAP operations ■ DISA – line command to disassemble up to 10 lines starting at the current offset ■ UNDO – line command to change data back to its original value (as on disk)
DELETE	deletes members.
DELINK	reverses load member links to produce object modules.
DISASM	disassembles modules into assembler source.
FIND	searches load members for a string and displays member segments in any of four formats.
HISTORY	displays CSECT IDR data and COBOL compile attributes for modules.
LIST	displays load members in any of four formats.
LLA	dynamically refreshes or removes LLA directory entries.

M	assists with primary command selection and provides a subcommand entry assist panel.
MEMLIST	<ul style="list-style-type: none"> ■ displays members with attributes in a scrollable table. ■ ATTR – line command to display a load member's attributes in an entry assist panel for updates. ■ B – line command to browse a member using ISPF services. ■ COM – line command to compare a member to another member. ■ COPY – line command to copy a member and, by default, its aliases. ■ DEL – line command to delete a member. ■ DELI – line command to reverse a load member link to produce an object member. ■ DIR – line command to document member directory entry. ■ DISA – line command to disassemble a member into assembler source. ■ HIST – line command to display history information for a member. ■ INFO – line command to display member attributes. ■ FIND – line command to search for a character string in a member. ■ LIST – line command to display a load member in one of four formats. ■ LLA – line command to dynamically refresh or remove the LLA directory entry for a member. ■ M – line command to assist in line command selection and provide an entry assist panel. ■ MAP – line command to map a module by CSECT or produce JCL to relink it. ■ O – line command to assist in line command selection and provide a syntax assist panel. ■ PGMD – line command to describe a load member by name and function. ■ PB – line command to browse a member using StarTool FDM services. ■ PR – line command to print a member. ■ REN – line command to rename a member. ■ REPL – line command to update a member in-place based on search and replace strings. ■ REPR – line command to reproduce a member to a new member name. ■ REST – line command to restore a deleted member displayed in a MEMLIST. ■ S – line command to select a member (this is normally BROWSE set in SETSEL). ■ VER – line command to validate a member. ■ X – line command to exclude a member (it is dropped from the MEMLIST table). ■ XREF – line command to display intra-module references for a module.
O	assists with primary command selection and provides a subcommand syntax assist panel.
PB	browses members using StarTool FDM services.

PRIN	prints members.
RENAME	renames members.
REPLACE	searches members for a string and updates members in-place.
RESTORE	resurrects deleted members or previous versions of linked members.
VERIFY	validates a data set or individual members.
XREF	displays intra-module references by name

Member Availability Utilities

Member availability is maintained with the ATTRIB subcommand, which alters source and load member attributes, the RESTORE subcommand, which selectively resurrects deleted members (or previous versions of current members), the REPRO subcommand, which creates a backup copy of a member in the same data set and the VERIFY subcommand, which validates members checking for logical or physical errors.

Data Set Availability Utilities

Data set availability is maintained with the COMPRESS subcommand, which removes dead (or unused) space in a partitioned data set, the FIXPDS subcommand, which modifies allocation and attribute parameters for a data set and the VERIFY subcommand, which validates the integrity of an entire data set.

FIXPDS is supported for non-VSAM data sets. It changes several aspects of a data set. FIXPDS can:

- Change the secondary allocation type and size of a data set with its BLK, TRK, CYL and SPACE keywords.
- Add a single extent to a sequential or partitioned data set with its ADDTRK, ADDCYL and ADDFREE keywords.
- Release space allocated to a sequential or partitioned data set with its RELEASE, RELEXT, RELSAVE and RELFREE keywords.
- Adjust the number of free directory blocks in a partitioned data set with its ADDDIR, FREEDIR and DIRFREE keywords.
- Modify the major DCB parameters of a data set with its RECFM, LRECL, BLKSIZE and OPTCD keywords. These parameters do not modify any physical data in a data set but they are provided for use after a data set has been modified in error. After resetting the DCB values, use the VERIFY subcommand to validate the data set and identify any members added in the error.
- Reset a data set to newly allocated (or empty) status with its RESET keyword. For a partitioned data set, use the RESET keyword to indicate a different number of directory blocks. Use the CHECK keyword to check for any members in an edit session before the data set is changed.

Sequential Data Sets

StarTool FDM supports sequential, direct, VSAM data sets, partitioned data sets and partitioned data sets extended.

Many StarTool FDM subcommands that process member groups also support sequential data sets. These subcommands include ABE, BROWSE, COPY, DCF, DUP, EDIT, FIND, FSE, LIST, PRINT, PBROWSE, REPLACE, REVIEW, SUBMIT, TSOEDIT, TSOLIST, VERIFY and VPRINT. The documented syntax is unchanged except that no data is entered corresponding to any member name position (several of these subcommands support VSAM and direct data sets in the same way). Other subcommands support non-partitioned data sets without changes to the documented syntax since no member name parameter is defined.

For example, a LIST subcommand for a partitioned data set looks like LIST memgroup NONUM. For a non-partitioned data set, a similar subcommand looks like LIST NONUM.

VSAM Data Sets

All VSAM data set organizations are also supported, such as Indexed (KSDS), Entry-sequenced (ESDS), Linear (LDS) and fixed and variable Relative (RRDS) as well as Paths and Alternate Index (AIX) data sets.

The BROWSE, DUP, EDIT, FIND, LIST, REPLACE and VERIFY subcommands support VSAM data sets directly. These subcommands support record positioning. They have new operands to allow I/O to start or stop at a given record key or address similar to IDCAMS REPRO and PRINT commands. The positioning operands are FROMKEY, FROMADDRESS, FROMNUMBER, TOKEY, TOADDRESS and TONUMBER.

In general, VSAM supports:

- Records lengths up to 32,768 characters.
- Up to four recoverable logical input or output errors on a given subcommand.
- Only VSAM data sets cataloged in ICF (Integrated Catalog Facility).
- VSAM data set and catalog passwords are not supported.
- A DATA or INDEX component of a VSAM data set can be processed directly. If a component is processed, the records of that component are treated like a VSAM ESDS data set.
- Linear datasets are limited by z/OS to a fixed CISIZE (Control Interval Size) of 4K. Attempts to use a linear dataset of any other CISIZE results in an ABEND. (This is a permanent restriction of the operating system, not a defect in StarTool FDM.)

By default, BROWSE uses PBROWSE; however, an install option allows the use of a BRIF-supported option, the MacKinney System ISPF/VSAM Utility or the REVIEW command.

DUP is similar to the IDCAMS REPRO command but it only allows output to a sequential or partitioned data set. The one advantage is that it uses shared access to its input data.

By default, EDIT uses PEDIT; however, an install option allows the use of a EDIF-supported option (this only allows access to the first 255 bytes of any record), the MacKinney System ISPF/VSAM Utility.

For LIST, FIND and REPLACE, the default format is LBLOCK; the LDUMP, DUMP or BLOCK formats can also be used. When a VSAM DATA or INDEX component is processed, LIST, FIND and REPLACE use control interval access for the BLOCK or DUMP data formats. That is, they process blocks of records (or control intervals) rather than individual VSAM records. This is useful if a VSAM data set has a logical error. Use REPLACE to repair the error.

VERIFY reads the data set and reports on the records read. If record positioning keywords are not specified, several additional checks are performed:

- 1 An IDCAMS VERIFY (unless NOUPDATE is specified).
- 2 For a KSDS or AIX, an IDCAMS EXAMINE (unless NOEXAMINE is specified); NOINDEXTEST or NODATATEST can also be specified.
- 3 For a KSDS or AIX, after the record count is reported, the data set is read again sequentially to verify that the index is synchronized with the data (unless NOREAD is specified).

The following subcommands also support VSAM:

DSNAME shows the current allocation and associations. Message PDS200I displays VSAM data set allocations regardless of the current DSNAME operand in effect.

IDCAMS provides a direct interface to IDCAMS services. If IDCAMS is entered with no operands, a command prompting sequence is initiated. StarTool FDM invokes IDCAMS through IKJEFTSR for authorization and displays the results in the session log.

LISTC with INFO shows data set statistics and associations.

REVIEW browses VSAM data sets without ISPF (this uses the public domain REVIEW command).

USAGE shows data set statistics (from the base cluster for a DATA or INDEX component).

System and TSO Utilities

StarTool FDM contains the system and TSO utilities shown below. These utilities are not related to the current data set.

CAX	displays open system catalog data sets in a selectable table.
CMDTBL	displays and manipulates ISPF command tables.
DDNAME	displays TSO session allocations by DDNAME in a selectable table.
FINDMOD	locates all copies of an executable module in the system linklist, LPA-list or nucleus.
IDCAMS	provides entry assist panels for IDCAMS commands and displays IDCAMS results in the log.
ISPF	stacks an ISPF session over the current StarTool FDM session.
LISTA	displays TSO session allocations by attributes in a selectable table.
LISTC	lists data sets from a catalog source in a selectable table.
LISTF	lists data sets from a volume (or VTOC) source in a selectable table.
LISTV	lists disk volume space and attributes in a selectable table.

NUCMAP	displays the current system nucleus in CSECT order in a selectable table.
SVCMAP	displays active SVC routines.
TRAP	issues TSO commands and captures their PUTLINE output in the log.
WHOHAS	displays users allocated to a data set.

Machine Readable Output

The output from StarTool FDM subcommands and services is useful for other programs or it can be saved for later reference. StarTool FDM provides information in machine readable form in several ways. You can run StarTool FDM in batch mode and direct the output to a data set or sysout file through the DD card SYSTSOUT. Also, you can create an independent log through the CONTROL subcommand. To make the output for this log more useful, suppress command echoing (NOCOMMAND) and informational messages (NOINFO). Use the independent log in batch mode and interactive mode.

In ISPMODE, output is presented in table form. The log is also a table containing output from subcommands. You can copy all StarTool FDM tables to a data set or a sysout file with the OUTPUT command. A prompt panel displays to direct the table output. If it is put in a data set, you can edit the records as input for other utilities. Also, EDITLOG and EDITTBL commands are useful for manipulating data from the log.

In ISPMODE, you can use the tables created by StarTool FDM directly by a user CLIST or program. The user command panels select a user written processor passing the name of the ISPF table used by StarTool FDM for the current function. The user processor uses, changes or adds to the table. Refer to customizing StarTool FDM user command panels in the *Serena® StarTool® FDM Installation Guide*.

The following subcommands provide output designed to be machine readable:

Subcommand	Creates
COPY with NOCALL	IEBCOPY control statements
DELINK	Object code with JCL for a link edit JOB
DISASM with REASM	Source code with JCL for an assembly and link JOB
DSNAME	TSO allocate command or a JCL DD statement
MAP with RELINK	JCL for a link edit JOB
OUTCOPY	IEBCOPY or IEBUPDTE control statements
READOBJ with REASM	Source code
SMPGEN	SMP/E PTF input with inline JCLIN as required

Computer Resource Use

StarTool FDM reduces the overhead associated with managing sequential, direct, partitioned, partitioned extended and VSAM data sets. Users perform all data management functions within a single environment established and maintained by StarTool FDM.

Unlike ISPF, users need not "jump" to different ISPF applications to perform member and data set functions within the StarTool FDM environment. StarTool FDM uses its own internal access methods and data management utilities to perform user requests.

With StarTool FDM there is reduced paging, fewer input/output operations and lower CPU usage associated with managing data as compared with ISPF or other data management products.

Paging and Swapping Relief

StarTool FDM is a 900K reentrant program that resides in the system LPA allowing users to share a single copy of the program and reduce the amount of below the 16 Megabyte private region requirements for all TSO users. This also reduces the overhead required for program fetch, virtual storage and swapping activity for all users.

ISPF requires the activation of multiple applications to copy, browse, edit and rename data sets and members. Users must often split their ISPF sessions to perform a simple task. StarTool FDM reduces this unnecessary overhead by combining all data management functions into a single workbench environment. Its multiple data set session capabilities reduce the number of ISPF, TSO or PIE/TSO sessions required.

CPU and I/O Reduction

StarTool FDM uses EXCP full-track channel programs to input most of the data it accesses. It operates faster and more efficiently than ISPF. StarTool FDM internally caches up to nine disk tracks read during a subcommand, reducing the number of input operations required to read a PDS directory or multiple members by up to 50%.

The StarTool FDM workbench concept allows users to execute all member and data set functions without jumping to other ISPF applications. StarTool FDM drives data management functions reducing I/O requirements since StarTool FDM manages all member activity from a single member list to browse, edit, rename, restore, delete and copy members. From a single customized data set list, a set of global commands are available to search or replace characters strings within groups of members and groups of data sets.

VTOC Contention Reduction

Users who frequently use the ISPF DSLIST (ISPF option 3.4) application benefit with StarTool FDM because it allows them to build, save and recall customized lists of data sets that contain multiple high-level qualifiers from catalog and volume searches. Since the data set lists can be saved and recalled, users need not constantly use the DSLIST application to build new data set lists for functions like editing, browsing, renaming or deleting data sets.

Large File Processing Optimization

File processing performance is enhanced for large sequential and VSAM files. Above a user-defined file size, StarTool FDM invokes large-file optimization code that tailors I/O buffering to the requirements of large files and moves file-size-linked memory allocations above the 16MB line. Control area processing and exception processing are optimized for

full-cylinder reads rather than full-track reads, which also improves performance for large files.



IMPORTANT! To optimize above-the-line TSO user region size usage for large file processing, implement the IBM-supplied exit IEFUSI.

The appropriate allocation depends on the minimum file size you establish for invoking FDM's large file processing code — a user-configurable setting — and the actual file sizes to be accommodated at your site. For example, to use an FDM utility such as PEDIT to edit the last record in a dataset with 1 million records and an 80-byte fixed record length, you should allow a 256 MB TSO region size above the 16 MB line.

Compressed files allow very little room for performance optimization, as the algorithm used for compressing and decompressing these files is under IBM's control. For best performance, IBM recommends tailored compression over generic compression when compressing large, sequential datasets. StarTool FDM I/O performance for compressed sequential datasets improves when tailored compression is used.

Chapter 2

Menu System

Primary Options Menu

The menu system for StarTool FDM is similar to that in ISPF. The StarTool FDM **Primary Options** panel displays a master list of selectable function options.

```
----- StarTool FDM Version 7.7.1.0 Primary Options -----
OPTION  ==>>

Current data set ==> PDSES.ASM

Basic Applications:
 0 Parameters - Specify StarTool parameters          USERID - USER01
 1 Browse     - Display source data or output listings PREFIX - USER01
 2 Edit       - Create or change source data         TIME   - 13:06
 3 Utilities  - Perform utility functions           DATE   - 2008/04/21
 4 Pedit      - SuperEdit Option to edit in parallel JUL DATE - 2008.111
 5 Batchjcl   - Create a background StarTool job     TERMINAL - 3278
 A Advanced   - Menu of advanced applications       LOG PROC - ISPF5001
 S Status     - Function status and selection menu   MVSID  - S001
DB DB2        - Menu of DB2 services                 APPLID - ISR
IM IMS        - Menu of IMS services                 SuperEdit - Enabled
I# ISPF       - Stack an ISPF session (like I3.4)   LEVEL  - PDSE771
IN Index      - Display StarTool tutorial index
 N New        - Summarize changes for this release
 X Exit       - Terminate StarTool
```

Enter the option number or code at the **Option ==>** prompt to bring up a menu specific to the selected feature. Menu options may be chained as "dot command" shortcuts without waiting to display the subordinate menu. Many menus are scrollable.

There are several methods for navigating around the StarTool FDM menu system, each of which is explained in the pages that follow.

Menu Shortcuts

From any function in StarTool FDM, use numbers to reference the menu system. There are many shorthand methods for typing commands, as shown below:

- 3.4 is equivalent to M.3.4
- =3.4 is equivalent to M.3.4
- M.FIND is equivalent to M.12.FIND because Option 12 is assumed for a subcommand reference.
- FIND is also equivalent to M.12.FIND because most subcommands entered without operands invoke the menu system.

You can also type M (for MENU) as a line command. From a source or load member list, type M for a member to get a directory of available line commands. When you select one of these items, the panel displays for that subcommand.

In addition, you can type a chained line command such as M.FI (for FIND) to bypass the directory prompting panel.

Primary Menu Options

The basic applications options — Parameters, Browse, Edit, Utilities, PEDIT and BATCHJCL — are similar to corresponding ISPF options. PEDIT (parallel edit) is a part of SuperEdit; it is an alternative to the ISPF EDIT command. Display results with the EDITLOG facility; control remains in the menu system.

0 – Parameters

Displays a menu for the StarTool FDM SET panels.

1 – Browse

Specifies a current data set for StarTool FDM. If you specify a member group name, StarTool FDM builds a list of those members; otherwise, ISPF Browse is invoked on a single member.

2 – Edit

Specifies a current data set for StarTool FDM. If you specify a member group name, StarTool FDM builds a list of those members; otherwise, ISPF Edit is invoked on a single member.

3 – Utilities

Specifies a current data set for subordinate utility functions. StarTool FDM performs functions that correspond to the equivalent ISPF 3.x options.

4 – PEDIT

Provides an alternative to the ISPF editor. PEDIT (parallel edit) supports VSAM and direct data sets, load members, copybook data overlays, selective record edit, multiple edit sessions, large data sets, physical record access and long records (more than 255 characters).

5 – Batchjcl

Creates background jobs. Controls are available to build batch JCL from allocations in the DDNAME/LISTA table, build a StarTool FDM batch job from subcommands in the log, manage the index for disk volumes, set the VTOC DIRF bit and manage the DDNAME/LISTA table.

Advanced Menu Options

Options 6 through 18 are accessed from the **Advanced Options** menu. Generally, the log displays results. Press PF3 to return to the last panel. Retype fields you want and press ENTER to execute the subcommand again. Or, continue backing up in the panel hierarchy by pressing PF3.

6 – All

Builds a member list that contains all data set members; equivalent to the ALL command.

7 – Output

Outputs the current dialog table; equivalent to the OUTPUT command.

8 – Log

Switches from the menu panel to the log display; equivalent to the LOG command.

9 – Activate

Controls GO sessions and allows changes to the current data set.

10 – Search

Provides dialogs to search and update different types of data.

11 – Recover

Provides dialogs to recover and repair the current data set.

12 - Data Set Subcommands

The subcommands shown on this panel vary according to the active data set type (direct, sequential, source PDF/PDSE, or VSAM). Only subcommands supported for the active data set type are listed for this option. Option 12 is selected automatically from the **Primary Options** panel or from any of the StarTool FDM functions if you enter a subcommand without operands.

13 – Examine

Controls specialized subcommands that display environmental information.

14 – PROFMAN

Manages saved MEMLIST, LISTC/LISTF, and WORKPAD tables in the user profile.

15 – Global

Controls global commands for DDNAME/LISTA, LIST/LISTF, LISTV and WORKPAD. You can create or extend the tables and initiate global processing.

16 - Comparex

Access to the full COMPAREX dialog, if COMPAREX is installed. (Comparex is licensed separately.)

17 – CBSelect

Use copybooks to specify record selection when copying.

18 – CBSelect

Use a previously saved copybook selection table.

Support Options and Licensed Product Services

S - Status

Displays the status function and selection menu.

DB - DB2

Invokes the **Menu of DB2 Services** if the separately licensed DB2 Option is installed.

IM - IMS

Invokes the **Menu of IMS Services** if the separately licensed IMS Option is installed.

I# - ISPF

Stacks an ISPF dialog. For example, I3.4 is equivalent to ISPF 3.4.

IN - Index

Displays the StarTool FDM tutorial index.

N - New

Displays a summary of changes for the current StarTool FDM release.

X - Exit

Terminates StarTool FDM. This option displays the number of current active GO sessions.

Menu Navigation Commands

From StarTool FDM table panels, use PF3 to return to the Primary Options panel so you can choose your next option.

After you enter data on a panel, the panel logic formats a StarTool FDM subcommand or function and enters the command. This places you in one of the StarTool FDM functions so that you can review the results of the subcommand. For StarTool FDM subcommands, you can navigate to the log where the formatted subcommand and its output display.

After reviewing results of the subcommand, press PF3 to return to the last menu panel displayed since the menu system operates in hierarchical mode, which means that this is the order for selecting uncompleted (or pending) line commands when you type an END command. StarTool FDM operates in parallel mode, which means that as you create functions like logs, MEMLIST tables, LISTA tables, and LISTC/LISTF tables, you can move from one to another without losing the current function. Hierarchical mode is maintained only until you enter a parallel mode command. For example, if you are examining the log, you can type any of the following commands without interrupting hierarchical mode: F, OUTPUT, RIGHT, LEFT, UP, DOWN, EDITLOG, EDITTBL, X. If you type a mode switch command or function command like ML or a subcommand such as FIND, you begin operating in parallel mode. If you press PF3 while in parallel mode, you return to the Primary Options panel instead of the returning to the last menu panel displayed.

In menu panels, pressing PF3 backs up a single panel; that is, to the previous panel. If you press PF3 from the Primary Options panel, the current GO session drops and you are asked to confirm termination of each GO session if your value for "termination prompting" is YES. If you press PF3 for the last GO session, you are always asked to

confirm termination since you are leaving the StarTool FDM environment. If you want to terminate StarTool FDM with no prompts, type X on the Primary Options panel command line.

StarTool FDM supports Jump commands (such as =3.4). They behave as expected for a primary panel (jump commands request StarTool FDM options) unless Internal Jump in SETALL is set to NO (then, jump commands terminate StarTool FDM and request ISPF options). StarTool FDM also supports internal jump commands if you enter a blank between the equal sign and the number (for example, = 3.4).

If Internal Jump is YES:

- =X from any StarTool FDM panel terminates StarTool FDM
- =3.4 executes StarTool FDM Option 3.4
- RETURN goes to the Primary Options panel

If Internal Jump is set to NO:

- =X from any StarTool FDM panel terminates StarTool FDM and executes ISPF Option X
- =3.4 terminates StarTool FDM and executes ISPF Option 3.4
- RETURN terminates StarTool FDM

Parameters

When you select Option **0 - Parameters** from the **Primary Options** panel, the following **Set Parameters** menu displays. These parameters allow you to set panel values and control subcommand defaults..

```
----- StarTool Set Parameters -----
OPTION ==> setall

Choose one of the following:

  0 or SETALL - Set combined defaults
  1 or SETCOLOR - Set panel colors
  2 or SETDSN - Set data set controls
  3 or SETKEYS - Set PF keys
  4 or SETPANEL - Set panel defaults
  5 or SETSEEK - Set default SEEK member
  6 or SETSEL - Set Select aliases
  7 or SETUSER - Set dynamic user commands
  8 or CONTROL - Set StarTool processing defaults
```

A description of each of the parameters follows.

Option 0 - SETALL

The Option 0 - SETALL panel sets combined defaults for StarTool FDM. This screen is scrollable to display all options. You can accept the defaults as shown or type over the ones you want to change. When complete, press the Enter key to save the options.

```

----- Set Combined Defaults -----
OPTION ==>

To save these variables in your ISPF profile as defaults for future StarTool
sessions, enter SAVE as a primary command or press PF6 or PF18
More:      +

Set Environmental Options:
Interface level      ==> POWER    (Standard/Advanced/Power)
Automatic EDITLOG   ==> NO      (Yes/No/Lin; Lin affects line commands only)
Termination prompt  ==> BAC     (Yes/No/Bac; Bac requests backup
processing)
CUA mode action bars ==> NO     (Yes/No)
Global prompt       ==> YES    (Yes/No)
Internal Jump       ==> YES    (Yes/No)
Separator character ==> ;      (use a special character)
Cursor selection    ==> NO     (Yes/No)
Tab to SORT headers ==> YES    (Yes/No)

Set ISPF EDIT Options:
Profile             ==>
Initial macro       ==>
Confirm for ISPF 4.x ==> YES   (Yes/No)

Set SuperEdit Options:
Convert EDIT to PEDIT ==> YES   (Yes/No)
Copybook SCREEN mode ==> TYP   (TYP/PIC/COL/OFF)
Display level 88 items ==> YES   (Yes/No)
PAD character       ==>         (blank, character, or 2 digit hex)
DB2 Default to null ==> YES   (Yes/No to default to null if nullable)
DB2 null code       ==> \     (blank or special character to represent null)

Set LISTC/LISTF Options:
Remove deleted DSNs ==> YES   (Yes/No)
Remove renamed DSNs ==> YES   (Yes/No)
Confirm delete      ==> YES   (Yes/No)
Automatic refresh   ==> NO    (Yes/No)
Automatic table save ==> NO    (Yes/No)
Display user catalogs ==> NO    (Yes/No)
Access 3395 optical ==> NO    (Yes/No)

Set LISTV Options:
Obtain volume space ==> YES   (Yes/No)
Wait for space info ==> NO    (Yes/No)

Set Log Limits:
Maximum size        ==> 10000  (100 to 999999)
Size per command    ==> 20000  (100 to 999999)
Checkpoint interval ==> 5000   (100 to 999999)

Set Member List Options:
Remove deleted member ==> YES   (Yes/No)
Remove renamed member ==> YES   (Yes/No)
Confirm delete       ==> NO    (Yes/No)
LKED Date for load   ==> YES   (Yes/No)
Auto member search   ==> NO    (Yes/No)
Resynchronize aliases ==> NO    (Yes/No)

```

```

Set Saved Table Options:
  Saved Table DDNAME      ==> ISPPROF
  Group Table DDNAME     ==> ISPTLIB
  Samples Table DDNAME   ==> ISPTLIB
  GROUP data set name    ==>
  Auto member search     ==> NO (Yes/No)
  Resynchronize aliases ==> NO (Yes/No)

Set Saved Table Options:
  Saved Table DDNAME      ==> ISPPROF
  Group Table DDNAME     ==> ISPTLIB
  Samples Table DDNAME   ==> ISPTLIB
  GROUP data set name    ==>
  Note: The Group DDNAME must be cleared before a new data set name is used

Set TRAP Options:
  Perform TRAP services ==> YES (Yes/No)
  TRAP log selection    ==> * (1 to 9 or * for current active log)
  TRAP maximum lines   ==> 3000 (100 to 32000)

Set WORKPAD Options:
  Automatic execute mode ==> NO (Yes/No)
  Automatic table save   ==> YES (Yes/No)

```

Values specified in the SET panels apply to both current session and future sessions for the current user. Type SAVE on the OPTION line or press RCHANGE (FP6/PF18) if you want to save the value of a variable in your ISPF profile for future sessions.

Place the cursor on one of these fields and press the HELP key (PF1) for field level help. If you type HELP on the OPTION line, the system displays general SET tutorial information.

Option 1 - SETCOLOR

Sets the colors on StarTool FDM panels. Press the Enter key to save typed options.

```

----- Set Panel Colors -----
OPTION ==>

To save these variables in your ISPF profile as defaults for future StarTool
sessions, enter SAVE as a primary command or press PF6 or PF18

Color of input field ==> RED (any color, default is Red) only the
Color of the title ==> YELLOW (any color, default is Yellow) first
Color of hilite text ==> WHITE (any color, default is White) character
Color of normal text ==> TURQ (any color, default is Turq) of the
Color of BROWSE text ==> BLUE (any color, default is Blue) color
Color of EDIT input ==> YELLOW (any color, default is Green) need be
Color of key fields ==> TURQ (any color, default is Turq) entered
Color of table text ==> BLUE (any color, default is Blue)
Color of field help ==> GREEN (any color, default is Green)

Notes:
  1. Enter R as a primary command to see the effect of any changed values
     or press RFIND
  2. To reset a value to its default value, just blank the input field.
  3. Enter CUA to set CUA action bar colors and hilights.

Colors: Blue Green Pink Red Turq White Yellow

```

Option 2 - SETDSN

Sets data set controls. Use it to save data set names for shortcuts (for example, type **.4** to CHANGE to data set number 4 or type **.g.4** to GO to this data set) and to display the previously used data set if data set recording is enabled (as shown below). Any changes made in SETDSN are saved in your profile.

```

----- Data Set Controls -----
OPTION ==>

From any Function command line, a ".code" or ".G.code" can be used to Change
or or GO to a data set name recorded on this panel. If a member group is
associated with the data set, a MEMLIST will also be built from that
member group.

Code      Date Set Name                Volume  Member group
From this panel you can enter a code or G.code from the command line.

 1 > LIB.CNTL                          _____ >
 2 > LIB.ASM                            _____ >
 3 > 'SYS1.PARMLIB'                     _____ >
 4 > MY.DATA.SET                        _____ >
 5 > 'SYS1.LINKLIB'                     _____ >
 6 >                                     _____ >
 7 >                                     _____ >
 8 >                                     _____ >
 9 >                                     _____ >
10 >                                     _____ >
11 >                                     _____ >
12 >                                     _____ >
13 >                                     _____ >
14 >                                     _____ >
15 >                                     _____ >
16 >                                     _____ >
17 >                                     _____ >
18 >                                     _____ >
19 >                                     _____ >
20 > LIB.ASM                            _____ >
21 > LIB.CNTL                          _____ >
22 > LIB.CNTL                          _____ >
23 > SDSF.LIST                          _____ >
24 > LIB.CNTL                          _____ >
25 > 'SYS1.LINKLIB'                     _____ >
26 > LIB.CLIST                          _____ >
27 > LINK.LOAD                          _____ >
28 > LIB.LOAD                           _____ >
29 > 'SYS1.PARMLIB'                     _____ >
30 > LIB.CNTL                          _____ >

Recording ==> 20 ( NO, or 1-30 ) for start of data set name recording:
      The entry number where the current data set name is
      placed. All entries from here are pushed down one each
      time you change to another data set anywhere in StarTool.
Note: The numbered data sets above must be normal names; a volume is
      optional.

```


The second part of this panel, shown following, contains generic data set names. You can choose data to substitute for the PROJECT and LIBRARY qualifiers. For more information, press HELP while in the SETDSN panel.

The following 26 data set names can be generic (with substitution characters) but the resulting data set name must be cataloged.

The code for following 26 items is normally A-Z but it may be changed.

```
ISPF LIBRARY substitutions for generic names          :
  PROJECT ==>          (substitutes for the first * in a name)
  LIBRARY ==>          (substitutes for ? or the second * in a name)
```

```
A____ > '*.*.ASM'           none >
B____ > '*.*.BAL'           none >
C____ > '*.*.COBOL'         none >
D____ > '*.*.DATA'          none >
E____ > '*.*.EXEC'          none >
F____ > '*.*.FORT'          none >
G____ > '*.*.CNTL'          none >
H____ > '*.*.HELP'          none >
I____ > '*.*.CLIST'         none >
J____ > '*.*.JCL'           none >
K____ > '*.*.BCK'           none >
L____ > '*.*.LOAD'          none >
M____ > '*.*.MSGS'          none >
N____ > '*.*.CNTL'          none >
O____ > '*.*.OUTPUT'        none >
P____ > '*.*.PANELS'        none >
Q____ > '*.*.CNTL'          none >
R____ > '*.*.CNTL'          none >
S____ > '*.*.SKELS'         none >
T____ > '*.*.TABLES'        none >
U____ > '*.*.CNTL'          none >
V____ > '*.*.CNTL'          none >
W____ > '*.*.CNTL'          none >
X____ > '*.*.CNTL'          none >
Y____ > '*.*.CNTL'          none >
Z____ > '*.*.CNTL'          none >
```

Note: For CHANGE enter the code or put the cursor on a data set, its volume or its member group and press ENTER.

For GO enter G.code or put the cursor on a data set, its volume or its member group and press PFK6/18 for RCHANGE.

Thus, you change the data set name, code, volume or member group at the same time as you select a data set using cursor selection.

Option 3 - SETKEYS

Use Option 3 - SETKEYS to define the PF keys. All StarTool FDM panels use a keylist as does ISPF 4.1 or above. The SETKEYS command and the ISPF KEYS command both update keylist PDSKEYL, so you can use either command to update StarTool FDM PF keys. For earlier versions of ISPF, use the SETKEYS command to update the keylist used by StarTool FDM.

For more information about SETKEYS, press the HELP key. Changes made in the SETKEYS panels are saved in your ISPF profile. There are two SETKEYS panels. Both (Set CUA Keys Panel #1/#2) are shown below.

```
----- Set CUA Keys panel #1 -----
OPTION ==>

KEY      Definition                Attribute Label
PK13 ==> HELP                      LONG
PK14 ==> SPLIT                      LONG
PK15 ==> END                        LONG
PK16 ==> RETURN                     LONG
PK17 ==> RFIND                      LONG
PK18 ==> RCHANGE                    LONG
PK19 ==> UP                         LONG
PK20 ==> DOWN                      LONG
PK21 ==> SWAP                       LONG
PK22 ==> LEFT                       LONG
PK23 ==> RIGHT                     LONG
PK24 ==> RETRIEVE                  LONG

Notes: Attributes are LONG or SHORT (Display with short or long list)
Hit ENTER for more keys, END to save, RCHANGE (PF6) to copy from normal keys
```

```
----- Set Keys panel #2 -----
OPTION ==>

KEY      Definition                Attribute Label
PK1 ==> HELP                      LONG
PK2 ==> SPLIT                      LONG
PK3 ==> END                        LONG
PK4 ==> RETURN                     LONG
PK5 ==> RFIND                      LONG
PK6 ==> RCHANGE                    LONG
PK7 ==> UP                         LONG
PK8 ==> DOWN                      LONG
PK9 ==> SWAP                       LONG
PK10 ==> LEFT                      LONG
PK11 ==> RIGHT                     LONG
PK12 ==> RETRIEVE                  LONG

Notes: Attributes are LONG or SHORT (Display with short or long list)
Hit ENTER for more keys, END to save, RCHANGE (PF6) to copy from normal keys
```

Option 4 - SETPANEL

Option 4 - SETPANEL, used to set panel defaults, is shown below with default values. There are ten defined formats for LISTC/LISTF, five formats for LISTV and four formats for MEMLIST for load members. You can select which panel formats to use with SETPANEL and you can switch between the panel formats with RIGHT and LEFT commands. To change a default, type over the value. Use the tab key to navigate through the settings. When complete, press Enter.

If you need additional information on any of the choices, place the cursor on one of the fields and press the HELP key for field level help.

Values specified in the SET panels apply to the remainder of the current session (by changing the parameter and pressing Enter) and future sessions as well. Type SAVE on

the OPTION line or press RCHANGE (FP6/PF18) to save the value of a variable in your ISPF profile for future sessions.

```

----- Set PANEL Defaults -----
OPTION ==>

To save these variables in your ISPF profile as defaults for future StarTool
sessions, enter SAVE as a primary command or press PF6 or PF18
More:      +

LISTC/LISTF Displays in order of RIGHT rotation:
Show Attributes view ==> YES  (Yes/No) -- VOLUME DO RECFM LRECL BLKSI
Show Dsname view    ==> NO   (Yes/No) -- VOLUME DO RECFM (full dsname)
Show Custom view    ==> NO   (Yes/No) -- VOLUME DO RECFM ... (customized?)
Show Size view      ==> YES  (Yes/No) -- SIZE FREE USED DEVICE
Show Extent view    ==> YES  (Yes/No) -- EXT SEC ALLOC RND KEY RKP
Show User view      ==> NO   (Yes/No) -- VOLUME DO RECFM ... (customized?)
Show Double line view ==> YES (Yes/No) -- VOLUME DEVICE DO ... (for 2 lines)
Show Created view   ==> NO   (Yes/No) -- CREATED REFERENCED UPD
Show Expiration view ==> NO   (Yes/No) -- EXPIRATION DIR USED RACF
Show Total view     ==> NO   (Yes/No) -- VOLUME DEVICE DO ... (for 3 lines)

LISTV Displays in order of RIGHT rotation:
Show Attributes view ==> NO   (Yes/No) -- Device Mount Total free LARGEST
Show Free space view ==> YES  (Yes/No) -- Device Mount Percent used
Show Percent use view ==> YES  (Yes/No) -- Device Mount Percent used
Show VTOC size view  ==> YES  (Yes/No) -- Device Mount VTOC size Location
Show Custom view     ==> NO   (Yes/No) -- Device Total .... (customized?)
Show Double line view ==> YES  (Yes/No) -- Device Total free/Percent used

MEMLIST Displays for load modules in order of RIGHT rotation:
Show Attributes view ==> YES  (Yes/No) -- Load module attributes
Show TTR, Size view  ==> YES  (Yes/No) -- TTR location and Size
Show Double line view ==> YES  (Yes/No) -- Combined information
Show Change Man view ==> NO   (Yes/No) -- Change Man date .. (customized?)

Miscellaneous panels:
ISPF primary panel  ==> ISR@PRIM

Tutorial panel control:
Bypass ALL panel    ==> NO   (Yes/No) Option 6 tutorial
Bypass OUTPUT panel ==> NO   (Yes/No) Option 7 tutorial
Bypass LOG panel    ==> NO   (Yes/No) Option 8 tutorial

In-progress message increments (use 999999 to suppress these messages):
Memlist increment   ==> 500   members processed between messages
LISTC/LISTF increment ==> 250   data sets processed between messages
LISTVOL increment   ==> 50    volumes processed between messages
VMAP increment      ==> 500   data sets processed between messages

```

Option 5 - SETSEEK

Option 5 - SETSEEK allows you to set a SEEK member name. For more information, place the cursor on the member name field and press the HELP key for field level help. You can use seek line commands in LISTA, LISTC/LISTF, and WORKPAD functions.

```
----- Set Seek Member Name -----
OPTION ===>

Member name ===>          (name to be used by seek line commands)

Notes:
1. This member name may also be changed with a seek line command by
   entering the member name in the MSG/DATA field.

2. Seek line commands can be performed in LISTA, LISTC/LISTF and
   WORKPAD functions.
```

Option 6 - SETSEL

Use Option 6 - SETSEL to select command aliases. You can specify a line command name that is substituted for an S line command.

Values specified apply to the remainder of the current session (by changing the parameter and pressing Enter) and for future sessions. Type SAVE on the OPTION line or press RCHANGE (FP6/PF18) to save the value of a variable in your ISPF profile for future sessions.

```
----- Set SELECT Command Defaults -----
OPTION ===>

To save these variables in your ISPF profile as defaults for future StarTool
sessions, enter SAVE as a primary command or press PF6 or PF18

Select for CAX      ===> UT   Line command for CAX
Select for LISTA   ===> C    Line command for LISTA
Select for LISTC   ===> C    Line command for LISTC/LISTF
Select for LISTV   ===> SP   Line command for LISTV
Select for load    ===> B    Line command for MEMLIST load
Select for source  ===> E    Line command for MEMLIST source
Select for WORKPAD ===> E    Line command for WORKPAD
Select for CSECTS  ===> LIST Line command for CSECTS
Select for CMDTBL  ===> TRY1 Line command for ISPF command table editor

Note:
This panel provides a way to specify a line command name which is to be
substituted for an S line command; however, do not use S as the value.
```

Option 7 - SETUSER

Select Option 7 - SETUSER to set dynamic user commands. Dynamic commands entered on the SETUSER panel are always saved in the ISPF profile.

```

----- SETUSER Dynamic User Commands -----
OPTION ==>

Choose one of the following or add an entry:
Dynamic Commands--note: < = , > = PDS08061,
                        / = 'USER07.LIB.CNTL'
                        { will add any entered operands with a leading blank
                        ? will add any entered operands without leading blanks
                        More:      +

PDSEZAP_ - change link.load;del pdsezap;repro pdse430 to(pdsezap);c *
YEST___ - ml : last(1)
LASTML__ - ml : last(!)
PDSES___ - C 'USER09.PDSES.ASM'
NEWUPDT_ - cmd(%update)
UPTO___ - ml :?
DCHK___ - DSAT /
_____ -
_____ -
_____ -
_____ -

```

The special insertion characters for SETUSER are:

<	Volume name (available for uncataloged data sets only)
>	StarTool FDM table name for dialog management CLISTS
/	Full data set name; for example, DCHK / expands to DSAT 'USER07.LIB.CNTL'
{	Adds an operand and a blank; for example, LASTML 3 expands to ml : last (3)
?	Adds an operand without a blank; for example, UPTO AB expands to ml :AB

Option 8 - CONTROL

Select Option 8 - CONTROL to set StarTool FDM processing defaults. CONTROL subcommand values apply only to the current session.

```

----- CONTROL: Set Processing Defaults -----
OPTION ==>

Type of input buffering ==> RETAIN      (SINGLE, DOUBLE, MULTIPLE or RETAIN)
Number of RETAIN buffers==> 9          (1 to 9 - if RETAIN is selected above)
Alias information        ==> YES        (YES or NO - for ATTRIB and MAP)
Provide link edit date  ==> YES        (YES or NO - for ATTRIB)
Attempt ESTAE recovery  ==> YES        (YES or NO - for all subcommands)
Provide translator info ==> YES        (YES or NO - for HISTORY)
Prompt for YES/NO       ==> YES        (YES or NO - for RENAME, DELETE,
                                         FIXPDS, SUBMIT and RESTORE)

Note: the CONTROL subcommand only sets options for the current session.

```

After pressing **Enter**, results display with the EDITLOG facilities as shown below. Note the subcommand name and operands in the header line of the EDITLOG session.

An EDITLOG session uses ISPF EDIF services to create an edit session containing subcommand data. This is identical to a normal edit session except that data cannot be saved. In addition, if you CREATE or REPLACE data, an EDIF session has no associated data set name; this means that you cannot CREATE or REPLACE using a member name and that the data set name prefilled on the CREATE or REPLACE panel will not be the current active data set.

An EDITLOG session display is 80 characters wide; however, if the output to be viewed exceeds 80 characters, the EDITLOG session display width increases to 159 characters. You can scroll left or right to view all of the EDITLOG output.

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT      ----->Control PROMPT                      Columns 00001 00072
Command ===>                                         Scroll ===> CSR

***** ***** Top of Data *****
000001
000002 PDS100I PDSE/SuperEdit -- Version 7.7.1.0 2003.097
000003
000004 PDS030I Global operands: ALIASINFO, LKEDDATE, PROMPT, RECOVER,
      TRANSLATO
000005 PDS030I Global operands: NODSNAME, NOSYSOUT, NOFORM, NODEST
000006 PDS031I Input buffering: RETAIN(9)
000007 PDS036I Largest free storage area is 2244K
000008 PDS046I Largest area above the line is 1874M
000009
***** ***** Bottom of Data *****

```

Browse

When you select Option 1 - Browse on the Primary Options menu under Basic Applications, the Browse selection panel displays. It allows you to specify member groups for a MEMLIST table or a single member name for a browse operation. StarTool FDM uses the standard ISPF variables for the PROJECT, LIBRARY and TYPE variables. StarTool FDM always formats the name of the current data set in the Other data set fields for easy overtyping.

To use a 3-level ISPF LIBRARY, blank out the Other data set fields and type the data set name under the PROJECT, LIBRARY and TYPE fields. Also, type a member or member group name in the MEMBERS field (for example, ABC*).

To specify a data set with the Other data set fields, type over the DATA SET NAME field with the data set name you want to use and then type a member or member group name in parentheses after the data set name (for example, 'USER07.LOAD(ABC*)'). If the data set is not cataloged, type the volume name.

To filter members, type YES in the Extended prompt field under Alternate selections for creating a MEMLIST. A panel appears to build a source member list.

```

----- StarTool Browse selection -----
OPTION ==>

ISPF LIBRARY:
  PROJECT ==> USER07
  LIBRARY ==> SDSF
  TYPE    ==> LIST
  MEMBERS ==>                               (set to * or a member group to use MEMLIST
                                           to build a general purpose member list).

Other data set:
  DATA SET NAME ==> 'USER07.LOAD'
  VOLUME SERIAL  ==>                               (If not cataloged)

Options to be used when not building a MEMLIST:
  Browse method ==> 3                            (1=BROWSE, 2=VIEW, 3=PBROWSE, 4=PVIEW
  PROFILE        ==>                               Edit Profile used for VIEW
  Initial Macro  ==>                               Edit Macro used for VIEW

Alternate selections for creating a MEMLIST:
  Extended prompt ==> YES (Yes/No to prompt for extended member selections)

If a member group is specified, a general purpose MEMLIST will be built.

Note: record selection and copybook support is available through
      PEDIT View mode (option 4); this is also known as PVIEW.

```

Edit

Option 2 - Edit on the **Primary Options** menu allows you to specify member groups for a MEMLIST table or a single member name for an edit operation.

```

----- StarTool Edit selection -----
OPTION ==>

ISPF LIBRARY:
  PROJECT ==> USER07
  LIBRARY ==> LINK
  TYPE    ==> LOAD
  MEMBERS ==>                               (set to * or a member group to use MEMLIST
                                           to build a general purpose member list).

Other data set:
  DATA SET NAME ==> 'USER07.CNTL(COPY*)'
  VOLUME SERIAL  ==>                               (If not cataloged)

Options to be used when not building a MEMLIST:
  PROFILE        ==>
  Initial Macro  ==>

  Use PEDIT      ==> NO (Yes/No)

Alternate selections for creating a MEMLIST:
  Extended prompt ==> YES (Yes/No to prompt for extended member selections)

If a member group is specified, a general purpose MEMLIST will be built.

```

StarTool FDM uses the standard ISPF variables for the PROJECT, LIBRARY and TYPE variables. StarTool FDM always formats the name of the current data set in the Other data set fields to allow easy overtyping.

To use a 3-level ISPF LIBRARY, blank out the Other data set fields and type the data set name in the PROJECT, LIBRARY and TYPE fields. Also, type a member or member group name in the MEMBERS field (for example, A:C); however, to specify a data set with the Other data set fields, type over the DATA SET NAME field with the data set name you want and type a member or member group name in parentheses after the data set name (for example, 'USER07.CNTL(A:C)'). If the data set is not cataloged, type the volume name.



NOTE PROFILE and Initial Macro are honored only if you edit a single member; if a MEMLIST displays, these fields are ignored.

To filter members, type YES in the Extended prompt field under Alternate selections for creating a MEMLIST. A panel appears to build a source member list.

Utilities

Option 3 - Utilities displays the **ISPF Utilities** panel for StarTool FDM and ISPF utilities.

```

----- StarTool and ISPF Utilities -----
OPTION  ===>
More:      +

StarTool Services:
  1 - LIBRARY   - Compress or Member list
  2 - DATASET  - Allocate, rename, delete, catalog, uncatalog, ...
  3 - COPY     - Copy members of a data set using ISPF 3.3
  4 - DSLIST   - List of data sets from catalog or VTOC, or list volumes
  9 - COMMANDS - Create/change an application command table
 14 - SEARCH-FOR- Extended find, replace, and selective copy using StarBat
 15 - FIND     - Find a string in a data set (all or some members)
 16 - IDCAMS   - Invoke IDCAMS services
 17 - LISTC    - Retrieve a saved LISTC table
 18 - XCOPY    - Extended Copy

ISPF Services:
  I1 - LIBRARY - Compress or print data set. Provide member services
  I2 - DATASET - Allocate, rename, delete, catalog, uncatalog, ...
  I3 - MOVE/COPY - Move, copy, or promote members or data sets
  I4 - DSLIST  - Print or display (to process) list of data set names
  I5 - RESET  - Reset statistics for members of ISPF library
  I6 - HARDCOPY - Initiate hardcopy output
  I8 - OUTLIST - Display, delete, or print held job output
  I9 - COMMANDS - Create/change an application command table
  I12 - SUPERC - Compare data sets (Standard Dialog)
  I13 - SUPERCE - Compare data sets and Search-for strings (Extended
  Dialog)
  I14 - SEARCH-FOR- Search data sets for strings of data (Standard Dialog)

```

All ISPF Option 3 utilities are available from this panel; for example, type I3.3 to invoke ISPF MOVE/COPY and return to this utility panel on completion of the move or copy.

When you select Utilities from the Primary Options screen, the StarTool and screen displays:

StarTool Services Options 1 through 4 are similar to the corresponding ISPF Services options. Option 9 - Commands, allows you to create or change an application command table. Option 14, Search-for provides an extended search capability using Serena StarTool StarBat, a StarTool FDM optional utility. StarTool Services options 15 through 18 perform extended utility functions.

Option	StarTool Services	Description
1	LIBRARY	Compresses a data set or builds a member list.
2	DATASET	Manages data sets by allocating, renaming, deleting, cataloging, and uncataloging.
3	COPY	Uses ISPF 3.3 to copy data sets or data set members.
4	DSLIST	Builds a LISTC/LISTF data set table or a LISTV volume table.
9	COMMANDS	Creates or changes an application command table.
14	SEARCH-FOR	Searches portions of a data set.
15	FIND	Finds a string in a data set.
16	IDCAMS	Formats and executes IDCAMS functions.
17	LISTC	Retrieves a saved LISTC/LISTF table.
18	XCOPY	Copies data sets or data set members using XCOPY.

Option	ISPF Services	Description
I1	LIBRARY	Compresses or prints data set.
I2	DATASET	Manages data sets by allocating, renaming, deleting, cataloging, and uncataloging.
I3	MOVE/COPY	Moves, copy, or promote members or data sets.
I4	DSLIST	Print or dispaly (to process) list of data set names.
I5	RESET	reset statistics for members of ISPF library.
I6	HARDCOPY	Initiate hardcopy output.
I8	OUTLIST	display, delete, or pirnt held job output.
I9	COMMANDS	Create/change an application command table
I12	SUPERC	Compare data sets (Standard Dialog)
I13	SUPERCE	Compare data sets and Search-for srings (Standard Dialog)
I14	SEARCH-FOR	Serach data sets for strings of data (Standard Dialog)

Option 3.1 - Library Utility

Option 3.1 - Library Utility allows you to compress a library or specify a member group for a MEMLIST table.

```

----- StarTool Library Utility -----
OPTION ==>

Options:
blank - Display member list
C - Compress data set

ISPF LIBRARY:
PROJECT ==> USER07
LIBRARY ==> LINK
TYPE ==> LOAD
MEMBERS ==> (set to * or a member group to use MEMLIST)

Other data set:
DATA SET NAME ==> 'USER07.LIB.ASM'
VOLUME SERIAL ==> (If not cataloged)

Alternate selections for creating a MEMLIST:
Extended prompt ==> YES (Yes/No to prompt for extended member selections)

```

StarTool FDM uses the standard ISPF variables for the PROJECT, LIBRARY and TYPE variables. StarTool FDM always formats the name of the current data set in the Other data set fields to allow easy overtyping.

If you want to use a 3-level ISPF LIBRARY, blank out the Other data set fields and type the data set name under the PROJECT, LIBRARY and TYPE fields. Also, you can type a member or member group name in the MEMBERS field (for example, COPY/).

If you want to specify a data set with the Other data set fields, type over the DATA SET NAME field with the data set name you want and type a member or member group name in parentheses after the data set name (for example, 'SYS1.PROCLIB(COPY/)'). If the data set is not cataloged, type the volume name.

If you want to filter members, type YES in the Extended prompt field under Alternate selections for creating a MEMLIST. A panel appears allowing you to build a source member list.

After pressing **Enter** in the above library utility panel, results are displayed using EDITLOG facilities as shown in the sample below.

Note the subcommand name in the header line of the EDITLOG session. If a subcommand is invoked with operands, the entire subcommand displays in the header line.

An EDITLOG session uses ISPF EDIF services to create an edit session containing subcommand data. This is almost identical to a normal edit session except that data cannot be saved. In addition, if you CREATE or REPLACE data, an EDIF session has no associated data set name; this just means that you cannot CREATE or REPLACE using a member name and that the data set name prefilled on the CREATE or REPLACE panel will not be the current active data set.

An EDITLOG session display is normally 80 characters wide. However, if the output to be viewed exceeds 80 characters, the EDITLOG session display width is increased to 159 characters. You can scroll left or right to view all of the EDITLOG output.

```

EDIT ---- COMPRESS ----- COLUMNS 001 072
COMMAND ==> SCROLL ==> CSR
***** TOP OF DATA *****
000001 IEB1035I USER07 TSUSER1 $SERPDSE 07:12:27 MON 10 JAN 2000 PARM=' ' A0
000002 IEB1064I STANDARD DD NAMES- SYSIN SYSPRINT SYSUT1 SYSUT2 SYSUT
000003 IEB1065I OVERRIDING DD NAMES- SYS00012 SYS00013 SYS00011 SYS00011 SYS00
000004 IEB1057I VL GETMAIN REQUESTED 250K TO 1M BYTES. OBTAINED 1M. WILL REL
000005 IEB1058I ALLOCATED 2 CONTIGUOUS BUFFERS EACH 94976 BYTES. WORK AREA HA
000006 IEB1018I COMPRESSING PDS OUTDD=SYS00011 VOL=STR80X DSN=USER07.LIB.ASM
000007 IEB1106I CONTROL TABLE IS 3900 BYTES LONG. WORK AREA HAS 807K BYTES AV
000008 IEB1097I FOLLOWING MEMBER(S) MOVED IN DATA SET REFERENCED BY SYS00011
000009 IEB1098I 133 OF 390 MEMBERS MOVED
000010 IEB144I THERE ARE 100 UNUSED TRACKS IN OUTPUT DATA SET REFERENCED BY SY
000011 IEB149I THERE ARE 20 UNUSED DIRECTORY BLOCKS IN OUTPUT DIRECTORY
000012 IEB1056I RELEASED 1016K ADDITIONAL BYTES.
000013 IEB147I END OF JOB - 0 WAS HIGHEST SEVERITY CODE
000014
000015 PDS200I DISP UNIT RECFM LRECL BLKSIZE ALLOCTRK FREETRK SECONDARY
000016 PDS200I SHR 3380 FB 80 13680 1X 630 100 120 TRK
000017
***** BOTTOM OF DATA *****

```

Option 3.2 - Data Set Utility

Option 3.2 - Data Set Utility allows you to obtain information on a data set or manipulate a data set. In the following example, Option S (Short information) is requested on data set USER07.LIB.LOAD.

```

----- StarTool Data Set Utility -----
OPTION ==> s

Options:
A - Allocate new data set           C - Catalog data set
R - Rename entire data set         U - Uncatalog data set
D - Delete entire data set         S - Short data set information
blank - Data set information       I - Full data set information
                                   V - VSAM allocation services

ISPF LIBRARY:
PROJECT ==> USER07
LIBRARY ==> LIB
TYPE ==> LOAD

Other partitioned or sequential data set:
DATA SET NAME ==>
VOLUME SERIAL ==> (If not cataloged)

```

StarTool FDM uses the standard ISPF variables for the PROJECT, LIBRARY and TYPE variables. StarTool FDM always formats the name of the current data set in the Other data set fields to allow easy overtyping.

If you want to use a 3-level ISPF LIBRARY, blank out the Other data set fields and type the data set name under the PROJECT, LIBRARY and TYPE fields. However, to specify a data

set with the Other data set fields, type over the DATA SET NAME field with the data set name you want. If the data set is not cataloged, type the volume name.

Options R (Rename) and D (Delete) cannot be performed on the current data set. If you want to modify the current (or active) data set, change to a different data set temporarily and then use Option R or D on the data set. After pressing **Enter** in the above data set utility panel, results are displayed for an S option as shown below.

```

----- Data Set Information Display -----
OPTION ===>

Data set name:  USER07.LIB.LOAD
              on Volume:  STR840
DSORG:   PO           CREATION DATE:   1989/10/04
RECFM:   U           REFERENCE DATE:   1994/01/10
LRECL:   0           EXPIRATION DATE:  ** NONE **
BLKSIZE: 32000       UPDATE FLAG:

ALLOCATED SPACE: 215T
UNUSED SPACE:   20T           KEY LENGTH:   0
ALLOCATION TYPE: TRK           KEY POSITION:  0
SECONDARY SIZE: 100
EXTENT COUNT:   2

```

Option 3.3 - Copy Utility

The Option 3.3 - Copy Utility allows you to go to ISPF 3.3 to copy members from a data set to another data set.

Option 3.4 - DSLIST Utility

Use Option 3.4 - Data Set List Utility to build an ISPF table of data set names from a catalog or volume source. You can also build a table with volume space information with the Volume option; this option requires a volume name or mask and it builds a LISTV volume information table.

For the other options, the system builds a LISTC/LISTF data set table. You can choose to add data sets to the current LISTC/LISTF data set list or discard the current data set list and rebuild it.

If you type a volume name or mask, the data sets are obtained from a volume source using the LISTF interface; otherwise, the data sets are obtained from the catalog using the LISTC interface.



NOTE The list of line commands is available for LISTC/LISTF data set lists. This is only a partial list; to get a directory of all line commands, type O (Options) or M (Menu) line command on any data set line.

The following is a sample of the Dataset List (LISTC/LISTF) utility panel.

```

----- DATASET LIST (LISTC/LISTF) UTILITY -----
OPTION  ==>

blank - Display data sets in the current LISTC/LISTF list
V      - Display volume information list (volume or volume mask required)
M      - Display data set extents for a single volume (data set mask is not used)

Enter one or both of the parameters below:
  DSNAME LEVEL ==> USER07.LIB.C
  Volume       ==>                (single volume or volume mask)

  New list     ==> YES              (Yes/No) Yes to start with a new data set
  list                                                No to merge with current data set
  list

Press HELP for more information.

The following line commands will be available when the list is displayed:
O - Display options      INFO - Data set info      S - S is set to C
C - Change to data set  LC  - Correct catalog     U - Usage
CAT - Catalog data set  LOG - Copy line to log    UNC - Uncatalog
COPY - Copy data set    ML  - Change and MEMLIST  UT - User commands
DEL - Delete data set   MOD - Model data set      W - Transfer to WORK
GO  - Activate with GO  RACF - RACF assistance    WHO - Show allocations
HSM - DFHSM commands   REFR - Refresh statistics  X - Drop table line
IDC - LISTC with IDCAMS REN - Rename data set    Z - Compress data set

```

Following is a LISTC/LISTF table generated by the Dataset List Utility panel above. Each time you select data sets and add them to the table, statistics display (as in this example) to provide feedback on the added data sets.

If you want these statistics for all data sets in the LISTC/LISTF table, type the REFRESH command. This command checks each individual data set in the table and adjusts all displayed values.

The following items are data set statistics:

TOTAL=	is the number of data set names added to the table in this LISTC/LISTF call.
NVSAM=	is the number of non-VSAM data sets added to the table. This item counts only actual data sets; it does not include catalog entries or migrated data sets.
ADDS=	is the number of data set entries actually added to the table.
EXT=	is the total number of extents in these data sets.
SPACE=	is the total number of disk tracks in these data sets.
FREE=	is the total number of free disk tracks in these data sets.

After pressing Enter, the statistics box no longer be displays. Several different LIST/LISTF formats are supported; you can display these alternates by pressing the LEFT or RIGHT

function keys. You can control the statistics box and select which LISTC/LISTF formats to use with the SETPANEL command.

```

FUNCTIONS  CTL A-M  CTL N-Z  LINE CMDS A-M  LINE CMDS N-Z  DEFAULTS  FEATURE
-----
----- List files 0      - (Attributes) ----- ROW 1 TO 5 OF 5
COMMAND ===>
- DSN=USER07.LIB.CNTL,VOL=SER=STR80S MEM=($FCB -----
CMD  C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL BLKSI
      Y Y          USER07.LIB.CLIST_____ STR840 PO FB      80  9040
      Y -          USER07.LIB.CLISTX_____ MIGRAT
      Y -          USER07.LIB.CLISTY_____ ARCIVE
      Y N          USER07.LIB.CLISTZ_____ STR666
      Y Y          USER07.LIB.CNTL_____ STR80S PO FB      80 13680
***** BOTTOM OF DATA *****

+-----+
| TOTAL=      5 |
| NVSAM=      2 |
| ADDS =      5 |
| EXT  =      3 |
| SPACE=    237 |
| FREE  =     83 |
+-----+

```

Option 3.9 - CMDTBL Utility

Use Option 3.9 - CMDTBL Utility to manage ISPF command tables. CMDTBL can display command tables (by default, the current ISP command table is selected from the copy in memory) and CMDTBL can modify command table entries in EDIT mode. You can move individual command table entries, and test or edit in the CMDTBL application before saving the table.

```

----- Command Table Utility -----
OPTION  ===>

Enter the name of the ISPF application and any other desired parameters:

Application name  ===> ISP      (one to four characters, ISP or ISR)
EDIT mode        ===> NO      (YES or NO to update the command table)
Create a new table ===> NO      (YES or NO to retrieve an existing table)
Position in table ===> INSERT  (TOP, BOTTOM or INSERT for current place)
DDNAME for input  ===> ISPTLIB (any DDNAME for table input)

Press HELP for more information.
The following line commands will be available when the table is displayed:
= - Repeat above cmd  I - Insert entry      R - Repro entry
A - After this entry  K - Kill and clear   S - S is set to TEST
B - Before this entry LOG - Copy line into log TAG - Mark with *TAG*
C - Copy this entry   M - Move entry       TEST - Test table entry
DEL - Delete this entry 0 - Command selection X - Drop table line

```

If CMDTBL is already active, the default APPL name is the current name and no merge is performed. You can use this with EDIT or NOEDIT to change the mode. For ISP or ISR, LIB is ignored and the in-memory copy is used. If the ISPF level is 4.2 or above, a four line edit panel is available for CMDTBL updates.

When you invoke this option, the command table is read from memory if you use application names ISP or ISR; otherwise, the command table is entered from the ISPTLIB file (by default). After the CMDTBL function is active, you can update the command table and change the copy in memory (for applications ISP or ISR) or permanently on disk with the SAVE command. By default, the output is written to ISPTABL. After pressing **Enter** in the CMDTBL retrieval panel, the command table displays and control passes to the CMDTBL function, as shown below.

```

----- ISPF Command table display of ISP          ROW 10 TO 17 OF 57
COMMAND ==>                                     SCROLL ==> CSR
Enter an ISPF command or StarTool command, Enter SAVE to save the table
-----
CMD  VERB      T  ACTION
      DATA/MSG  DESCRIPTION
-----
      LISTC    0  &PDSPASS
      PDS/USER CONTROLLED PASSTHRU
      PLIST    2  SELECT CMD(STARTOOL F(ISPPROF) ISPXEQS LISTC 20 PROMPT
      StarTool PLIST facility
      TOP      0  ALIAS UP MAX
      SCROLL TO TOP
-----

```

Option 3.14 - Search-For Utility

Use Option 3.14 - Search-For Utility to search, copy or update data set members that contain JCL.

An input data set is always required in this panel. An output data set is not required for UPDATEREC or UPDATEALL; otherwise, specify YES for Model the input for StarTool FDM to create an output data set modeled after the input data set.

Option 3.15 - Find Utility

Use Option 3.15 - Find Utility to find a character string.

```

----- StarTool Find Utility -----
OPTION ==>

Enter dataset

ISPF LIBRARY:
PROJECT ==> USER07
LIBRARY ==> LINK
TYPE ==> LOAD

Other partitioned or sequential data set:
DATA SET NAME ==> 'USER07.LIB.CNTL'
VOLUME SERIAL ==> (If not cataloged)

note: member name and/or additional options prompting will be provided
for the type of dataset selected.
-----

```

StarTool FDM uses the standard ISPF variables for the PROJECT, LIBRARY and TYPE variables. StarTool FDM always formats the name of the current data set in the Other data set fields to allow easy overtyping.

To use a 3-level ISPF LIBRARY, blank the Other data set fields and type the data set name under the PROJECT, LIBRARY and TYPE fields. However, to specify a data set with the Other data set fields, type over the DATA SET NAME field with the data set name you want. If the data set is not cataloged, also type the volume name.

After pressing **Enter** in the data set specification panel, a FIND prompting panel, similar to the following sample, displays.

This is an entry assist panel. You can type an option and the panel formats a subcommand and passes it on to StarTool FDM. Then, the subcommand executes and a copy of the subcommand and its results displays.

Specify the Find string as follows:

string	for an upper case and lower case search
'string'	for an upper case and lower case search
p'string'	for a picture string
t'string'	for an upper case and lower case search
c'string'	for a case sensitive search
x'string'	for a hexadecimal string

You can set the Action if found field to a subcommand name like EDIT. This means that if any occurrence of the Find string is found in a member, this action will be taken. Similarly, an Action if not found can be set to a subcommand name like ATTRIB. This means that if the Find string is not present in a member, its attributes (ISPF statistics or linkage-edit attributes) display.

If you select any Action if found or Action if not found option, the related option is performed as appropriate instead of the default action (displaying member lines with string matches).

```

----- FIND: Search Source Members -----
OPTION  ==>

Member or member group ==> copy/          (*, start*, start:end or part/)
Find string             ==> ' exec '      (may be 'quoted')
Format for listing      ==> NUM          (NUM, SNUM, NONUM, LBLOCK, LDUMP, BLOCK, DUMP)
Find conditions         ==>             (WORD, PREFIX or SUFFIX)
List all data after find==> NO          (YES or NO) Display then take action==>
      NO(YES or NO)M
Maximum records input  ==>             (1 to 99999999)
Maximum records output ==>             (1 to 99999999)
Maximum records to find ==>           (1 to 99999999)
Records to skip        ==>             (0 to 99999999)
Maximum record length  ==>             (1 to 32767)
Columns of data to skip ==>             (1 to 32767)
Action if found        ==>             (ATTRIB, BROWSE, DIRENTRY, EDIT
                                       LIST, MEMBERS, NEWML, PRINT,
                                       REVIEW, SUBMIT, SUBLIST or VERIFY)
Action if not found    ==>             (same as "Action if found" above)

```

Specify your requirements for the FIND operation in the above panel, then press ENTER.



TIP When using the FIND command against very large data sets (several MB), use the BLOCK parameter in the **Format for listing ==>** prompt to avoid an ABEND.

The results of the FIND subcommand display using EDITLOG facilities. Note the subcommand name and operands in the header line of the EDITLOG session. This is echoed here to show the generated subcommand.

An EDITLOG session uses ISPF EDIF services to create an edit session containing subcommand data. This is almost identical to a normal edit session except that data cannot be saved. In addition, if you CREATE or REPLACE data, an EDIF session has no associated data set name; this just means that you cannot CREATE or REPLACE using a member name and that the data set name prefilled on the CREATE or REPLACE panel will probably not be the current active data set.

An EDITLOG session display is normally 80 characters wide. However, if the output to be viewed exceeds 80 characters, the EDITLOG session display width increases to 159 characters. You can scroll left or right to view all of the EDITLOG output.

```

EDIT ---- Find COPY/ ' exec ' NUM CAPS ----- COLUMNS 001 072
COMMAND ==>                                     SCROLL ==> CSR
***** ***** TOP OF DATA *****
000001
000002 ** FIND      COPY45
000003 000400 //D EXEC  PGM=IEBCOPY
000004 PDS142I 12 lines in this member
000005 PDS146I 1 strings found
000006
000007 ** FIND      IEBCOPYC
000008 000220 //A EXEC  PGM=IEBCOPY,REGION=1500K
000009 001400 //C EXEC  PGM=IEBCOPY
000010 PDS142I 24 lines in this member
000011 PDS146I 2 strings found

```

Option 3.16 - IDCAMS Utility

Use Option 3.16 - IDCAMS Utility to enter parameters for an IDCAMS command. The first menu panel provides a selection of IDCAMS commands. The next panel is an entry assist panel for the corresponding IDCAMS command. IDCAMS ALTER (3.16.1) and DEFINE (3.16.4) each provide a menu with more choices depending on the data set type before displaying an entry assist panel.

```

----- IDCAMS command -----
OPTION ==> 12

Choose one of the following IDCAMS options:
 0 or FREEFORM - Enter a free-form IDCAMS command.
 1 or ALTER    - Change data set attributes.
 2 or BLDINDEX - Build an alternate index.
 3 or DCOLLECT - Collect usage information.
 4 or DEFINE   - Define (the DEFINE command is a short cut for IDCAMS DEFINE)
 5 or DELETE   - Delete a data set.
 6 or DIAGNOSE - Inspect a VVDS or BCS.
 7 or EXAMINE  - Inspect a key-sequenced data set cluster.
 8 or EXPORT   - Export an ICF or user catalog or VSAM data set.
 9 or EXPORTD  - Export disconnect a user catalog.
10 or IMPORT   - Import an ICF or user catalog or VSAM data set.
11 or IMPORTC  - Import connect a user catalog.
12 or LISTCAT  - List contents of a catalog or a catalog entry.
13 or PRINT    - Print contents of a data set or catalog.
14 or RENAME   - Rename a data set or component.
15 or REPRO    - Copy a data set or catalog.
16 or VERIFY   - Verify the end-of-file indicator for a data set.
17 or CACHE    - 3880/3990 Cache management services (SETCACHE)

```

After pressing **Enter** in the above IDCAMS menu panel, an IDCAMS LISTCAT entry assist similar to the following displays.

```

----- IDCAMS LISTCAT Command -----
OPTION ==>

Entry to list          ==> VSAM.RR.*
Level to list         ==>
Fields to list        ==> ALL           (NAME/HISTORY/VOLUME/ALLOCATION/ALL)
List aliases          ==> YES          (YES or NO)
List AIX data sets    ==> YES          (YES or NO)
List clusters         ==> YES          (YES or NO)
List DATA entries    ==> YES          (YES or NO)
List GDG entries      ==> YES          (YES or NO)
List INDEX entries    ==> YES          (YES or NO)
List Non-VSAM entries ==> YES          (YES or NO)
List PAGESPACE entries ==> YES          (YES or NO)
List PATH entries     ==> YES          (YES or NO)
List USERCATALOG entries ==> NO          (YES or NO)
Creation date filter  ==>              (0 to 9999; 0 for all entries)
Expiration date filter ==>              (0 to 9999; 9999 for all entries)
Catalog name         ==>

```

After pressing **Enter** on the IDCAMS LISTCAT panel, the results of the IDCAMS LISTCAT command display in the log.

Note the first log line that begins >Idcams ... This is the first line of a StarTool FDM IDCAMS subcommand formatted by the entry assist panel. Continuation lines are marked by "-" in the first column. A continuation line begins with -INDEX ... in the example below.

Following the echoed subcommand, the response from the subcommand is provided. This begins with LISTCAT ENTRIES in the example below. This output was actually produced

by IDCAMS in performing the LISTCAT command but the output was intercepted by StarTool FDM and placed into the log.

```

FUNCTIONS  CONTROL  DSN CMDS  MEM CMDS A-M  MEM CMDS N-Z  DEFAULTS  FEATURES
-----
----- ISPMODE Session# 1 Log# 1 --  ROW 161 TO 171 OF 171
COMMAND ==>
- DSN=USER07.LIB.CNTL,VOL=SER=STR80S MEM= -----
>----->Idcams LISTCAT ENTRIES(USER07.VSAM.RR.*) ALL ALIAS AIX CLUSTER DATA GDG
-INDEX NONVSAM PAGESPACE PATH
LISTCAT ENTRIES(USER07.VSAM.RR.*) ALL ALIAS AIX CLUSTER DATA GDG INDEX NONVSAM
CLUSTER ----- USER07.VSAM.RR.CLUSTER
IN-CAT --- SYS1.CS2.UCAT.VSTR80M
HISTORY
  DATASET-OWNER----- (NULL)      CREATION-----1992.358
  RELEASE-----2      EXPIRATION-----0000.000
  PROTECTION-PSWD---- (NULL)      RACF----- (NO)
ASSOCIATIONS
  DATA----USER07.VSAM.RR.CLUSTER.DATA
***** BOTTOM OF DATA *****

```

Defining a Generation Data Group (GDG)

To define a Generation Data Group using the IDCAMS utility, choose Option 4.4 from the IDCAMS commands panel (3.16). The following panel appears:

```

----- IDCAMS DEFINE for a GDG -----
OPTION ==>

* GDG base name      ==> MYGDG.BASE
* Maximum generations==> 3      (1 to 255)
  Empty              ==> NO      (YES or NO to uncatalog when max is reached)
  Scratch            ==> NO      (YES or NO to delete when uncataloged)
  Owner              ==> USER07 (owner-id)
  Expiration date    ==>          (Julian -- yyyyddd)
  Retention time     ==>          (number of days, this overrides expiration)
  Catalog name       ==>

Note: parameters marked with * are required

```

- 1 Fill in the required fields on the panel. If quotes are not used for the GDG base name, the USERID of the logged-on user is appended to the beginning of the name.
- 2 Press Enter. This formats an IDCAMS command and executes to define the GDG.

Option 3.17 - LISTC Utility

Use Option 3.17 - LISTC Utility to retrieve a saved data set list.

You can override several options for processing LISTC/LISTF tables on this panel. These options are set in the SETALL command.

- 1 If "Saved table name" is set to *, PROFMAN is invoked to display all saved tables; otherwise, the LISTC/LISTF table named is retrieved.
- 2 If "Automatic save" is set to YES, the LISTC/LISTF table is saved automatically at StarTool FDM program termination or when you load another LISTC/LISTF table. A

LISTC/LISTF table can also be saved on request with the SAVE primary command in LISTC/LISTF.

- 3 If "Confirm delete" is set to NO, normal data set delete confirmation prompting is not performed.
- 4 If "Automatic refresh" is set to YES, an automatic REFRESH command is performed as the LISTC/LISTF table loads. This provides data set statistics for each data set (in individual data set table entries). A statistics box is provided for all data sets in the table.

```

----- Retrieve Saved Data Set List -----
OPTION ==>

Enter the name of the saved table and override any desired LISTC options:

Saved table name    ==> tabla (use * to invoke the Profile manager for
      tables)
Automatic save      ==> NO    (Yes or No to automatically save LISTC tables)
Confirm delete      ==> YES   (Yes or No to prompt before performing DEL)
Automatic refresh   ==> NO    (Yes or No to perform REFRESH during loading)

Press HELP for more information.

The following line commands will be available when the list is displayed:
O   - Display options      INFO - Data set info          U   - Change and USAGE
C   - Change to data set  LC   - Correct catalog      UNC - Uncatalog
CAT - Catalog data set    LOG  - Copy line to log      UT  - User commands
COPY - Copy data set      ML  - Change and MEMLIST  W   - Transfer to WORK
DEL  - Delete data set    MOD  - Model data set      WHO - Show allocations
GO   - Activate with GO   REFR - Refresh statistics X   - Drop table line
HSM  - DFHSM commands    REN  - Rename data set    XMIT - Transmit data set
IDC  - LISTC with IDCAMS  S    - S is set to C      Z   - Compress data set

```

After pressing **Enter** in the above LISTC/LISTF retrieval panel, the table is retrieved and control is passed to LISTC/LISTF as shown below.

```

----- List files TABLE1 - (Attributes) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                     SCROLL ==> CSR
- DSN=USER07.LIB.LOAD,VOL=SER=STR80S MEM=COPY* -----
CMD  C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL BLKSI
- -          SYS1.LINKLIB_____ ES2RES PO U           0 23200
- -          SYS1.LINKLIB_____ ES4RES PO U           0  6144
- -          USER07.LIB.CNTL_____ STR80S PO FB        80 13680
***** BOTTOM OF DATA *****

```

Option 3.18 - Copy Utility

Option 3.18 - Copy Utility allows you to copy members from a data set to another data set. StarTool FDM uses the standard ISPF variables for the PROJECT, LIBRARY and TYPE variables. StarTool FDM always formats the name of the current data set in the Other data set fields to allow easy overtyping.

To use a 3-level ISPF LIBRARY, blank the Other data set fields and type the data set name under the PROJECT, LIBRARY and TYPE fields. To specify a data set with the Other data set fields, type over the DATA SET NAME field with the data set name you want. If the data set is not cataloged, type the volume name.

In the following example, members from data set LINK.TEST are to be copied to another load data set.

```

----- StarTool Copy/Move Utility -----
OPTION ==>

Options:
  blank - Copy data set or member(s)
  C      - Copy data set or member(s)
  M      - Move data set or member(s)

Enter "FROM" dataset

ISPF LIBRARY:
PROJECT ==> USER07
LIBRARY ==> LIB
TYPE     ==> CLIST

Other partitioned or sequential data set:
DATA SET NAME ==> LINK.TEST
VOLUME SERIAL ==>          (If not cataloged)

Note: A member name prompt will be provided later if appropriate for
the type of data set selected.

```

Next, the system prompts for the "to" data set. In this case, copy members into LINK.LOAD.

```

----- StarTool Copy Utility -----
OPTION ==>

Enter "TO" dataset for a copy and press ENTER

ISPF LIBRARY:
PROJECT ==> USER07
LIBRARY ==> LIB
TYPE     ==> CLIST

Other partitioned or sequential data set:
DATA SET NAME ==> LINK.LOAD
VOLUME SERIAL ==>          (If not cataloged)

Note: additional options prompts will be provided as appropriate for
the type of data sets selected.

```

In the final prompting panel, specify the member group to copy and specify the copy options. Because of a difference in BLKSIZE between the two load data sets, StarTool FDM automatically requests a COPYMOD operation (you need not specify Maximum output BLKSIZE).

```

----- XCOPY extension input -----
OPTION ==>

from: USER07.LINK.TEST
vol: SYSRS1
to : USER07.LINK.LOAD
vol: STR81Z
Enter the member group name below for COPY
==> IGDZILLA (e.g., *; start:end; first*pat; range*; part/)

Enter any operands below for COPY
to DSN allocate as ==> SHR (OLD or SHR)
Maximum output BLKSIZE ==> (10 to 32767)
Replace output members ==> NO (YES or NO)
Include associates ==> YES (YES or NO)
Listing detail control ==> SUMMARY (SUMMARY, LIST, NOLIST)
Rename members copied ==> (new prefix for the member names)

```

After pressing **Enter** in the above panel, results display using EDITLOG facilities if errors are encountered, as shown below, during the data set copy. Otherwise, control returns to the first 3.3 panel.

The subcommand name and operands appear in the header line of the EDITLOG session. This is echoed here to show the generated subcommand.

An EDITLOG session uses ISPF EDIF services to create an edit session containing subcommand data. This is almost identical to a normal edit session except that data cannot be saved. In addition, if you CREATE or REPLACE data, an EDIF session has no associated data set nam. This just means that you cannot CREATE or REPLACE using a member name and that the data set name prefilled on the CREATE or REPLACE panel will probably not be the current active data set.

An EDITLOG session display is normally 80 characters wide. However, if the output to be viewed exceeds 80 characters, the EDITLOG session display width increases to 159 characters. You can scroll left or right to view all of the EDITLOG output.

```

EDIT ---- Copy IGDZILLA 'USER07.LINK.LOAD' vol(STR81Z) SHR --- COLUMNS 001 072
COMMAND ==> SCROLL ==> CSR
***** ***** TOP OF DATA *****
000001 PDS852E IGDZILLA already exists
000002 PDS852E IE ECB933 already exists
000003 PDS852E IE ECB934 already exists
000004 IEB1035I USER07 TSUSER1 $SERPDSE 07:20:03 MON 10 JAN 2000 PARM='' A0
000005 IEB1064I STANDARD DD NAMES- SYSIN SYSPRINT SYSUT1 SYSUT2 SYSUT
000006 IEB1065I OVERRIDING DD NAMES- SYS00034 SYS00036 SYS00023 SYS00033 SYS00
000007 IEB1057I VL GETMAIN REQUESTED 250K TO 1M BYTES. OBTAINED 776K. WILL R
000008 COPYMOD 0=SYS00033,LIST=NO,MAXBLK=32760,I=SYS00023
000009 S M=IGDZILLA,IE ECB933,IE ECB934,IE ECB935,IE ECB936,IGDCSP00,IGDDCFEV
000010 S M=IGDERRIP,IGDOPC00,IGDSSI00,IGDSSI00,IGDSSI01

```

PEDIT Parallel Editor

Option 4 - PEDIT provides an alternative to the ISPF editor. PEDIT, or parallel edit, supports all data set organizations (sequential, sequential extended, direct, partitioned, partitioned extended and all VSAM types), copybook data overlays, multiple simultaneous

edit sessions, selective record edit, large data sets, physical record access and records longer than 255 characters.

```

----- StarTool Pedit selection -----
OPTION ==>

ISPF LIBRARY:
  PROJECT ==> USER298
  LIBRARY ==> PDSDEMO
  TYPE    ==> CNTL
  MEMBERS ==>
                                     (set to * or a member group to use MEMLIST
                                     to build a general purpose member list )
Other data set:
                                     See note below on member lists
  DATA SET NAME ==> PDSDEMO.CNTL
  VOLUME SERIAL ==>
                                     (If not cataloged)
  DISP        ==> SHR
                                     (SHR/OLD)

Options to be used when not building a MEMLIST:
  View mode      ==> NO (Yes/No; Yes disables the SAVE command)
  Use copybook   ==> NO (Yes/No; Yes prompts for copybook)
  Record select  ==> NO (Yes/No; Yes prompts for record selection options)
  Audit changes  ==> NO (Yes/No; Yes prompts for audit data set parameters)
  PEDIT options ==> NO (Yes/No; Yes prompts for PEDIT options, Edit
  options
                                     are different for each type of data set)

Alternate selections for creating a MEMLIST:
  Extended prompt ==> NO (Yes/No to prompt for extended member selections)

  If a member group is specified, a general purpose MEMLIST will be built.
  The member list S line command is set as follows:
    Source: EDIT Load: B Note that these may be ISPF Edit or Browse

```

You can specify a member group for a MEMLIST table or a single member name for a PEDIT operation. StarTool FDM uses the standard ISPF variables for the PROJECT, LIBRARY and TYPE variables. StarTool FDM always formats the name of the current data set in the Other data set fields to allow easy overtyping.

To use a 3-level ISPF LIBRARY, blank the Other data set fields and type the data set name under the PROJECT, LIBRARY and TYPE fields. You can also type a member or member group name in the MEMBERS field (for example, AB*C). However, to specify a data set with the Other data set fields, type over the DATA SET NAME field with the data set name you want and type a member or member group name in parentheses after the data set name (for example, 'USER07.CNTL(AB*C)'). If the data set is not cataloged, type the volume name.

To filter members, type YES in the Extended prompt field under Alternate selections for creating a MEMLIST. A panel appears to build a source member list.

Note the display of the member "S" (Select) values at the bottom of the screen. You can set the S line command to have a different value in source and load libraries in the SETSEL command. The current value of the S command for source and load libraries displays here for reference purposes. PEDIT Commands

Once in PEDIT, you can issue commands at the **Command ==>** line without leaving the editor. For example, you can turn copybook support on or off, customize data presentation on the screen, or submit a JCL job to JES for execution.

Supported PEDIT commands are shown in the table below.

Command	Short	Function
ACTIVATE	A	If COPYBOOK view is toggled ON, activate extended copybook processing and restart edit session.
BOUNDS	BNDS , BOU	Sets column number boundaries for subsequent FIND, CHANGE, and SHIFT subcommands. Syntax: BOUNDS { <i>col1</i> <i>col1 col2</i> LIST ¹ OFF} Defaults: OFF Notes: ¹ LIST shows current boundary columns.
CANCEL	CAN	Exits PEDIT without saving changes.
CAPS		Forces typed alphabetic characters to upper case. Syntax: CAPS {ON OFF NOTKEY ¹ } Defaults: ON Notes: ¹ NOTKEY turns on CAPS for all fields except key fields.
CBMAP	CBM	Sets default copybook data set and member name for COPYBOOK command and displays that copybook without data. COBOL, PL/I, or Assembler supported. See also: COPYBOOK, HIDE, SCREEN, SHOW, VERTICAL
CHANGE	C	Find and replace character or hexadecimal string. Syntax: CHANGE <i>old_string</i> ¹ <i>new_string</i> ¹ [<i>col1 col2</i>] [NEXT PREV FIRST LAST ALL] [PREFIX ² SUFFIX ³ WORD ⁴] [ASIS] ⁵ Defaults: NEXT Notes: ¹ Replacement string must be same length as search string. ² PREFIX finds <i>old_string</i> immediately preceding an alphanumeric (A-Z, a-z, 0-9). ³ SUFFIX finds <i>old_string</i> immediately following an alphanumeric (A-Z, a-z, 0-9). ⁴ WORD finds <i>old_string</i> delimited by spaces and/or punctuation. ⁵ ASIS specifies case-sensitive search. See also: FIND, RCHANGE
CLOSE		Exits PEDIT and saves changes. (Same as END.)
COPYBOOK	CB	Toggles between unformatted and copybook-formatted views of data. Optionally invokes extended copybook processing. Syntax: COPYBOOK [ON OFF] [NEW ¹ [<i>member</i>] FIRST ² NEXT ² PREV ²] Defaults: ON if currently OFF, OFF if currently ON, NEW if no default copybook set Notes: ¹ NEW sets default copybook to <i>member</i> . If <i>member</i> omitted, prompt panel displays. ² FIRST, NEXT, and PREV select the first, next, or previous matching extended copybook in the current memlist. See also: ACTIVATE, CBMAP, HIDE, SCREEN, SHOW, VERTICAL

Command	Short	Function
CREATE		Creates new partitioned data set (PDS) member and populates it with marked records from PEDIT session. Syntax: CREATE [<i>member</i>] See also: REPLACE
CUT		Copies selected records to clipboard or table. Syntax: CUT [<i>xx</i>] ¹ [ADD REPLACE DEFAULTS] Notes: ¹ Two-byte table name in user profile may be specified to store copied records. See also: PASTE
DISPLAY	DIS	Displays menu of copybook commands.
END		Exits PEDIT and saves changes. (Same as CLOSE.)
FIND	F	Finds character or hexadecimal string. Syntax: FIND <i>string</i> [<i>col1 col2</i>] [NEXT PREV FIRST LAST ALL] [PREFIX ¹ SUFFIX ² WORD ³] [ASIS] ⁴ [CHECK] ⁵ [NAME] ⁶ Defaults: NEXT Notes: ¹ PREFIX finds <i>string</i> immediately preceding an alphanumeric (A-Z, a-z, 0-9). ² SUFFIX finds <i>string</i> immediately following an alphanumeric (A-Z, a-z, 0-9). ³ WORD finds <i>string</i> delimited by spaces and/or punctuation. ⁴ ASIS specifies case-sensitive search. ⁵ CHECK validates packed decimal fields. ⁶ NAME finds copybook field name <i>string</i> rather than data value <i>string</i> . See also: CHANGE, RFIND
HEX		Toggles hexadecimal data display format.
HIDE		Hides all or selected fields while in copybook or vertical copybook display mode. Syntax: HIDE [ALL <i>field_name</i> <i>field_pattern</i> <i>field_num</i> <i>field_num1</i> TO <i>field_num2</i>] [GROUP] ¹ Defaults: ALL Notes: ¹ GROUP hides all selected fields at a given level number (COBOL). See also: CBMAP, COPYBOOK, SCREEN, SHOW, VERTICAL
KEY		Positions display at record containing specified key. Syntax: KEY ' <i>key_value</i> ' x' <i>hex_key_value</i> '
LOCATE	L	Positions display at specified record number. Syntax: LOCATE <i>record_number</i>

Command	Short	Function
NEXT	N	Positions display at next <i>n</i> th record. Syntax: NEXT [<i>n</i> SET ¹ MAX] Defaults: 1 SET Notes: ¹ <i>n</i> SET sets default ordinal value of next record displayed. For <i>n</i> =1, the "next" record is the first subsequent record; for <i>n</i> =2, the "next" record is the second subsequent record; etc. See also: PREVIOUS
OUTPUT	OUT	Outputs the current record in the currently selected display mode (character, hexadecimal, or copybook) to the printer or a data set. Syntax: OUTPUT [=c F(<i>ddname</i>)]
PAD		Changes the default pad character and sets the column number where padding terminates. Syntax: PAD { <i>char</i> 'c' x' <i>nn</i> '} <i>column</i>
PASTE		Pastes previously CUT records from clipboard or table into active edit session. Syntax: PASTE [<i>xx</i>] ¹ [ZERO KEEP DEFAULTS] Notes: ¹ Two-byte table name in user profile may be specified as source of copied records. See also: CUT
PREVIOUS	P	Positions display at previous <i>n</i> th record. Syntax: NEXT [<i>n</i> SET ¹ MAX] Defaults: 1 SET Notes: ¹ <i>n</i> SET sets the default ordinal value of the previous record displayed. For <i>n</i> =1, the previous record is set to the first prior record; for <i>n</i> =2, the previous record is the second prior record; etc. See also: NEXT
RCHANGE	RCH	Repeat previous CHANGE command.
REPLACE	REPL	Replaces existing partitioned data set (PDS) member and populates it with selected records from active PEDIT session. Syntax: REPLACE [<i>member</i>] See also: CREATE
RESET		Clears all pending line commands without executing.
RFIND	RF	Repeat previous FIND command.
SAVE		Saves changes and continues current session.

Command	Short	Function
SCREEN		<p>Changes data formatting and column headers displayed in copybook view.</p> <p>Syntax: SCREEN [TYPE PICTURE OFFSET COLUMN NUMBER]¹ [DATA NODATA HEX]² [KEY LENGTH]³ [LEAD NOLEAD] [LEV88 NOLEV88]</p> <p>Defaults: TYPE, DATA</p> <p>Notes: ¹Defines how data type is described and sets header accordingly. TYPE . . . Length & type, eg 2 PAC PICTURE. . . COBOL PICTURE, eg S99V9 OFFSET . . . Byte offset to field, eg 60 COLUMN . . . Starting column of field, eg 61 NUMBER . . . Field number, eg 4 ²Sets data value display to alphanumeric decimal, hexadecimal, or none. If NODATA selected, data type is COLUMN. ³LENGTH shows physical record length after record number. KEY shows key value after record number (for VSAM KSDS data sets).</p> <p>See also: CBMAP, COPYBOOK, HIDE, SHOW, VERTICAL</p>
SHOW		<p>Shows all or selected fields while in copybook or vertical copybook display mode.</p> <p>Syntax: SHOW [ALL <i>field_name</i> <i>field_pattern</i> <i>field_num</i> <i>field_num1</i> TO <i>field_num2</i>] [GROUP]¹ [ONLY]²</p> <p>Defaults: ALL</p> <p>Notes: ¹GROUP hides all selected fields at a given level number (COBOL). ²ONLY restricts displayed values to only those specified in SHOW command.</p> <p>See also: CBMAP, COPYBOOK, SCREEN, HIDE, VERTICAL</p>
SORT		<p>Sorts VSAM KSDS data set in ascending order by key.</p> <p>Syntax: SORT</p>
SUBMIT	SUB	<p>Submits JCL member(s) to JES for background execution.</p> <p>Syntax: SUBMIT <i>memgroup</i> [<i>TSO_SUBMIT_operands</i>]</p>

Command	Short	Function
VERTICAL	VERT	<p>In copybook mode, toggles between standard single-line headers and multiline headers with rich data descriptions. Optionally invokes new copybook.</p> <p>Syntax: VERTICAL [ON OFF NEW¹ [<i>member</i>]] [NAME NONAME]² [TYPE NOTYPE]² [PIC NOPIC]² [COL NOCOL]² [NUM NONUM]² [ALL DEFAULT NOHEADER]³ [LEV1 NOLEV1] [LEV88 NOLEV88] [ONLY]⁴</p> <p>Defaults: ON if currently OFF, OFF if currently ON, NEW if no default copybook set, NAME, TYPE, NOPIC, COL, NUM</p> <p>Notes: ¹NEW sets default copybook to <i>member</i>. If <i>member</i> omitted, prompt panel displays. ²Turns on data description header line. NAME . . . Field name, eg PAY-RATE TYPE . . . Length & type, eg 2 PAC PICTURE . . COBOL PICTURE, eg S99V9 COLUMN . . Column range, eg (61-62) NUMBER . . Field number, eg 4 ³ALL displays all five header lines, DEFAULT reverts to default four header lines, and NOHEADER removes all header lines. ⁴ONLY restricts displayed values to those specified in VERTICAL command.</p> <p>See also: CBMAP, COPYBOOK, SCREEN, SHOW, HIDE</p>

Extended Copybook Support

The Extended Copybook feature of PEDIT and PVIEW is available under Option 4. It allows you to dynamically use different copybooks based on record content.

Enter the different copybooks associated with a file in a list, along with selection criteria to identify the corresponding data record (or segment). You can manage this list by line commands that you can save and retrieve from an ISPF profile or from a data set.

There are two basic types of copybook layovers, for the following situations:

- **Multiple Record Types** — The file contains several record types that have different record layouts. A different copybook (beginning with the level 01 definition) overlays each defined record type. The copybook to display is determined automatically by StarTool FDM based on the selection information you entered for the copybook.
- **Multiple Copybooks Overlay a Single Record Type** — The file contains records that require more than one copybook to overlay a single record. The base copybook contains the level 01 and overlays the header portion of the record. At least one base is required. The segment data begins where the base ends. There can be only one

data segment per base, but many segment types can be defined for the different record types contained in the file. Segments associated with a base are optional.



NOTE There is another type of segment called a chained segment. Chained segments can be used independently, or in combination with a base and/or normal segments. There can be more than one chained segment in a set (this is the usual case). See "[Chained Segment Support](#)".

Multiple Record Types in a Member

Use the Extended Copybook feature on a file containing several record types that are mapped by separate 01 levels in different copybook members.

This example illustrates how to define the extended copybook definition table used to display the record types of a file. Because each record type has only one copybook layover, all of the copybooks are defined as type Base.

- 1 Select Option 4 (Pedit) from the StarTool FDM Primary Options menu. The StarTool Pedit Selection panel appears.

```
----- StarTool Peditselection -----
OPTION ==>

ISPF LIBRARY:
  PROJECT ==> TEST
  LIBRARY ==> PDSDEMO
  TYPE ==> CNTL
  MEMBERS ==>                               (set to * or a member group to use MEMLIST
                                             to build a general purpose member list )
Other data set:                               See note below on member lists
  DATA SET NAME ==> PDSDEMO.CNTL(DATA)
  VOLUME SERIAL ==>                               (If not cataloged)
  DISP ==> SHR                               (SHR/OLD)

Options to be used when not building a MEMLIST:
  View mode ==> NO (Yes/No; Yes disables the SAVE command)
  Use copybook ==> YES (Yes/No; Yes prompts for copybook)
  Record select ==> NO (Yes/No; Yes prompts for record selection options)
  Audit changes ==> NO (Yes/No; Yes prompts for audit data set parameters)
  PEDIT options ==> NO (Yes/No; Yes prompts for PEDIT options, Edit
  options
                                             are different for each type of data set)

Alternate selections for creating a MEMLIST:
  Extended prompt ==> NO (Yes/No to prompt for extended member selections)

If a member group is specified, a general purpose MEMLIST will be built.
The member list S line command is set as follows:
  Source: EDIT Load: B Note that these may be ISPF Edit or Browse
```

- 2 Type the name of the data set to be edited/visited and set the Use copybook field to YES..



NOTE To use Extended Copybook with PVIEW, set the View mode field to Yes.

- 3 Press Enter to display the Copybook panel. Set the Copybook type field to EXTENDED, and the Extended copybook field to CREATE.

```

----- Copybook -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.
                  IMPORT or EXPORT to retrieve or save a copybook object.

Copybook type      ==> EXTENDED (COPYBOOK, EXTENDED, or VERTICAL)
Copybook or Vertical Copybook data set name:
Data set           ==> PDSDEMO.CNTL
Member name        ==> CBDEMO (name of member if not included in dsn)
Data set type      ==> MVS (MVS, Panvalet or Librarian)
                                                           More: +

Optional:
Language type      ==> COBOL (COBOL, PLI, EITHER, or ASM)
Starting name      ==>
Starting column    ==> 1 (1 to 32760 if first variable is offset)

Extended copybook options:
Extended copybook ==> CREATE (Temp, Redo, Create, Mod, Use, Import)
Copybook save name ==> (3 to 6 character name used with Mod or Use)
Source library     ==> PROFILE (Profile, Group, Sample, or Other)
Other DSNAME       ==>
    
```

Valid values for the Extended copybook field are:

TEMP	Create a temporary extended copybook definition that you can save later.
REDO	Examine or update the currently active extended copybook definition.
CREATE	Create a new extended copybook definition that you must save before you exit.
MOD	Examine, update, or use a previously saved extended copybook definition. A name must be entered.
USE	Use a previously saved extended copybook definition. A name must be entered.
IMPORT	Use a previously exported extended copybook definition. A name must be entered.

- 4 Press Enter to display the Extended Copybook screen. The first time you request a new extended copybook, all entries have a default of NA (not active). Use these placeholders or for disabling a copybook entry. You can delete any entry with the D line command.

Select the first entry to begin defining the extended copybook table information.

```

----- Extended Copybook -----
COMMAND ==>

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
                                     More:  +
Type Member      Level 01 name      Lang Type Selection
_ 1 NA
_ 2 NA           EITHER      NA
_ 3 NA           EITHER      NA
_ 4 NA           EITHER      NA
_ 5 NA           EITHER      NA
_ 6 NA           EITHER      NA
_ 7 NA           EITHER      NA
_ 8 NA           EITHER      NA
_ 9 NA           EITHER      NA
_ 10 NA          EITHER      NA
_ 11 NA          EITHER      NA
_ 12 NA          EITHER      NA
_ 13 NA          EITHER      NA
_ 14 NA          EITHER      NA
_ 15 NA          EITHER      NA
_ 16 NA          EITHER      NA
_ 17 NA          EITHER      NA
_ 18 NA          EITHER      NA
_ 19 NA          EITHER      NA
_ 20 NA          EITHER      NA
_ 21 NA          EITHER      NA
_ 22 NA          EITHER      NA
_ 23 NA          EITHER      NA

```

- 5 Press Enter to display the Extended Copybook #1 screen. Type the data set and member name for the copybook layover, along with the appropriate selection criteria to associate that copybook with the desired record type.

In this example, COBOL copybook COPY00 in data set *prefix.PDSDEMO.CNTL* is defined as a Base. The Starting name field defaults to the first file definition found in

the copybook. This copybook is invoked in PEDIT or PVIEW for records that contain an '*' in column 1.

```
----- Extended Copybook #1 -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.
More: +

Specify the copybook data set and member in normal TSO syntax:
Data set and member   ==> PDSDEMO.CNTL
Member name          ==> COPY00      (member if not included in dsname)
Data set type        ==> MVS         (MVS, Panvalet or Librarian)
Language type        ==> COBOL      (COBOL, PLI, EITHER, or ASM)
Starting name        ==>              (for base only)
Type                 ==> BASE       (BASE, SEGMENT, CHAINED, or NA)
Column number        ==> 1          (1-32760 or Blank for default)
Compare operator/Length ==> EQ      (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings      ==> '*'        (string,string)
AND/OR ==> OR

Column number        ==>              (1-32760 or Blank for no compare)
Compare operator/Length ==> EQ      (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings      ==>              (string,string)
Press END to bypass verification of the copybook and parameters

When the Language type is set to EITHER, PEDIT will try to determine
the language type dynamically based on the statements scanned.
If Starting name is blank, the first level 01 name found will be used;
enter a name if you want to override this action.

If the Column number is blank, this copybook base or segment will
```

- 6 Press Enter to redisplay the Extended Copybook panel. Select the second entry to specify the next copybook.

```
----- Extended Copybook -----
COMMAND ==>

Primary commands: S to Save this list, A to Activate this list, END to cancel,
E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
More: +

Type Member      Level 01 name      Lang Type Selection
_ 1 BAS COPY00    XCB-RECORD-TEST  COBOL YES
s 2 NA
_ 3 NA           EITHER NA
_ 4 NA           EITHER NA
_ 5 NA           EITHER NA
_ 6 NA           EITHER NA
_ 7 NA           EITHER NA
_ 8 NA           EITHER NA
_ 9 NA           EITHER NA
_ 10 NA          EITHER NA
```

- 7 Specify the selection criteria to associate the copybook with the next record type.

In this example, COBOL copybook COPY01 in data set *prefix.PDSDEMO.CNTL* is defined as a Base. This copybook is invoked in PEDIT or PVIEW for records that contain a '1' in column 1.

```
----- Extended Copybook #2 -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.
More: +

Specify the copybook data set and member in normal TSO syntax:
Data set and member   ==> PDSDEMO.CNTL
Member name          ==> COPY01      (member if not included in dsname)
Data set type        ==> MVS         (MVS, Panvalet or Librarian)
Language type        ==> COBOL      (COBOL, PLI, EITHER, or ASM)
Starting name        ==>              (for base only)
Type                 ==> BASE       (BASE, SEGMENT, CHAINED, or NA)
Column number        ==> 1          (1-32760 or Blank for default)
Compare operator/Length ==> EQ      (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings      ==> '1'       (string,string)
AND/OR ==> OR
Column number        ==>              (1-32760 or Blank for no compare)
Compare operator/Length ==> EQ      (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings      ==>              (string,string)

Notes: Press ENTER after you have specified all parameters.
Press END to bypass verification of the copybook and parameters

When the Language type is set to EITHER, PEDIT will try to determine
the language type dynamically based on the statements scanned.

If Starting name is blank, the first level 01 name found will be used;
enter a name if you want to override this action.

If the Column number is blank, this copybook base or segment will
```

- 8 Repeat steps 5 and 6 until all of the copybooks are defined.
- 9 The following Extended Copybook panel shows eight copybook members and the corresponding Level 01 names. To save the definitions, issue primary command S.

```
----- Extended Copybook -----
COMMAND ==> s

Primary commands: S to Save this list, A to Activate this list, END to cancel,
E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
More: +

Type Member      Level 01 name          Lang Type Selection
- 1 BAS COPY00    XCB-RECORD-TEST      COBOL   YES
- 2 BAS COPY01    XCB-EMPL-DATES1-RECORD COBOL   YES
- 3 BAS COPY02    XCB-EMPL-DATES2-RECORD COBOL   YES
- 4 BAS COPY03    XCB-EMPL-DATES3-RECORD COBOL   YES
- 5 BAS COPY04    XCB-EMPL-DATES4-RECORD COBOL   YES
- 6 BAS COPY05    XCB-EMPL-DATES5-RECORD COBOL   YES
- 7 BAS COPY06    XCB-EMPL-DATES6-RECORD COBOL   YES
- 8 BAS COPY07    XCB-EMPL-DATES7-RECORD COBOL   YES
- 9 NA
- 10 NA          EITHER   NA
- 11 NA          EITHER   NA
```



NOTE StarTool FDM has a limit of 25 data levels in a copybook.

- 10** On the Copybook Save panel, type a 3- to 6-character name in the Copybook saved name field. To save the extended copybook definition in your ISPF profile data set, type PROFILE in the Source library field. To save it in another data set, type OTHER in the Source library field and type the data set name in the Other Data Set Name field.

Press Enter to save the copybook and return to the Extended Copybook screen.

```
----- Copybook Save -----
COMMAND ==>

Specify the name for a saved version of this extended copybook table
Copybook saved name ==> CBEXT1 (3 to 6 character name)
Replace existing name ==> NO (Yes or No)
Copybook description ==> COBOL EXTENDED COPYBOOK FOR DEMO FILE
Source library ==> PROFILE (Profile, Group, Other)
Other Data Set Name ==>

Profile DDname :ISPPROF
Group DDname :ISPTLIB

Notes: If this is saved in the profile, you can rename, delete or activate
an extended copybook selection with the PROFMAN dialog.
Extended copybook selections use entry type CB in the PROFMAN dialog.
```



NOTE Enter the saved name (CBEXT1 in this example) with the USE parameter on the Copybook screen to retrieve the saved definition and activate the copybook overlay in future sessions of PEDIT/PVIEW.

A message near the bottom of the Extended Copybook screen indicates that the extended copybook table was saved.

```
----- Extended Copybook -----
COMMAND ==> A

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
More: +

From: CBEXT1, Description: COBOL EXTENDED COPYBOOK FOR DEMO FILE
Type Member      Level 01 name                      Lang Type Selection
- 1 BAS COPY00    XCB-RECORD-TEST                   COBOL YES
- 2 BAS COPY01    XCB-EMPL-DATES1-RECORD            COBOL YES
- 3 BAS COPY02    XCB-EMPL-DATES2-RECORD            COBOL YES
- 4 BAS COPY03    XCB-EMPL-DATES3-RECORD            COBOL YES
- 5 BAS COPY04    XCB-EMPL-DATES4-RECORD            COBOL YES
- 6 BAS COPY05    XCB-EMPL-DATES5-RECORD            COBOL YES
- 7 BAS COPY06    XCB-EMPL-DATES6-RECORD            COBOL YES
- 8 BAS COPY07    XCB-EMPL-DATES7-RECORD            COBOL YES
- 9 NA
- 10 NA
- 11 NA
- 12 NA          | TABLE CBEXT1 SAVED AS #2CBEXT1 IN ISPPROF | NA
- 13 NA
- 14 NA          EITHER NA
```

- 11 Type the primary command A and press Enter to activate the copybook list.
- 12 The following screen shows the data file using the copybook table. For the first record, copybook member COPY00 is used because the record contains an '*' in column 1.

```

PEDIT      USER01.PDSDEMO.CNTL (DATA) ----- COLUMNS 000001 000035
COMMAND ==> L 17                                SCROLL ==> PAGE
RECORD      1      LENGTH=      80
LEVEL AND NAME      LENGTH TYP DATA ....1....+....2....+....3....+
01 XCB-RECORD-TEST      80 BASE: COPY00      # 1
02 XCB-RECORD              80 GRP
05 XCB-COMMENT-RECORD      1 CHR *
08 XCB-THIS-IS-A-COMMENT      ' * '
05 XCB-COMMENT-ITSELF      79 CHR *****
***** BOTTOM OF COPYBOOK*****

```

- 13 To locate a record of a different type in the data file, issue the NEXT or LOCATE command. For example, type L 17 to locate record 17. Copybook member COPY01 is dynamically invoked to view the record (because record 17 matches the selection criteria for COPY01).

```

PEDIT      USER01.PDSDEMO.CNTL (DATA) ----- Record too long
COMMAND ==>                                SCROLL ==> PAGE
RECORD     17      LENGTH=      80
LEVEL AND NAME      LENGTH TYP DATA ....1....+....2....+....3....+
01 XCB-EMPL-DATES1-RECORD  62 BASE: COPY01      # 2
05 XCB-EMPL-DATES1        1 CHR 1
08 XCB-DATES1-LEVEL88      '1'
05 XCB-DATES1-DATA          0 GRP
05 XCB-DATES1-KEY          9 CHR 00000001
05 DATES1                  52 GRP
10 FILLER                  1 CHR
10 XCB-CCYYDDD             7 CHR 1998001
10 FILLER                  1 CHR
10 XCB-DDDYY               5 CHR 00198
10 FILLER                  1 CHR
10 XCB-YYMMDD              6 CHR 980101
10 FILLER                  1 CHR
10 XCB-DDMMYY              6 CHR 010198
10 FILLER                  1 CHR
10 XCB-MMDCCYY             8 CHR 01011998
10 FILLER                  1 CHR
10 XCB-HYYMMDD             7 CHR 0980101
10 FILLER                  1 CHR
10 XCB-COBLLL              6 CHR 145368
***** ***** BOTTOM OF COPYBOOK-UNUSED BYTES IN RECORD: 18 *

```

Multiple Copybooks Overlaying a Single Record

Use the extended copybook feature when a record is overlaid by more than one copybook.

- 1 Select Option 4 (Pedit) from the StarTool FDM Primary Options menu. The StarTool Pedit Selection panel appears.

```

----- StarTool Pedit selection -----
OPTION ==>

ISPF LIBRARY:
  PROJECT ==> TEST
  LIBRARY ==> PDSDEMO
  TYPE    ==> CNTL
  MEMBERS ==>                               (set to * or a member group to use MEMLIST
                                             to build a general purpose member list )

Other data set:                               See note below on member lists
  DATA SET NAME ==> PDSDEMO.CNTL(DATA)
  VOLUME SERIAL  ==>                               (If not cataloged)
  DISP           ==> SHR           (SHR/OLD)

Options to be used when not building a MEMLIST:
  View mode      ==> NO (Yes/No; Yes disables the SAVE command)
  Use copybook   ==> YES (Yes/No; Yes prompts for copybook)
  Record select  ==> NO (Yes/No; Yes prompts for record selection options)
  Audit changes  ==> NO (Yes/No; Yes prompts for audit data set parameters)
  PEDIT options  ==> NO (Yes/No; Yes prompts for PEDIT options, Edit
                        options are different for each type of data set)

Alternate selections for creating a MEMLIST:
  Extended prompt ==> NO (Yes/No to prompt for extended member selections)

If a member group is specified, a general purpose MEMLIST will be built.
The member list S line command is set as follows:
  Source: EDIT Load: B Note that these may be ISPF Edit or Browse

```

- 2 Press Enter to display the Copybook panel. Set the Copybook type field to EXTENDED, and the Extended copybook field to CREATE.

```

----- Copybook -----
COMMAND ==>

  Primary command: MAP to view the copybook member before exiting this panel.
                  IMPORT or EXPORT to retrieve or save a copybook object.

  Copybook type   ==> EXTENDED (COPYBOOK, EXTENDED, or VERTICAL)
Copybook or Vertical Copybook data set name:
  Data set        ==> PDSDEMO.CNTL
  Member name     ==> CBDEMO (name of member if not included in dsn)
  Data set type   ==> MVS (MVS, Panvalet or Librarian)
                                                         More: +

Optional:
  Language type   ==> COBOL (COBOL, PLI, EITHER, or ASM)
  Starting name   ==>
  Starting column ==> 1 (1 to 32760 if first variable is offset)

Extended copybook options:
  Extended copybook ==> CREATE (Temp, Redo, Create, Mod, Use, Import)
  Copybook save name ==> (3 to 6 character name used with Mod or Use)
  Source library   ==> PROFILE (Profile, Group, Sample, or Other)
  Other DSNAME     ==>

```

- 3 Press Enter to display the Extended Copybook screen. Select the first entry to begin defining the extended copybook table information.

```
----- Extended Copybook -----
COMMAND ==>

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
                                          More:      +

      Type Member      Level 01 name      Lang Type Selection
s     1 NA              Level 01 name      EITHER   NA
-     2 NA              Level 01 name      EITHER   NA
-     3 NA              Level 01 name      EITHER   NA
-     4 NA              Level 01 name      EITHER   NA
-     5 NA              Level 01 name      EITHER   NA
-     6 NA              Level 01 name      EITHER   NA
-     7 NA              Level 01 name      EITHER   NA
-     8 NA              Level 01 name      EITHER   NA
-     9 NA              Level 01 name      EITHER   NA
-    10 NA              Level 01 name      EITHER   NA
-    11 NA              Level 01 name      EITHER   NA
-    12 NA              Level 01 name      EITHER   NA
-    13 NA              Level 01 name      EITHER   NA
-    14 NA              Level 01 name      EITHER   NA
-    15 NA              Level 01 name      EITHER   NA
-    16 NA              Level 01 name      EITHER   NA
-    17 NA              Level 01 name      EITHER   NA
-    18 NA              Level 01 name      EITHER   NA
-    19 NA              Level 01 name      EITHER   NA
-    20 NA              Level 01 name      EITHER   NA
-    21 NA              Level 01 name      EITHER   NA
-    22 NA              Level 01 name      EITHER   NA
-    23 NA              Level 01 name      EITHER   NA
```

- 4 Press Enter to display the Extended Copybook #1 screen. Fill in the data set and member name for the base copybook layover.

```
----- Extended Copybook #1 -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.

Specify the copybook data set and member in normal TSO syntax:
Data set and member      ==> PDSDEMO.CNTL
Member name              ==> COPYBASE   (member if not included in dsname)
Data set type            ==> MVS        (MVS, Panvalet or Librarian)
Language type           ==> COBOL      (COBOL, PLI or EITHER)
Starting name            ==>              (for base only)
Type                    ==> BASE      (BASE, SEGMENT, CHAINED or NA)
Column number           ==>              (1-32760 or Blank for default)
Compare operator/Length ==> EQ        (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings         ==>              (string,string)
  AND/OR ==> OR
Column number           ==>              (1-32760 or Blank for no compare)
Compare operator/Length ==> EQ        (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings         ==>              (string,string)

Notes: Press END after you have specified all parameters.
```

In this example, COBOL copybook COPYBASE in data set *prefix.PDSDEMO.CNTL* is defined as the base. No selection criteria is specified for this particular base copybook because it is used to view every record. The Starting name field defaults to the first file definition found in the copybook.

- 5 Press Enter to redisplay the Extended Copybook panel. Type an S line command next to the second entry to define the next copybook.

```
----- Extended Copybook -----
COMMAND ===>

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
                                                    More: +

      Type Member      Level 01 name      Lang Type Selection
_   1 BAS COPYBASE    XCB-RECORD-TEST  COBOL  DEFAULT
s   2 NA              XCB-RECORD-TEST  EITHER  NA
_   3 NA              XCB-RECORD-TEST  EITHER  NA
_   4 NA              XCB-RECORD-TEST  EITHER  NA
_   5 NA              XCB-RECORD-TEST  EITHER  NA
_   6 NA              XCB-RECORD-TEST  EITHER  NA
_   7 NA              XCB-RECORD-TEST  EITHER  NA
_   8 NA              XCB-RECORD-TEST  EITHER  NA
_   9 NA              XCB-RECORD-TEST  EITHER  NA
_  10 NA              XCB-RECORD-TEST  EITHER  NA
```

- 6 Press Enter to display the Extended Copybook #2 screen. Fill in the data set and member name for the segment copybook layover, along with the appropriate selection criteria to associate that copybook with the desired record type. In this example, COBOL copybook COPYSO in data set *prefix.PDSDEMO.CNTL* is defined as a segment. This copybook is invoked if the data record contains an '*' in column 1.

```
----- Extended Copybook #2 -----
COMMAND ===>

Primary command: MAP to view the copybook member before exiting this panel.

Specify the copybook data set and member in normal TSO syntax:
Data set and member      ===> PDSDEMO.CNTL
Member name              ===> COPYSO      (member if not included in dsname)
Data set type            ===> MVS         (MVS, Panvalet or Librarian)
Language type           ===> COBOL       (COBOL, PLI or EITHER)
Starting name            ===>              (for base only)
Type                    ===> SEGMENT     (BASE, SEGMENT, CHAINED or NA)
Column number            ===> 1          (1-32760 or Blank for default)
Compare operator/Length ===> EQ         (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings          ===> '*'        (string,string)
  AND/OR ==> OR
Column number            ===>              (1-32760 or Blank for no compare)
Compare operator/Length ===> EQ         (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings          ===>              (string,string)

Notes: Press END after you have specified all parameters.
```



NOTE The column number of the selection criteria is relative to the beginning of the record, NOT the segment. (This is different from chained segments, where the column number is relative to the beginning of the segment).

- 7 Repeat steps 5 and 6 until all the segments are defined.
- 8 The following Extended Copybook panel shows the base and eight segments. To save the definitions, issue primary command S.

```

----- Extended Copybook -----
COMMAND ==> S

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
                                                    More:  +
   Type Member      Level 01 name                Lang Type Selection
-   1 BAS COPYBASE  XCB-RECORD-TEST                COBOL  DEFAULT
-   2 SEG COPYS0
-   3 SEG COPYS1
-   4 SEG COPYS2
-   5 SEG COPYS3
-   6 SEG COPYS4
-   7 SEG COPYS5
-   8 SEG COPYS6
-   9 SEG COPYS7
-  10 NA
                                     COBOL  YES
                                     EITHER  NA

```

- 9 On the Copybook Save panel, type a 3- to 6-character name in the Copybook saved name field.

To save the extended copybook definition in your ISPF profile data set, type PROFILE in the Source library field. To save it in another data set, type OTHER in the Source library field and type the data set name in the Other Data Set Name field.

Press Enter to save the copybook and return to the Extended Copybook screen.

```

----- Copybook Save -----
COMMAND ==>

Specify the name for a saved version of this extended copybook table
Copybook saved name   ==> CBEXT2 (3 to 6 character name)
Replace existing name ==> NO (Yes or No)
Copybook description  ==> COBOL EXTENDED COPYBOOK FOR DEMO FILE
Source library        ==> PROFILE (Profile, Group, Other)
Other Data Set Name   ==>

Profile DDname       :ISPPROF
Group DDname         :ISPTLIB

Notes: If this is saved in the profile, you can rename, delete or activate
       an extended copybook selection with the PROFMAN dialog.
       Extended copybook selections use entry type CB in the PROFMAN dialog.

```



NOTE The saved name (CBEXT2 in this example) can be entered with the USE parameter on the Copybook screen to retrieve the saved definition and activate the copybook overlay in future sessions of PEDIT/PVIEW.

- 10** A message near the bottom of the Extended Copybook screen indicates that the extended copybook table was saved. Type the primary command A and press Enter to activate the copybook list.

```

----- Extended Copybook -----
COMMAND ==>  A

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
                                                    More:  +
From: CBEXT1, Description: COBOL EXTENDED COPYBOOK FOR DEMO FILE
  Type Member      Level 01 name          Lang Type Selection
-   1 BAS COPYBASE  XCB-RECORD-TEST      COBOL  DEFAULT
-   2 SEG COPYS0
-   3 SEG COPYS1
-   4 SEG COPYS2
-   5 SEG COPYS3
-   6 SEG COPYS4
-   7 SEG COPYS5
-   8 SEG COPYS6
-   9 SEG COPYS7
-  10 NA
-  11 NA
-  12 NA          | TABLE CBEXT2 SAVED AS #2CBEXT2 IN ISPPROF | NA
-  13 NA
-  14 NA
                                                    EITHER  NA

```

- 11** The following screen shows the data file using the copybook table. The base copybook COPYBASE overlays the base part of record 1; the segment copybook, COPYS0, overlays the remainder of the record, because this record matches the selection criteria for COPYS0.

```

PEDIT      USER01.PDSDEMO.CNTL(DATA) ----- COLUMNS 000001 000035
COMMAND ==>                               SCROLL ==> CSR
RECORD      1
LEVEL AND NAME          LENGTH TYP DATA ...1...+...2...+...3...+
01 XCB-RECORD-TEST      80 BASE: COPYBASE  SEGMENT: COPYS0  # 2
02 XCB-RECORD           80 GRP
05 XCB-TYPE-RECORD      1 CHR *
 88 XCB-THIS-IS-A-COMMENT      ' * '
 88 XCB-DATES1-LEVEL88        ' 1 '
 88 XCB-DATES2-LEVEL88        ' 2 '
 88 XCB-DATES3-LEVEL88        ' 3 '
 88 XCB-DATES4-LEVEL88        ' 4 '
 88 XCB-DATES5-LEVEL88        ' 5 '
 88 XCB-DATES6-LEVEL88        ' 6 '
 88 XCB-DATES7-LEVEL88        ' 7 '
05 XCB-COMMENT-ITSELF      79 CHR *****
***** BOTTOM OF RECORD *****

```

- 12** To locate a record of a different type in the example data, issue the Next or Locate command. For example, type L 17 to locate record 17. Copybook member COPYS1 is

dynamically invoked to view the record (because record 17 matches the selection criteria for COPYS1).

```

PEDIT      USER01.PDSDEMO.CNTL(DATA) ----- COLUMNS 000001 000035
COMMAND ===>                                     SCROLL ===> CSR
RECORD      17
LEVEL AND NAME      LENGTH TYP DATA .....1.....2.....3.....+
01 XCB-RECORD-TEST  80 BASE: COPYBASE   SEGMENT: COPYS1   # 3
02 XCB-RECORD      80 GRP
05 XCB-TYPE-RECORD  1 CHR 1
88 XCB-THIS-IS-A-COMMENT      ' * '
88 XCB-DATES1-LEVEL88          ' 1 '
88 XCB-DATES2-LEVEL88          ' 2 '
88 XCB-DATES3-LEVEL88          ' 3 '
88 XCB-DATES4-LEVEL88          ' 4 '
88 XCB-DATES5-LEVEL88          ' 5 '
88 XCB-DATES6-LEVEL88          ' 6 '
88 XCB-DATES7-LEVEL88          ' 7 '
05 XCB-DATES1-DATA           0 GRP
05 XCB-DATES1-KEY           9 CHR 000000001
05 DATES1                   52 GRP
10 FILLER                   1 CHR
10 XCB-CCYYDDD              7 CHR 1998001
10 FILLER                   1 CHR
10 XCB-DDDYY                5 CHR 00198
10 FILLER                   1 CHR
10 XCB-YYMMDD               6 CHR 010198
10 FILLER                   1 CHR
10 XCB-DDMMYY               6 CHR 010198
10 FILLER                   1 CHR
10 XCB-MMDDCCYY            8 CHR 01011998
10 FILLER                   1 CHR 1
10 XCB-HYYMMDD             7 CHR 45368
10 FILLER                   1 CHR
10 XCB-COBLLL              6 CHR
***** ***** BOTTOM OF RECORD *****

```

Additional Base/Segment logic

- 1 A base or segment without any selection information becomes the default and is used if none of the previous base or related segments is selected.
- 2 If a base selection does not match a given record, then all related segments are bypassed and the next base is processed.
- 3 The last base should be a default base, and the last segment for each base should be a default segment. This prevents a no-match situation, which causes copybook mode to be turned off.
- 4 If a given record matches more than one selection for different bases or segments, the first match is used. Subsequent matches can be selected by using the CB NEXT command. Likewise, previous or first matches can be selected by issuing the CB PREVIOUS or CB FIRST command, respectively.

Chained Segment Support

Chained segments are used for more complex record types, for example, where the record contains many different data segments per record.

Chained segments:

- Can be used independently, or in combination with Base and/or normal segments.
- Must be self-identifying, meaning the value used to identify the segment must exist within the segment.
- Must be self-contained, meaning all redefines and 'occurs depending on' must reference fields within the copybook.
- Can be entered in any order, because they are matched with the data record based on a selection value within the segment.

The column number specified in the selection criteria is always relative to the start of each chained segment (whereas in a normal segment, the column number is relative to the start of the record).

The same set of chained segments can be combined in any order and be used any number of times.

Three Scenarios for using Chained Segments

1 Chained segments only - no base.

A set of chained segments that are not associated with any base must be placed first. Any one of the chained segments in this group may become the first segment in a record as determined by its selection values. The rest of the record is made up of a combination of the chained segments in this set.

2 Chained segments associated with a base.

A base entry must be first or after the first set of chained segments. If no chained segments are selected then base entries are searched for a match. One or more base entries can match a given record but only the first is selected. You can force PEDIT to select the other base entries using the CB NEXT command during the PEDIT session.

3 Chained segments associated with a combination of base and normal segments.

- A set of chained segments can be associated with a base when entered right after the base entry. If there are no chained segments or they do not match data following the base data, then any associated normal segments are searched for a match.
- The associated normal segments are entered after the base and any chained segments. These normal segments are searched for a match provided that no associated chained segments were selected. More than one segment can match but only the first is selected.
- A set of chained segments can be associated with a normal segment by entering them right after that normal segment and before the next normal segment or next base entry. Any combination of these chained segments is used that match the data following the normal segment data.

Additional Chained Segment Logic

The relationship of base, segments, and chained segments is determined by the order in which the entries are found in the list.

If any part of a record can be matched to any chained segment, the record is displayed even if not all of the record can be matched. Only that part of the record that is matched is displayed in copybook mode. If no part can be matched, copybook mode is temporarily

turned off. Using scrolling or record location commands, the new top record is tested for a copybook match and displayed in copybook mode if there is a match. If a base has associated normal segments, then one of these segments must match or copybook mode is temporarily turned off. By defining a default base and segment, a match always occurs.

Example of Chained Segments Associated with a Base.

- 1 Select Option 4 (Pedit) from the StarTool FDM Primary Options menu. The StarTool Pedit Selection panel appears. Type the data set name of the data file to be associated with the copybook definition and set the Use copybook field to YES.

```

----- StarTool Pedit selection -----
OPTION ==>

ISPF LIBRARY:
  PROJECT ==> TEST
  LIBRARY ==> LIB
  TYPE    ==> CNTL
  MEMBERS ==> CB00A74          (set to * or a member group to use MEMLIST
                               to build a general purpose member list )
Other data set:                See note below on member lists
  DATA SET NAME ==>
  VOLUME SERIAL  ==>          (If not cataloged)
  DISP           ==> SHR      (SHR/OLD)

Options to be used when not building a MEMLIST:
  View mode      ==> NO (Yes/No; Yes disables the SAVE command)
  Use copybook   ==> YES (Yes/No; Yes prompts for copybook)
  Record select  ==> NO (Yes/No; Yes prompts for record selection options)
  Audit changes  ==> NO (Yes/No; Yes prompts for audit data set parameters)
  PEDIT options  ==> NO (Yes/No; Yes prompts for PEDIT options, Edit
  options
                               are different for each type of data set)

Alternate selections for creating a MEMLIST:
  Extended prompt ==> NO (Yes/No to prompt for extended member selections)

If a member group is specified, a general purpose MEMLIST will be built.
The member list S line command is set as follows:
  Source: EDIT Load: B      Note that these may be ISPF Edit or Browse

```

- 2 Press Enter to display the Copybook panel. The first step is to define the base.
 - Set the Copybook type field to EXTENDED.
 - Type the data set and member name of the base copybook.

- Set the Extended copybook field to CREATE.

```

----- Copybook -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.
                  IMPORT or EXPORT to retrieve or save a copybook object.

Copybook type      ==> EXTENDED (COPYBOOK, EXTENDED, or VERTICAL)
Copybook or Vertical Copybook data set name:
Data set           ==> LIB.CNTL
Member name        ==> CB00A7 (name of member if not included in dsn)
Data set type      ==> MVS (MVS, Panvalet or Librarian)
More: +

Optional:
Language type      ==> COBOL (COBOL, PLI, EITHER, or ASM)
Starting name      ==>
Starting column    ==> 1 (1 to 32760 if first variable is offset)

Extended copybook options:
Extended copybook ==> CREATE (Temp, Redo, Create, Mod, Use, Import)
Copybook save name ==> (3 to 6 character name used with Mod or Use)
Source library     ==> PROFILE (Profile, Group, Sample, or Other)
Other DSNAME       ==>

```

- 3 Press Enter to display the Extended Copybook screen. Select the first entry to begin defining the extended copybook information.

```

----- Extended Copybook -----
COMMAND ==>

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
More: +

Type Member      Level 01 name      Lang Type Selection
s  1 NA           Level 01 name      COBOL   NA
-  2 NA           Level 01 name      EITHER  NA
-  3 NA           Level 01 name      EITHER  NA
-  4 NA           Level 01 name      EITHER  NA
-  5 NA           Level 01 name      EITHER  NA
-  6 NA           Level 01 name      EITHER  NA
-  7 NA           Level 01 name      EITHER  NA
-  8 NA           Level 01 name      EITHER  NA

```

- 4 Press Enter to display the Extended Copybook #1 screen. Fill in the data set and member name for the base copybook layover.

In this example, COBOL copybook CB00A7 in data set *prefix*.LIB.CNTL is defined as the base. No selection criteria is specified for this particular base copybook because it

is used to view every record. The Starting name is SUM. If nothing is entered in this field, it defaults to the first file definition found in the copybook.

```
----- Extended Copybook #1 -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.
                                                More: +
Specify the copybook data set and member in normal TSO syntax:
Data set and member   ==> LIB.CNTL
Member name           ==> CB00A7   (member if not included in dsname)
Data set type         ==> MVS       (MVS, Panvalet or Librarian)
Language type         ==> COBOL    (COBOL, PLI, EITHER, or ASM)
Starting name         ==> SUM       (for base only)
Type                  ==> BASE     (BASE, SEGMENT, CHAINED, or NA)
Column number         ==>          (1-32760 or Blank for default)
Compare operator/Length ==> EQ     (LT, LE, EQ, GE, GT, NE or 0-32760)
Compare Strings       ==>          (string, string)
AND/OR ==> OR
Column number         ==>          (1-32760 or Blank for no compare)
Compare operator/Length ==> EQ     (LT, LE, EQ, GE, GT, NE or 0-32760)
Compare Strings       ==>          (string, string)
```

- 5 Press Enter to redisplay the Extended Copybook panel. Type an S line command next to the second entry to define the next copybook.

```
----- Extended Copybook -----
COMMAND ==>

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
                                                More: +

      Type Member      Level 01 name           Lang Type Selection
-      1 BAS CB00A7    SUM                          COBOL   DEFAULT
s      2 NA
-      3 NA
-      4 NA
-      5 NA
-      6 NA
-      7 NA
-      8 NA
-      8 NA
-      EITHER         NA
```

- 6 Press Enter to display the Extended Copybook #2 screen. Fill in the data set and member name for the first chained segment copybook, along with the appropriate selection criteria to identify the chained segment.



NOTE The column number in the selection criteria is relative to the beginning of the chained segment, NOT the record. (This is different from normal segments, where the column number is relative to the beginning of the record).

In this example, COBOL copybook CB00A71 in data set *prefix*.LIB.CNTL is defined as a chained segment. This copybook is invoked if the first segment of the data record contains an 'A' in column 1.

```
----- Extended Copybook #2 -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.
More: +

Specify the copybook data set and member in normal TSO syntax:
Data set and member ==> LIB.CNTL
Member name ==> CB00A71 (member if not included in dsname)
Data set type ==> MVS (MVS, Panvalet or Librarian)
Language type ==> COBOL (COBOL, PLI, EITHER, or ASM)
Starting name ==> (for base only)
Type ==> CHAINED (BASE, SEGMENT, CHAINED, or NA)
Column number ==> 1 (1-32760 or Blank for default)
Compare operator/Length ==> EQ (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings ==> C'A' (string,string)
AND/OR ==> OR
Column number ==> (1-32760 or Blank for no compare)
Compare operator/Length ==> EQ (LT,LE,EQ,GE,GT,NE or 0-32760)
Compare Strings ==> (string,string)
```

- 7** Repeat steps 5 and 6 until all the chained segments are defined. The following Extended Copybook panel shows a base and three chained segments. To save this definition, issue primary command S.

```
----- Extended Copybook -----
COMMAND ==> S

Primary commands: S to Save this list, A to Activate this list, END to cancel,
E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
More: +

Type Member      Level 01 name      Lang Type Selection
- 1 BAS CB00A7    SUM
- 2 CHA CB00A71
- 3 CHA CB00A72
- 4 CHA CB00A73
- 5 NA
- 6 NA
- 7 NA
- 8 NA
```

- 8** On the Copybook Save panel, type a 3- to 6-character name in the Copybook saved name field.

To save the extended copybook definition in your ISPF profile data set, type PROFILE in the Source library field. To save it in another data set, type OTHER in the Source library field and type the data set name in the Other Data Set Name field.

```
----- Copybook Save -----
COMMAND ==>

Specify the name for a saved version of this extended copybook table
Copybook saved name   ==> CHAIN1 (3 to 6 character name)
Replace existing name ==> NO      (Yes or No)
Copybook description  ==>
Source library        ==> PROFILE (Profile, Group, Other)
Other Data Set Name   ==>

Profile DDname       :ISPPROF
Group DDname         :ISPTLIB
```



NOTE The saved name (CHAIN1 in this example) can be entered with the USE parameter on the Copybook screen to retrieve the saved definition and activate the copybook overlay in future sessions of PEDIT/PVIEW.

- The Extended Copybook screen redisplay with a message indicating the definition was saved. Type primary command A to activate this copybook list.

```
----- Extended Copybook -----
COMMAND ==> A

Primary commands: S to Save this list, A to Activate this list, END to cancel,
                  E to Export an extended copybook object file.
Line commands can be entered one at a time. Use "field level help" for list.
More: +

From: CHAIN1, Description:
Type Member      Level 01 name          Lang Type Selection
- 1 BAS CB00A7    SUM                               EITHER  DEFAULT
- 2 CHA CB00A71                                 COBOL   YES
- 3 CHA CB00A72                                 COBOL   YES
- 4 CHA CB00A73                                 COBOL   YES
- 5 NA
- 6 NA                               EITHER  NA
- 7 NA
- 8 NA           | TABLE CHAIN1 SAVED AS #2CHAIN1 IN ISPPROF | NA
- 9 NA
- 10 NA                               EITHER  NA
```

- The following screen shows the first record in the data file, TEST.LIB.CNTL(CB00A74), overlaid with the extended copybook definition.

The base copybook CB00A7 overlays the base part of record 1. The first chained segment copybook overlays the first data segment because the data matches the selection criteria defined for the copybook (the segment has an 'A' in column 1). Similarly, the second and third chained segment copybooks overlay the next two

segments because the data matches the selection criteria defined for these copybooks ('B' and 'C' in column 1, respectively).

```

PEDIT      TEST.LIB.CNTL(CB00A74) ----- Record too long
COMMAND ==> SCROLL ==> PAGE
RECORD      1      LENGTH=      80
LEVEL AND NAME      LENGTH TYP DATA ....1....+....2....+....3....+
01 SUM              4 BASE: CB00A7      # 1
3  ACC_CODE1        1 CHR A
3  ACC_CODE2        1 CHR A
3  ACC_CODE3        1 CHR A
3  ACC_CODE4        1 CHR A
01 CHA-SEG-1        4 CHAINED
3  FIELD-1          4 CHR A444
01 CHA-SEG-2        5 CHAINED
3  FIELD-2          5 CHR B5555
01 CHA-SEG-3        6 CHAINED
3  FIELD-3          6 CHR C66666
***** BOTTOM OF COPYBOOK*****

```

- 11** To locate a record of a different type in the example data, issue the Next or Locate command.

In the following example, the command L 2 locates record 2. This record contains only two segments that match the extended copybook definition.

```

PEDIT      USER298.LIB.CNTL(CB00A74) ----- Record too long
COMMAND ==> L 2      SCROLL ==> PAGE
RECORD      2      LENGTH=      80
LEVEL AND NAME      LENGTH TYP DATA ....1....+....2....+....3....+
01 SUM              4 BASE: CB00A7      # 1
3  ACC_CODE1        1 CHR B
3  ACC_CODE2        1 CHR B
3  ACC_CODE3        1 CHR B
3  ACC_CODE4        1 CHR B
01 CHA-SEG-2        5 CHAINED
3  FIELD-2          5 CHR B5555
01 CHA-SEG-3        6 CHAINED
3  FIELD-3          6 CHR C66666
***** BOTTOM OF COPYBOOK*****

```



NOTE When a matching data segment is not found, processing continues for all subsequent segment copybooks until a match is found or there are no more segment copybooks.

- 12** The following example shows a record that does not have any matching segments. Only the base portion of the record is displayed.

```

PEDIT      USER298.LIB.CNTL(CB00A74) ----- Record too long
COMMAND ==> L 4      SCROLL ==> PAGE
RECORD      4      LENGTH=      80
LEVEL AND NAME      LENGTH TYP DATA ....1....+....2....+....3....+
01 SUM              4 BASE: CB00A7      # 1
3  ACC_CODE1        1 CHR D
3  ACC_CODE2        1 CHR D
3  ACC_CODE3        1 CHR D
3  ACC_CODE4        1 CHR D
***** BOTTOM OF COPYBOOK*****

```


Displaying Hexadecimal Data in Copybook Mode

In copybook mode, PEDIT displays hexadecimal data linearly rather than vertically. As a result, one byte of hexadecimal data requires two character positions on the screen.

However, left and right scrolling (PF10 and PF11) continue to work in full-byte rather than half-byte increments. This default scrolling behavior can therefore skip past hexadecimal data that customers wish to view. To prevent this, customers should override the default number of shift bytes when viewing hexadecimal data in copybook mode.

By default, the LEFT command in PEDIT shifts the field display 35 data bytes to the left of the current cursor position, or 35 bytes to the left of the first data byte in the field if there is no cursor. Similarly, the RIGHT command in PEDIT shifts the field display 35 data bytes to the right of the current cursor position, or 35 bytes to the right of the last data byte in the field if there is no cursor. Note that data bytes are not the same as display positions. A one-byte data shift means a shift of two display positions for hexadecimal data.

To override this scrolling behavior, enter the "LEFT *nn*" or "RIGHT *nn*" commands at the command line, where *nn* is the desired number of data bytes for the shift. All things being equal, a value for *nn* of 17 works well with hexadecimal data.

Alternatively, you can type the desired number of data bytes for the scroll shift at the command line, then use PF10 and PF11 to shift by that number of bytes.

BATCHJCL

Use **Option 5 - Batchjcl** to initiate batch processes. When you select Option 5, a StarTool FDM batch job is created using file tailoring from a skeleton data set. After creating the JCL you are placed into ISPF edit in a temporary data set so you can modify the JCL, submit the JCL or save the JCL for any other purpose.

If an option is not available, its number is replaced with NA (for Not Available).

These options perform the following functions:

- when a DDNAME/LISTA table is active, builds batch JCL from the data sets in the current table.
- builds batch JCL from StarTool FDM commands in the log. This provides a prototyping capability.
- for systems programmers, builds an ICKDSF batch job to manage the index VTOC attributes of a volume.
- for systems programmers, builds a SUPERZAP job to set the DIRF bit on a disk volume.
- creates a LISTA table containing all allocated data sets.
- prompts for DDNAME information and builds a new LISTA table.
- creates a StarTool FDM job using the copybook feature.
- creates a StarTool FDM job using a previously saved StarTool FDM table.

- uses Profman to manipulate previously saved StarTool FDM tables.

```

----- StarTool Batch Selections -----
OPTION  ==> 2

  NA  - Build batch JCL using LISTA (list of data sets is Inactive )
  2   - Build StarTool batch job from commands in the current log
  3   - Build ICKDSF batch job to change index VTOC on a volume
  4   - Build SuperZap batch job to set the DIRF bit on a volume
       An inactive list can be activated by selecting one of the following:
  5   - Create a LISTA table containing all allocated data sets
  6   - Create a new LISTA table for a given DDNAME or group of DDNAMEs
  7   - Create a StarTool job using a copybook
  8   - Create a StarTool job using a previously saved StarTool table
  9   - Use Profman to manipulate previously saved StarTool tables

Note: Any Pending function has not completed line command processing and
      its table can not be extended or processed by a batch job.
      ICKDSF and SuperZap programs may be restricted at your installation.
      See more notes below about options 1, 2, and 8

Specify Job cards for the batch job to be created:

==> //USER07A JOB (X170,374),'SHOWS PROTOTYPING',CLASS=A,
==> //  MSGCLASS=X,TIME=(0,30),NOTIFY=USER07
==> //
==> //

```

This panel displays a sample of option 2, Build StarTool batch job from commands in the current log, from the StarTool Batch Selections screen.

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          USER07.SPFTEMP1.CNTL                      Columns 00001 00072
Command ==>                                           Scroll ==> CSR
***** ***** Top of Data *****
000001 //USER07A JOB (X170,374),'SHOWS PROTOTYPING',CLASS=A,
000002 //  MSGCLASS=X,TIME=(0,30),NOTIFY=USER07
000003 //PDS05021 EXEC PGM=IKJEFT01,DYNAMNBR=80,REGION=5M
000004 //SYSPRINT DD SYSOUT=*
000005 //SYSTSPRT DD SYSOUT=*
000006 //SYSTSIN DD *
000007 dup lib.cntls
000010 change lib.cntls
000011 compress
***** ***** Bottom of Data *****

```

The following panel displays what a sample LOG table looks like before using option 2.

```

----- ISPMODE Session# 1 Log# 1 ----- Row 1 to 27 of 59
COMMAND ==> batchjcl                                SCROLL ==> CSR

PDS054I Totals -- Members=3; Input=44; Characters=5,440

>----->change lib.cntls
PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE  ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR  3380 C  FB           80  32720  1X   10           5   10 TRK   6

PDS300A ENTER OPTION -- DSN=USER07.LIB.CNTLS,VOL=SER=SER001
>----->compress
IEB1135I IEBCOPY  FMID HDZ11C0 SERVICE LEVEL UW30359  DATED 19960711 DFSMS 1.3
IEB1035I USER07  ISPFPROC ISPFPRO2 07:45:26 WED 23 APR 1997 PARM=''
IEB1064I  STANDARD DD NAMES- SYSIN  SYSPRINT  SYSUT1  SYSUT2  SYSUT3
IEB1065I OVERRIDING DD NAMES- SYS00017 SYS00018 SYS00016 SYS00016 SYS00019
IEB1057I VL GETMAIN REQUESTED 250K TO 1M BYTES. OBTAINED 1M.
ISPFPRO2 COPY      INDD=SYS00016,OUTDD=SYS00016      GENERATED STATEMENT
IEB1058I ALLOCATED 2 CONTIGUOUS BUFFERS EACH 94976 BYTES. WORK AREA HAS 826K
IEB1018I COMPRESSING PDS  OUTDD=SYS00016 VOL=SER001 DSN=USER07.LIB.CNTLS
IEB1106I CONTROL TABLE IS 210 BYTES LONG. WORK AREA HAS 825K BYTES AVAILABLE.
IEB1103I FIRST GAS BUBBLE IS BEFORE MEMBER CARDIN  AT TTR=X'00000C'
IEB1097I FOLLOWING MEMBER(S) MOVED IN DATA SET REFERENCED BY SYS00016
IEB1098I 21 OF 21 MEMBERS MOVED IN DATA SET REFERENCED BY SYS00016
IEB144I THERE ARE 8 UNUSED TRACKS IN OUTPUT DATA SET REFERENCED BY SYS00016
IEB149I THERE ARE 6 UNUSED DIRECTORY BLOCKS IN OUTPUT DIRECTORY
IEB1056I RELEASED 1016K ADDITIONAL BYTES.
IEB147I END OF JOB - 0 WAS HIGHEST SEVERITY CODE

PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE  ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR  3380 C  FB           80  32720  1X   10           8   10 TRK   6

```

Tutorials

Use Option IN - Tutorial Index as a directory to StarTool FDM tutorials. There are 99 selections on this screen. The first column of this panel provides a directory to StarTool FDM functions and the remaining three columns provide a directory to StarTool FDM

subcommands. Option 99, Part 2, is automatically selected if no option is chosen in this panel. It navigates to the tutorial index, part 2.

```
TUTORIAL ----- StarTool Topic Index (Part 1) -----
COMMAND ==>

You may request any of the following index items by number or short name:
  1 CAX Function          21 ABE          41 Direntry   61 List       81 Repro
  2 CMDTBL Function      22 Acfcomp     42 Disasm    62 Listgrp    82 Restore
  3 CSECTS Function      23 Alias       43 Display   63 Lla        83 Review
  4 DDNAME Function      24 Attrib      44 Dsname    64 Map        84 Separate
  5 GO Function          25 Browse      45 Dup       65 Members    85 Smpgen
  6 LISTA Function       26 Change      46 Edit      66 Memlist    86 Sublist
  7 LISTC Function       27 Combine     47 End       67 Options    87 Submit
  8 LISTF Function       28 Compare     48 Encode    68 Outcopy   88 Svcmap
  9 LISTV Function       29 Compdir    49 Exclude   69 Pattern    89 TSO
 10 LOG Function         30 Compress   50 EXEC      70 Pbrowse   90 Tsoedit
 11 MASK Function        31 Condend    51 Find      71 Pedit     91 Tsoedit
 12 MEMLIST Function     32 Control    52 Findmod   72 Pview     92 Usage
 13 NUCMAP Function      33 Copy       53 Fixpds    73 Pgm doc   93 Verify
 14 PROFMAN Function     34 Create     54 FSE       74 Print     94 View
 15 STATUS Function      35 DCF        55 Help      75 Quit      95 Vprint
 16 WORKPAD Function     36 Decode     56 History   76 Readobj   96 Whohas
 17 VMAP Function        37 Delete     57 IDCAMS    77 Recall    97 Vuse
 18 ZAP Function         38 Delink     58 If        78 Rename    98 Xref
                               59 ISPF      79 Replace   99 Part 2
```

After pressing Enter on the first tutorial panel with no option (or selecting option 99), StarTool Topic Index (Part 2) displays on which there are 31 selections. Use this panel as a directory to StarTool FDM topics. If you do not choose one of the 31 options, the system automatically defaults to Option 0, Part 1, which returns to the previous panel, StarTool Topic Index (Part 1).

```
TUTORIAL ----- StarTool Topic Index (Part 2) -----
COMMAND ==>

You may request any of the following index items by number:
  0 Part 1
  1 Attention Processing          17 Member Groups
  2 ABEND Processing             18 Member System
  3 BLKSIZE Command             19 Messages
  4 CALC Function                20 MODEL Command
  5 Checkpoint Processing        21 O Command
  6 CISIZE Command              22 OUTPUT Command
  7 CUA Panels                   23 PDSE Data Sets
  8 Definitions                  24 RETAIN Processing
  9 Dynamic Commands            25 SET Commands
 10 DROP Command                 26 SUGGEST Command
 11 EDIT Macros                  27 TRAP Command
 12 Effective Use of StarTool    28 User Commands
 13 EXPRESS Command              29 VSAM Support
 14 Global Commands              30 Warping Dates and Data
 15 HEX Function                 31 What's New?
 16 LASTCMDS Command            32 XCOPY Extended Copy
```

If you select Option 33, Copy, from the first screen (part 1), tutorial panels for the COPY subcommand display as shown following. Tutorials for other subcommands are similar to this panel.

You can view all panels in order by simply pressing Enter or you can view a single topic (Syntax, Operands or Remarks) by selecting an option. You must explicitly request optional topics such as Member groups or Update protection.

```
TUTORIAL ----- StarTool COPY Subcommand -----
|           COPY Subcommand           |
-----

The COPY subcommand copies or moves members to another data set. This
is either performed directly with internal "DUP" routines or COPY
builds control statements and invokes an external copy program.
program to selectively copy members to another data set.

Example: COPY mem1:mem2 other.dataset new tra spa(5,5) dir(20)

Aliases: COP, COPY.

The following topics are presented in sequence or may be requested
by number:
 1 COPY Syntax
 2 COPY Operands
 3 COPY Remarks

The following optional topics may be requested by number:
 4 Member groups and member notation
 5 Update protection

COMMAND ===>
```

As another example, the MEMLIST tutorial panels begin with the following panel. There are two main tutorial paths (1 through 3 and 4 through 6) depending on whether or not it is a source or load library.

```
TUTORIAL ----- StarTool MEMLIST Subcommand -----
|           MEMLIST Subcommand           |
-----

The MEMLIST subcommand builds a scrollable member list display on
which StarTool subcommands can be entered as line commands to process
individual members.

Example: MEMLIST mema:memb last(10)

Aliases: ML, MEML, MEMLI, MEMLIS, MEMLIST

The following topics are presented in sequence or may be requested
by number:
 1 MEMLIST Syntax (source)      4 MEMLIST Syntax (load)
 2 MEMLIST Operands (source)   5 MEMLIST Operands (load)
 3 MEMLIST Remarks (source)    6 MEMLIST Remarks (load)

The following optional topic may be requested by number:
 7 Member groups and member notation

COMMAND ===>
```

Advanced Options

When you select Option A, Advanced Options, on the Primary Options menu the following panel displays. It shows 13 additional menu options, numbered 6 through 18.

```

----- Advanced Options -----
OPTION ==>

  6 All          - Create a MEMLIST with all members
  7 Output       - Output LOG Table
  8 Log          - View StarTool session log
  9 Activate     - Activate data sets and GO sessions
 10 Search       - Search and Replace functions
 11 Recover      - Recover and Repair functions
 12 Load PDS    - Services for IMS.DBDLIB,VOL=SER=OS3P9B MEM=
 13 Examine      - Examine current environment and system resources
 14 Profman      - Manage saved member and data set lists
 15 Global       - Global processing of data set and volume lists
 16 Comparex     - Use the Comparex Dialog for USER298.PDSDEMO.CNTL
 17 CBSelect     - Use copybooks to specify record selection when copying
 18 CBSelect     - Use a previous saved copybook selection table

Note: Comparex is a separately licensed compare product from Serena

```

Option 6 - All

Select Option 6 - All from the Advanced Options menu to build a member list that contains all members in the data set.

```

----- StarTool All (Option 6) -----
OPTION ==>

Option 6 is used to build a member list containing all members from the
current data set. This option is equivalent to entering ALL

The use of this option is not recommended for large partitioned data sets.
Large member lists (particularly in a load data set) take a long time to
build and they are difficult to manipulate.

Instead, you should use partial member lists. These can be built in options
1, 2 and 3.1 with optional filtering by member age. Another approach is to
filter by attributes using the MEMLIST subcommand or IF with a THEN MEMLIST
option. You may also filter members by contents using the FIND subcommand.

MEMLIST processing in StarTool is additive so you can actually combine all
of the above methods to tailor a MEMLIST for precise processing. After a
MEMLIST has been created, you can remove individual members from the list
with the X line command, the XX block line command or the EXCLUDE subcommand.

Enter YES/NO ==> NO to bypass this panel if this option is available.
Press: HELP to obtain additional information.
      END to exit this option.

```

With Option 6, the information panel displays before the system performs the ALL command. After reading this information, press PF3 to display the MEMLIST table.

If this option is not available (the data set is not partitioned or one or more MEMLIST line commands did not complete), a error message displays on this panel. In this case, you press END to exit or HELP to obtain additional information.

You can suppress this panel in the future (unless the option is not available) by typing YES to **Enter YES/NO to bypass this panel**. The SETPANEL command reverses this action later.

Option 7 - Output

Select Option 7 - OUTPUT Utility from the Advanced Options menu to manipulate StarTool FDM tables and the log.

```
----- StarTool Output or Edit (Option 7) -----
OPTION  ===>

Option 7 may be used to output the current table or enter an edit session.

You can avoid this prompting panel in the future by entering a command
which specifies what data is desired and how it is to be processed.

For example, you could enter:
  OUTPUT - To output the MEMLIST table to JES or a data set.
  EDITTBL - To edit the MEMLIST table
  EDITLOG - To edit the output from the last subcommand.

Enter YES/NO ===> NO to bypass this panel in the future.

Enter:  HELP   - to obtain additional information.
       END     - to exit this option.
       ENTER  - to output the MEMLIST table to JES or a data set.
       OUTPUT - to output the MEMLIST table to JES or a data set.
       EDITTBL - to edit the MEMLIST table
       EDITLOG - to edit the output from the last subcommand
```

When you select Option 7, the information panel displays before the system performs the selected option. After completion, control returns to the point of invocation.

You can suppress this panel in the future by typing YES to **Enter YES/NO to bypass this panel**. The SETPANEL command reverses this action later.

If you suppress the display of this panel or just press **Enter**, the system assumes the OUTPUT command and the current function table is selected for output. In the following example, the MEMLIST table was the current function table.

If you press Enter, or select OUTPUT, or suppress the display of the above panel, the following OUTPUT prompting panel displays. Use this panel to create a printed output or a disk copy of a StarTool FDM table. The title on this panel is the StarTool FDM table that is output (MEMLIST is shown below).

The value for SYSOUT Class determines if the output is directed to JES for a print data set. If SYSOUT class is non-blank, this parameter and the following SYSOUT parameters are used. If SYSOUT class is blank, the first group of parameters for an output data set are used. You can specify where to place the output data set and the disposition (M for MOD is intended for use with sequential output data sets). You can choose to suppress headers if you want only the output data lines. Also, if you want ISPF statistics, type a non-blank value in Userid for stats.

If you use Option 7 for the Log, two additional parameters are available:

- Select Wide LOG output to display up to 133 characters of each log line to JES or a data set.
- For output to a data set, Last command only to only display data from the last command to the output data set; the output selected is identical to that selected by the EDITLOG command.

Any parameters entered on the OUTPUT panel are remembered between sessions.

```
----- Output Memlist Table -----
COMMAND ==>

Specify output destination:
  Output data set  ==> LIB.ASM(LPSCRIPT)
  Data set DISP   ==> S          ( O is OLD; N is NEW; M is MOD; S is SHR)
  Suppress headers ==> YES       (yes or no)
  Userid for stats ==> USER07   (blank for no stats)

  SYSOUT Class    ==>
  SYSOUT Form     ==> DX00
  SYSOUT Dest     ==> SERENA
  SYSOUT Copies   ==> 1
  SYSOUT Chars    ==>
  SYSOUT FCB     ==>
  SYSOUT Flash    ==>
  SYSOUT WTR      ==>
  SYSOUT Pagedef  ==>           (for MVS/ESA systems only)
  SYSOUT Formdef  ==>           (for MVS/ESA systems only)
  SYSOUT Prmode   ==>           (for MVS/ESA systems only)

Note: a SYSOUT class will take precedence over an output data set name.
```



NOTE Error messages from TSO, DFSMS, or other IBM or third-party software products may appear if the value specified for the 'Output Data Set' field does not specify a data set which StarTool FDM can successfully open. In this case, refer to the appropriate IBM or third-party messages manual to resolve the problem.

Option 8 - Log

Select Option 8 - Log Command from the Advanced Options menu to navigate to the Log. The following screen displays before the LOG command initiates.

```

----- StarTool Log (Option 8) -----
OPTION  ==>

Option 8 is used to exit the menu system and transit to the log.
This option is equivalent to entering LOG

Note that the menu system can be selected later explicitly by entering
M or MENU

The log contains output from StarTool subcommands. You may enter
StarTool subcommands or transit to other StarTool functions (such
as MEMLIST, LISTC/LISTF or WORKPAD) from the log. The log provides
a common facility for viewing output from many different StarTool
processes.

Enter YES/NO ==> NO  to bypass this panel in the future.

Press: ENTER to transit to the log.
      HELP  to obtain additional information.
      END   to exit this option.

```



NOTE You can suppress this panel for future uses by type YES to **Enter YES/NO to bypass this panel. Later, you can reverse this command with SETPANEL.**

Option 9 - Activate

Select Option 9 - Activate from the Advanced Options panel to control GO sessions and the current active data set. This panel displays all currently active sessions.

```

----- StarTool Activate Data Sets and GO Sessions -----

Current data set: - DSN=USER01.LIB.CNTL,VOL=SER=STR001 MEM=($FCB

Choose one of the following:
 1 - GO to ** CURRENT ** - DSN=USER07.LIB.CNTL,VOL=SER=STR805 MEM=($FCB
 2 - GO to - DSN=USER09.PDSES.ASM,VOL=SER=STR840 MEM=@DIAI*
 3 - GO to - DSN=USER07.VSAM.RR.CLUSTER,VOL=SER=STR80X
 4 - GO to (available)
 5 - GO to (available)
 6 - GO to (available)
 7 - GO to (available)
 8 - GO to (available)
 9 - GO to (available)
10 - GO to the next data set (rotate through active sessions)
11 - GO to the previous GO data set (toggle between sessions)
12 - DROP the current data set
13 - CHANGE to a different data set
14 - CHANGE to the previous data set (toggle between data sets)
15 - Stack a new StarTool session
16 - Stack an ISPF session
OPTION  ==> 3

```

The current GO session displays a **** CURRENT **** marker as seen below. For partitioned data sets, each data set line also displays the current member group after a MEM= identifier.

Use the first 9 options on this panel to activate the corresponding GO session (in the following example, GO session 3 is reactivated). If you select an available GO session, you are prompted for a data set to activate that GO session.

The other options on this panel are explained in more detail later in this section. You can enter the equivalent subcommands from StarTool FDM functions.

10	rotate through the active GO sessions. This is equivalent to GO **
11	toggle between two GO sessions. This is equivalent to GO *
12	drop the current active GO session. This is equivalent to DROP *
13	change to a different active data set. This is equivalent to CHANGE
14	change to the previously active data set; this is equivalent to CHANGE *
15	stack a new StarTool FDM session. The new session remains active until you terminate At that time, this StarTool FDM session unstacks again or activates again.
16	stack an ISPF session. The new session remains active until you terminated it. At that time, this StarTool FDM session unstacks again or activates again.

Option 10 - Search

Select Option 10 - Search from the Advanced Options panel to find and replace/update data. On the following pages, examples are shown for:

- Suboption 10.4 (global FIND in a data set list)
- Suboption 10.5 (global REPLACE in a data set list)
- Suboption 10.6 (global SEEK in a data set concatenation)
- Suboption 10.9 (search current data set).

The available options are explained in more detail for:

- searches for operating system modules by name. This option searches the linklist, LPA, MLPA and TASKLIB or the nucleus using the FINDMOD subcommand.
- searches for operating system modules by address. This option searches the LPA, MLPA or nucleus using the FINDMOD subcommand.
- searches a group of data sets for a member. This option first prompts for a partial data set name to build a LISTC/LISTF table and then searches all data sets for the member with a global SEEK command.
- searches a group of data sets for a string. This option first prompts for a partial data set name to build a LISTC/LISTF table and then searches all data sets with a global FIND command.
- updates a group of data sets. This option first prompts for a partial data set name to build a LISTC/LISTF table and then updates all data sets with a global REPLACE command.

- searches a data set concatenation for a member. This option first prompts for a data set mask to build a DDNAME table and then searches all data sets for the member with a global SEEK command.
- searches a data set concatenation for a string. This option first prompts for a data set mask to build a DDNAME table and then searches all data sets with a global FIND command.
- updates a data set concatenation. This option first prompts for a data set mask to build a DDNAME table and then updates all data sets with a global REPLACE command.
- searches the current data set for a string. After prompting for the current data set type, the data set is searched with the FIND subcommand.
- updates the current data set. After prompting for the current data set type, the data set is updated with the REPLACE subcommand.
- searches for members with specific attributes in partitioned data sets. After prompting for the current data set type, the data set is searched with the IF subcommand.
- searches for members with error attributes in partitioned data sets. After prompting for the current data set type, the data set is checked with the VERIFY subcommand.

```

----- StarTool Search and Replace Selections -----
OPTION ==> 4

Choose one of the following for a source library:

1 - MODULE - search system for module name
2 - ADDRESS - search system for module using memory address
3 - SEEKDS - search group of libraries for a member
4 - FINDDS - search group of libraries for members containing a string
5 - REPLDS - update members in a group of libraries
6 - SEEKCON - search data set concatenation for a member
7 - FINDCON - search data set concatenation for members containing a string
8 - REPLCON - update members in a data set concatenation
9 - FIND - search current source library for members containing a string
10 - REPL - update current source library members which contain a string
11 - IF - search current source library for members with given attributes
13 - VERIFY - search current source library for members with errors
14 - IMPACT - reconcile load library members with associated source
    libraries
15 - COMPCHK - Check a load library for compiler usage
16 - CSECTCHK - Check a library for like CSECTS with different compile dates
17 - LANGTYPE - Check a source library for languages used and mark a MEMLIST

Current data set is USER298.LIB.CNTL,VOL=SER=SMS013 MEM=

Note: See Global processing (option 15 on main menu) for more.

Current data set is USER01.LIB.CNTL,VOL=SER=STR001 MEM=($FCB

```

Option 10.4 - Search for a String

Use Option 10.4 - Search for a string to search multiple data sets. This option first prompts for a partial data set name for a LISTC/LISTF table and then searches all data sets with a global FIND command.

If Volume is blank, StarTool FDM searches the catalog for data sets to build a LISTC table of data sets that match the DSNAME LEVEL mask. Otherwise, searches volumes matching the Volume mask to build a LISTF table of data sets that match the DSNAME LEVE" mask.

```

----- LISTC/FIND: Search Members in a Data Set List -----
OPTION  ==>

Enter one or both of the parameters below:
  DSNAME LEVEL ==> USER07.LIB.C
  Volume       ==>                (single volume or volume mask)

A data set list will be created before prompting for find string

The line command "0" can be used on the displayed list to provide a prompt
panel that will show all valid line commands.

```

When you press **Enter**, StarTool FDM builds a LISTC table and a prompting panel for a global FIND command similar to the following. In this case, DD statements are being searched for in all members whose names begin with COPY.

```

----- GLOBAL FIND: Search Members -----
OPTION  ==>

Member or member group ==> COPY*                (*, start*, start:end or part/)
Find string            ==> ' dd '                (may be 'quoted')
Format for listing     ==> NUM                    (NUM, SNUM, NONUM, LBLOCK, LDUMP, BLOCK, DUMP)
Find conditions        ==>                       (WORD, PREFIX or SUFFIX)
List all data after find ==> NO                    (YES or NO)
Display then take action ==> NO                    (YES or NO)
Maximum records input  ==>                        (1 to 99999999)
Maximum records output ==>                        (1 to 99999999)
Maximum records to find ==>                       (1 to 99999999)
Records to skip        ==>                       (0 to 99999999)
Maximum record length  ==>                       (1 to 32767)
Columns of data to skip ==>                       (1 to 32767)

Only partitioned data sets will be searched, all others will be bypassed
including any data sets not on the volume, VOL=SER=MIGRAT or ARCIVE.

The data below shows data set counts for the data set list.
TOTAL=          12      NVSAM=          11      NULL=          2

```

Type your desired requirements for the FIND operation, then press ENTER.



TIP When using the FIND command against very large data sets (several MB), use the BLOCK parameter in the **Format for listing ==>** prompt to avoid an ABEND.

The results of the global FIND display in the log. Note the summary error message; this message gives a count of error messages (PDS600E through PDS999E) encountered during global processing.

Global processing consists of changing to each data set in the table (the >CHANGE commands) and then applying the global command (the >Find commands) as shown.

```

FUNCTIONS  CONTROL  DSN CMDS  MEM CMDS A-M  MEM CMDS N-Z  DEFAULTS  FEATURES
-----
----- ISPMODE Session# 1 Log  ROW 2,737 TO 2,752 OF 2,752
COMMAND ===>
      1 ERRORS (PDS600E OR ABOVE) WERE ENCOUNTERED DURING GLOBAL PROCESSING
      SCROLL ===> CSR
>----->CHANGE  'USER07.LIB.CLIST' V(STR840)
PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE  ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR  3380 C  FB      80    9040    1X    46     12    33 TRK    1

PDS226I This data set has 1 free directory blocks

PDS300A ENTER OPTION -- DSN=USER07.LIB.CLIST,VOL=SER=STR840 MEM=($FCB
>----->Find  COPY* ' dd ' NUM CAPS
PDS551W No matching data was found
>----->CHANGE  'USER07.LIB.CNTL' V(STR80S)
PDS200I DISP UNIT      RECFM LRECL BLKSIZE  ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR  3380      FB      80    13680    2X    191     71    32 TRK    23

PDS300A ENTER OPTION -- DSN=USER07.LIB.CNTL,VOL=SER=STR80S MEM=COPY*
>----->Find  COPY* ' dd ' NUM CAPS

** FIND      COPY@
000800 //GCNTLA DD DSN=SER07.PDSE310.CNTL,DISP=SHR
000900 //GLOADD DD DSN=SER07.PDSE310.LOAD,DISP=SHR
001200 //GASMX  DD DSN=SER07.PDSE310.ASM,DISP=SHR

```

Option 10.5 - Replace Data

Use Option 10.5 - Update data to update multiple data sets. This option first prompts for a partial data set name to build a LISTC/LISTF table and then updates all data sets with a global REPLACE command.

If Volume is blank, StarTool FDM searches the catalog for data sets to build a LISTC table of data sets that match the DSNAME LEVEL mask. If Volume is not blank, StarTool FDM searches for volumes that match the Volume mask to build a LISTF table of data sets that match the DSNAME LEVEL mask.

```

----- LISTC/REPLACE: Update Members in a Data Set List -----
OPTION  ===>

Enter one or both of the parameters below:
  DSNAME LEVEL ===> USER07.LIB.C
  Volume      ===>                (single volume or volume mask)

A data set list will be created before prompting for replace strings

The line command "0" can be used on the displayed list to provide a prompt
panel that will show all valid line commands.

```

After pressing **Enter** on the above panel, StarTool FDM builds a LISTC table and a prompting panel for a global REPLACE command similar to the following displays. In this

case, a userid is being changed anywhere it appears in members whose names contain the string COPY.

```

----- GLOBAL REPLACE: Update Members -----
OPTION ==>

Member or member group ==> COPY/          (*, start*, start:end or part/)
Find data                ==> user07        (may be 'quoted')
Replacement data        ==> ser07         (may be 'quoted')
Format for listing      ==> NUM           (NUM, SNUM, NONUM, LBLOCK, LDUMP, BLOCK, DUMP)
Find conditions         ==>              (WORD, PREFIX or SUFFIX)
Update on disk          ==> YES           (YES or NO)
Update ISPF statistics ==> YES           (YES or NO)
Select found members   ==>              (MEMLIST or SUBLIST)
Maximum records input  ==>              (1 to 99999999)
Maximum records output ==>              (1 to 99999999)
Maximum records to find ==>              (1 to 99999999)
Records to skip        ==>              (0 to 99999999)
Maximum record length  ==>              (1 to 32767)
Columns to skip        ==>              (0 to 32767)

Only partitioned data sets will be searched, all others will be bypassed
including any data sets not on the volume, VOL=SER=MIGRAT or ARCIve.

The data below shows data set counts for the data set list.
TOTAL=          5          NVSAM=          4          NULL=          1

```

Press **Enter**. The results of the global REPLACE display in the Log. StarTool FDM may issue a summary error message (such as for global FIND) to give a count of error messages (PDS600E through PDS999E) encountered during global processing.

Global processing consists of changing to each data set in the table (the >CHANGE commands) and then applying the global command (the >ReplacE commands). For example.

```

FUNCTIONS  CONTROL  DSN CMDS  MEM CMDS A-M  MEM CMDS N-Z  DEFAULTS  FEATURES
-----
----- ISPMODE Session# 1 Log# 1 -- ROW 544 TO 562 OF 662
COMMAND ==>
SCROLL ==> CSR
- DSN=USER07.LIB.CNTL,VOL=SER=STR80S MEM=COPY/ -----
>----->CHANGE 'USER07.LIB.CLIST' V(STR840)
PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE  ALLOCTRK FREETRK  SECONDARY FREEDIR
PDS200I SHR  3380 C  FB           80    9040    1X    46      12    33 TRK    1

PDS226I This data set has 1 free directory blocks
PDS298I There are 2 users allocated to this data set

PDS300A ENTER OPTION -- DSN=USER07.LIB.CLIST,VOL=SER=STR840 MEM=COPY*
>----->Replace COPY/ 'user07' 'ser07' NUM CAPS WRITE STATS
PDS551W No matching data was found
>----->CHANGE 'USER07.LIB.CNTL' V(STR80S)
PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE  ALLOCTRK FREETRK  SECONDARY FREEDIR
PDS200I SHR  3380 C  FB           80   13680    2X   191     71    45 TRK    23

PDS300A ENTER OPTION -- DSN=USER07.LIB.CNTL,VOL=SER=STR80S MEM=COPY/
>----->Replace COPY/ 'user07' 'ser07' NUM CAPS WRITE STATS

** REPLACE COPYA
001400 //ICNTL DD DSN=SER07.PDSE310.CNTL,DISP=SHR
001700 //ILOAD DD DSN=SER07.PDSE310.LOAD,DISP=SHR

```

Option 10.6 - Search Concatenation for a Member

Use Option 10.6 - Search concatenation to search for a member in concatenated data sets. This option first prompts for a partial data set name to build a DDNAME table and then searches all data sets with a global SEEK command.

Type the member you want to find in **Name of member to locate**.

Mask of DDNAMES to search can be a simple DDNAME or a mask. With a mask, you can search across multiple concatenations at once. In the following example, all data sets in the ISPF panel library are searched for redundant copies of ISR@PRIM.

```
----- DDNAME/SEEK: Search Current Concatenation for a Member -----
OPTION  ==>

Name of member to locate ==> ISR@PRIM (single member name)
Mask of DDNAMES to search ==> ISPLLIB

Mask notes: use * for wildcards like ISP*LIB
            use / for patterns like PRO/LIB
            use ? or % for a character placeholder like ISP?L%B
            use : for DDNAME ranges like ISPP:ISPS
```

After pressing **Enter** on the above panel, the results of the global SEEK are shown in a DDNAME/LISTA table. The data sets that contain a member named ISR@PRIM are marked ***FOUND*** in the DATA/MSG area for each data set; otherwise, data sets are marked ***NOMEMB*** in the DATA/MSG area.



NOTE The last data set processed becomes the current data set at the completion of global processing.

```
FUNCTIONS  CTL A-M  CTL N-Z  LINE CMDS A-M  LINE CMDS N-Z  DEFAULTS  FEATURE
-----
----- List Allocations ----- ROW 1 TO 13 OF 13
COMMAND ==>
- DSN=ACSNS.FILEXID.V6R5M0.ISPPLIB,VOL=SER=ESB002 MEM=COPY* -----
CMD DDNAME  DATA/MSG I/O's 0# VOLUME  MEMBER  ----- DATA SET NAME -----
   ISPLLIB  *FOUND*   23 1  ESB002      SYS2.TSG.PANELS
   #        2 *FOUND*   56 1  ES2RES      ISR.V3R4M0.ISRPENU
   #        3 *NOMEMB*  0 1  ES2RES      ISP.V3R3M0.ISPPENU
   #        4 *NOMEMB*  0 1  ES2RES      ISF.V1R3M2.ISFPLIB
   #        5 *FOUND*   2 1  STR84I     USER99.COMPAREX.PANELS
   #        6 *NOMEMB*  2 1  STR84Z     USER99.P332UNIT.FMAINPAN
   #        7 *NOMEMB*  2 1  STR84H     USER99.P332UNIT.FCUSTPAN
   #        8 *NOMEMB*  2 1  STR84F     USER99.P332UNIT.FHELPPAN
   #        9 *NOMEMB*  0 1  ES2RES      SYS1.SBLSPNL0
   #       10 *NOMEMB*  0 1  ES2RES      SYS1.HRFPANL
   #       11 *NOMEMB*  2 1  ESB0N1     ACSNS.DB2.V2R3M1.TEST.DSNSPFP
   #       12 *NOMEMB*  2 1  SYS001     ACSNS.IOF.IOFT7B0.ISPPLIB
   #       13 *NOMEMB*  0 1  ESB002     ACSNS.FILEXID.V6R5M0.ISPPLIB
***** BOTTOM OF DATA *****
```

Option 10.9 - Search Current Data Set

Use Option 10.9 - Search current data set to search the current data set before taking some action with all members found. The following panel prompts for search parameters.

```
----- FIND: Search Source Members -----
OPTION ==>

- DSN=USER07.LIB.PDSE,VOL=SER=SER008 MEM=PDSM04* -----
Member or member group ==> A*          (*, start*, start:end or part/)
Find string             ==> execb      (may be 'quoted')
Search columns         ==> 10:18
AND Find string        ==> p'A<<'     (may be 'quoted')
AND Search columns     ==> 1:32760
OR Find string         ==> c'Mixed Case' (may be 'quoted')
OR Search columns      ==> 1:32760
Format for listing     ==> NUM        (NUM, SNUM, NONUM, LBLOCK, LDUMP, BLOCK, DUMP)
Find conditions        ==>           (WORD, PREFIX or SUFFIX)
List all data after find ==> NO       (YES or NO)
Maximum records input  ==>           (1 to 99999999)
Maximum records output ==>           (1 to 99999999)
Maximum records to find ==>           (1 to 99999999)
Records to skip        ==>           (0 to 99999999)
```

You can specify the member group as * to use the current member group. This is useful when you need to refine a list of members. You can specify the Find string, AND Find string, and OR Find string as follows:

string	or an upper case and lower case search
'string'	for an upper case and lower case search
p'string'	for a picture string
t'string'	for an upper case and lower case search
c'string'	for a case sensitive search
x'string'	for a hexadecimal string

Type your requirements for the FIND operation and then press ENTER.



TIP When using the FIND command against very large data sets (several MB), use the BLOCK parameter in the **Format for listing ==>** prompt to avoid an ABEND.

The results of the FIND subcommand display in the following panel.

```
----- StarTool FIND Results -----
OPTION ==>

Number of members searched:      17
Number of strings found:        0
in number of members:           0
sublist count:                  0

Press ENTER to return to previous screen

Current data set is USER01.LIB.PDSE,VOL=SER=SER001 MEM=AA*
```


In this case, no members were found because the string was specified incorrectly. Proceed back to the FIND search parameter prompt panel and correcting the search string, then press **Enter**.

The results of the successful FIND subcommand are shown in the following panel.

```

----- StarTool Find Results and Additional Selections -----
OPTION ==> 4

      Number of members searched:      17
      Number of strings found:        10
      in number of members:           3
      sublist count:                  3

Choose one of the following:
 1 - LOG      - display the results of search in the LOG
 2 - EDITLOG  - display the results of search in an EDITLOG
 3 - MEMLIST  - build a new member list of members with matching strings
 4 - MEMLIST  - add to the member list the members with matching strings
 5 - REPLACE  - change the strings in the members with matching strings;
                a prompt panel will be displayed to enter the new string

Notes:
* Current data set is USER07.LIB.PDSE,VOL=SER=SER008 MEM=PDSM04*
* Press END to back up and try a different search
* Use =12 to transit to a list of subcommands that can be used on
  this new subgroup of members (use '*' for the member group)

```

Note the counts of members searched, strings found, number of members and sublist count. After examining these counts, you can return to the parameter prompt panel for a different search or create a refined search with a member group of *. In this case, select option 4 to add the members found to an existing member list.

After you press **Enter**, the found members are added to the current member list and you are placed in a MEMLIST table as shown below. At this point, you can back up in the panel hierarchy to repeat this search process.

```

----- Source MEMLIST 1, Session# 1 ----- Row 1 to 5 of 5
COMMAND ==>
                                SCROLL ==> CSR
Enter an ISPF command, a StarTool subcommand or a special control code:
- DSN=USER07.LIB.PDSE,VOL=SER=SER008 MEM=(APDSHELO -----
--
--
CMD  NAME      DATA/MSG VER.MOD  CREATED      LAST  MODIFIED  SIZE  INIT  ID
   APDSHELO          01.01  1995/07/16  1995/07/16  8:44  1377  1378  USER07
   APDSHELP          01.00  1995/08/11  1995/08/11  13:44  612   612   USER07
   APDSLoux          01.03  1994/06/20  1994/12/29  8:52   197   200   USER07
   PDSM04
   PDSM04E *EDIT*    01.08  1995/09/14  1996/01/31  12:16  153   158   USER07
***** Bottom of data *****
+-----+
| TOTAL=      3 |
| ADDS =      3 |
+-----+

```

Option 11 - Recover and Repair

Use Option 11 - Recover and Repair to fix problems in the current data set. The items on this panel are not numbered because the items supported change with the data set type.

```
----- StarTool Source PDS Recovery and Repair -----
OPTION ==> fix

- DSN=USER07.LIB.ASM,VOL=SER=STR80X MEM=ZAP*

A      or ATTRIB - Change member attributes
COMPR or COMPRESS - Compress the data set
FIX    or FIXPDS - Change data set attributes
REPL  or REPLACE - Update members
REPR  or REPRO  - Reblock source members
RES   or RESTORE - Build a member list of deleted members for recovery
VE    or VERIFY - Validity check members
```

On the following pages, examples are shown for options 11.FIX (FIXPDS) and 11.REST (RESTORE). The available options are:

ATTRIB	modifies member attributes. For source members, you can modify ISPF statistics; for load members, you can modify most linkage-edit attributes.
COMPRESS	increases available space in a PDS by moving current members over space occupied by deleted or replaced members. For a PDSE, all members are copied into a temporary data set and copied back into the original data set to defragment the data set.
FIXPDS	changes data set attributes. Options are available to change DCB attributes, modify the number of directory blocks, release or add disk space and change the secondary disk allocation description.
REPLACE	updates selected members in-place.
REPRO	reconstructs members. In a source PDS, it can reblock members; in a load PDS, it can add a ZAP IDR record.
RESTORE	recovers deleted or replaced members. For this option, RESTORE adds deleted or replaced members into the MEMLIST table. From the MEMLIST table, you can examine these members and restore members selectively.
VERIFY	validity checks members. This option can perform a wide variety of checks to determine if a data set or the individual members in a data set are logically and physically valid.

Option 11.FIX - Modify Data Set

Option 11.FIX - Modify Data Set changes data set attributes. Options are available to modify the number of directory blocks, release or add disk space and change the secondary disk allocation description.

```

----- FIXPDS: Modify Partitioned Data Set -----
OPTION  ==>

Change the directory:
Add directory blocks    ==> 30          (1 to 9999) Current directories: 85
Percent free blocks    ==>           (1 to 999)          used: 83
Release disk space:
Release all free space ==>           (YES or NO)      Current tracks: 630
Release any free extents ==>        (YES or NO)          free: 99
Percent of data set free ==>        (1 to 999)
Add a disk extent:
Add disk tracks         ==>           (1 to 99999)
Add disk cylinders      ==>           (1 to 99999)
Percent of data set free ==>        (1 to 999)
Other parameters:
Expiration date         ==>           (Julian -- yyyyddd)
Secondary space type    ==>           (BLK/CYL/TRK)
Secondary amount        ==>           (0 to 99999 in space type units)0

```

Use the Percent free blocks operand to adjust the number of free directory blocks in a data set based on the number of directory blocks in use. For example, if a data set with 100 directory blocks is using 90 directory blocks, Percent free blocks of 20 adds 8 free directory blocks to the data set (to get a total of 18 free blocks).

Similarly for the Percent of data set free under the Add and the Release headers, space is calculated based on the number of tracks in use. The Add operand only adds space to a data set. The Release operand only releases space for a data set.



NOTE The number of directory blocks allocated and the number of directory blocks in use displays on this panel. The number of disk tracks used and allocated also displays. In the following example, 30 free directory blocks are to be added to the current data set.

After you press **Enter**, StarTool FDM displays information and error messages relating to the proposed action, displays the current allocation with the DSNNAME subcommand and prompts to determine if you want to continue.

```

FUNCTIONS CONTROL DSN CMDS MEM CMDS A-M MEM CMDS N-Z DEFAULTS FEATURES
-----
----- ISPMODE Session# 1 Log# 1 -- ROW 560 TO 566 OF 662
COMMAND ==>
- DSN=USER07.LIB.ASM,VOL=SER=STR80X MEM=ZAP* -----
>----->yes

PDS051I $FCB is being moved

PDS200I DISP UNIT RECFM LRECL BLKSIZE ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR 3380 FB 80 13680 1X 630 99 120 TRK 32

***** BOTTOM OF DATA *****

```

After typing yes and pressing **Enter**, StarTool FDM performs the requested action and displays changes to the data set with the DSNNAME subcommand.

Option 11.REST - Recover Deleted Members

Option 11.REST (Restore Deleted Members) recovers deleted or replaced members. For this option, RESTORE adds deleted or replaced members into the MEMLIST table. You can restore the deleted member using a REST line command from the MEMLIST table.

```

----- RESTORE: Add Deleted Source Members for Recovery -----
OPTION  ==>

Partial member name    ==> @@@          (Example: @@@ would produce @@@00001)
Model member          ==>                (member with attributes to use)
Starting TTR address   ==> 0            (0 to FFFFFFF, hexadecimal TTR address)

Find data (for filtering)==>
Translate to upper case ==> YES         (YES or NO)
Search for upper/lower ==> NO          (YES or NO)

The following line commands will be available for deleted source members after
the member list is displayed:
O   - Display available options          L   - List data from the member
=   - Repeat previous line command      LOG  - Log the formatted line
DUP - Duplicate the member              PB   - Browse the member
E   - Edit the member                   REST - Restore this deleted member
F   - Find data in the member           REV  - Review the member
K   - Kill and clear commands          X   - Drop line from MEMLIST table

```

Most of the parameters on the prompt panel should remain at their default values (see below). However, You can reduce the number of members added to the MEMLIST table by specifying a string in Find data (for filtering). Only members containing that string are considered for restore processing. For load members, you can also specify a Module name. This only considers load members that contain a CSECT name matching that name.



NOTE Use the list of line commands at the bottom of the RESTORE panel to investigate and restore the deleted member. Usually, the E (or EDIT) line command is sufficient to investigate a deleted member. Then you can type a REST line command to restore any member.

After you press Enter, StarTool FDM displays the deleted or replaced restore candidates into the current MEMLIST table. If a MEMLIST table is not active, the RESTORE subcommand builds a MEMLIST containing only deleted members.

The original member name of a deleted member is not available after you remove its directory entry. StarTool FDM generates a name based on the Partial member name entered on the RESTORE prompting panel and fills the remainder of the member name with a sequential number.



NOTE The *DELETED marker in the DATA/MSG field and the *DELETE designation in the ID field for deleted members are not actual members. If you rebuild the MEMLIST table or exclude the individual member lines, they are not restored.

In the following example, deleted member @@@00004 is to be examined with edit. The edit line command for deleted source or load members is implemented with an EDIF session. In the EDIF session, only the first 255 characters of any logical record is available for viewing.

An ISPF EDIF session is almost identical to a normal edit session except that data cannot be saved. In addition, if you create or replace data, an EDIF session has no associated

data set name. This means that you cannot create or replace using a member name and that the data set name prefilled on the create or replace panel will not be the current active data set.

In addition, deleted member @@@00006 is to be restored to member name MYMEMB. If a new name is not assigned in the DATA/MSG field, RESTORE uses the generated name for the member. ISPF statistics are recalculated as a part of the restore process. After restoring the member, use the ATTR line command to assign different attributes or statistics to the new member. You can use the REN line command to rename a restored member.

FUNCTIONS	CONTROL A-M	LINE CMDS A-M	DSN CMDS	MEM CMDS A-M	FEATURES				
	CONTROL N-Z	LINE CMDS N-Z		MEM CMDS N-Z	DEFAULTS				
----- Source MEMLIST 1, Session# 2 -----					ROW 1 TO 15 OF 15				
COMMAND ==>					SCROLL ==> CSR				
- DSN=USER09.PDSES.ASM,VOL=SER=STR840 MEM=@@@:@@@ -----									
CMD	NAME	DATA/MSG	VER.MOD	CREATED	LAST MODIFIED	SIZE	INIT	ID	
	@@@00001	*DELETED	01.00	93/12/23	93/12/23	9:43	1169	1169 *DELETE	
	@@@00002	*DELETED	01.00	93/12/23	93/12/23	9:43	83	83 *DELETE	
	@@@00003	*DELETED	01.00	93/12/23	93/12/23	9:43	1145	1145 *DELETE	
e	@@@00004	*DELETED	01.00	93/12/23	93/12/23	9:43	459	459 *DELETE	
	@@@00005	*DELETED	01.00	93/12/23	93/12/23	9:43	460	460 *DELETE	
rest	@@@00006	mymemb	01.00	93/12/23	93/12/23	9:43	181	181 *DELETE	
	@@@00007	*DELETED	01.00	93/12/23	93/12/23	9:43	460	460 *DELETE	
	@@@00008	*DELETED	01.00	93/12/23	93/12/23	9:43	454	454 *DELETE	
	@@@00009	*DELETED	01.00	93/12/23	93/12/23	9:43	1135	1135 *DELETE	
	@DIAIDC		01.99	92/12/10	93/12/20	15:34	2433	784 USER09	
	@DIAIDCT		01.23	91/07/05	93/02/12	8:36	56	63 SER09	
	@DIAIDC3								
	@DIAIDC5		01.00	93/02/02	93/02/02	22:15	404	404 SER09	
	@DIAIGW		01.01	91/04/14	91/04/14	22:07	63	62 SER09	
	@DIAINIT		01.99	89/11/02	93/12/16	15:14	1095	542 USER09	
*****						BOTTOM OF DATA	*****		

Option 12 - Subcommands

Option 12 - Subcommands varies according to the active data set type (Direct, Sequential, Source PDS/PDSE, Load PDS/PDSE or VSAM). Only subcommands supported for the active data set type are listed for this option.

```

----- StarTool Source Data Set Selections -----
OPTION ==> if

- DSN=USER07.LIB.ASM,VOL=SER=STR80X MEM=ZAP*

  B    or BROWSE  - Browse members
  CO   or COMPARE - Compare members
  COMPD or COMPDIR - Compare member directory entries
  COMPR or COMPRESS - Compress data set
  COP  or COPY    - Copy members selectively
  DEL  or DELETE  - Delete members
  E    or EDIT    - Edit members
  FI   or FIND    - Find data in members
  FIX  or FIXPDS  - Modify the data set
  IF   or IF      - Search for members with desired attributes
  LI   or LIST    - List member contents
  ML   or MEMLIST - Build a member list table
** PR  or PRINT   - Print a hardcopy listing
  REN  or RENAME  - Rename members
  REPL or REPLACE - Update member contents
  RES  or RESTORE - Resurrect deleted members
  SUB  or SUBMIT  - Submit members
  U    or USAGE   - Display data set statistics
  V    or VERIFY  - Validate members or the data set
** VP  or VPRINT  - Print on a VTAM printer

** means this uses a syntax assist panel; no entry assist panel is available

```

If you type a subcommand without operands, then Option 12 is selected automatically from the primary panel or from any of the StarTool FDM functions. The Option 12 panel is much shorter for standard level users; however, all subcommands are still available.

The following example shows the subcommands available for source partitioned data sets; the IF subcommand is shown as an example. Entry assist panels are not available for subcommands marked by "*" at this time. This means that syntax assist panels from the O system are used for these subcommands.

Option 12.IF - Search for Attributes

After you press Enter at the **Source Data Set Selections** panel, the entry assist panel for the IF subcommand displays.

For example:

```

----- IF: Search for Source Members -----
OPTION ==>

- DSN=USER07.LIB.PDSE,VOL=SER=SER008 MEM=AA* -----
                                                    More:  +
Member or member group ==> A*                (*, start*, start:end or part/)
Select matching members==> YES              (YES or NO)
                                                    YES selects members that match all the following
                                                    NO selects members that do not match the following
In what date range      ==> SINCE           (SINCE or BEFORE)
Interval by description==>                 (TODAY, YESTERDAY, WEEK, CURRENT, BIWEEK,
                                                    MONTH, QUARTER, HALFYEAR, YEAR or BIYEAR)
Interval by days        ==> 15              (0 to 9999)
Changed between         ==>                 (yy/mm/dd:yy/mm/dd)
Created between         ==>                 (yy/mm/dd:yy/mm/dd)
Member TTR range in hex==> 00:FFFFFF       (lowttr:highttr)
More records than      ==>                 (0 to 99999999)
Less records than      ==>                 (1 to 99999999)
Blocks longer than     ==>                 (1 to 32767)
Null members           ==>                 (YES or NO)
Alias members          ==>                 (YES or NO)
Apparent alias members ==>                 (YES or NO)
Members with aliases   ==>                 (YES or NO)
Orphan members         ==>                 (YES or NO)
Members blocked wrong  ==>                 (YES or NO)
I/O errors             ==>                 (YES or NO)
LRECL errors           ==>                 (YES or NO)
Name errors            ==>                 (YES or NO)
Members being edited   ==>                 (YES or NO)
Members with ISPF stats==>                 (YES or NO)
ISPF USERID beginning ==>                 (Partial TSO USERID)

```

This example requests a MEMLIST of all members in the data set that were modified (checking the ISPF LAST MODIFIED field) in the last 15 days.



NOTE The IF subcommand has many member filtering options. You can also specify many of these options with the MEMLIST subcommand. The member group can be specified as * to use the current member group. This is useful when you need to refine a list of members.

After you press Enter, the results of the IF subcommand display in the following panel. In this case, no members were found because the member group was specified incorrectly. Your only choice at this time is to proceed back to the IF parameter prompt panel above.

```

----- StarTool IF results -----
OPTION ==>

      Number of members searched:      17
      Number of members selected       0      New sublist count

Press ENTER to return to previous screen

Current data set is USER01.LIB.PDSE,VOL=SER=SER001 MEM=AA*

```

After you correct the member group and press **Enter** again, the results of the IF subcommand display in the following panel. Note the counts of members searched and

the sublist count. After examining these counts, you return to the parameter prompt panel for a different search or a refined search with a member group of *. In this case, select option 3 to build a new member list of selected members.

```

----- StarTool IF Results and Additional Selections -----
OPTION ==> 3

      Number of members searched:    3415
      Number of members selected    23      New sublist count

Choose one of the following:
 1 - LOG      - display the results of search in the LOG
 2 - EDITLOG - display the results of search in an EDITLOG
 3 - MEMLIST - build a new member list of members with matching members
 4 - MEMLIST - add to the member list the members with matching members

Notes:
* Current data set is USER07.LIB.PDSE,VOL=SER=SER008 MEM=($PDSHELP
* Press END to back up and try a different search
* Use =12 to transit to a list of subcommands that can be used on
  this new subgroup of members (use '*' for the member group)

```

Press Enter to add the selected members to a new member list. You are then placed in a MEMLIST table as shown below. At this point, you can back up in the panel hierarchy to repeat this search process.

```

----- Source MEMLIST 1, Session# 1 ----- Row 1 to 19 of 23
COMMAND ==>
SCROLL ==> CSR
Enter an ISPF command, a StarTool subcommand or a special control code:
- DSN=USER07.LIB.PDSE,VOL=SER=SER008 MEM=(PDSDESCB -----
CMD  NAME      DATA/MSG VER.MOD  CREATED      LAST  MODIFIED      SIZE  INIT  ID
PDSDESCB      01.10  1995/12/14  1996/01/23  9:28   248   237  USER07
PDSDESCB2     01.21  1995/12/14  1996/01/24  9:36   251   237  USER07
PDSLOI        01.01  1995/11/02  1996/01/30  17:33  117   117  USER07
PDSM00        01.10  1995/09/07  1996/01/27  8:02   99    120  USER07
PDSM034       01.00  1996/01/31  1996/01/31  13:19  67    67   USER09
PDSM04E       01.08  1995/09/14  1996/01/31  12:16  153   158  USER07
PDSPNC3       01.02  1995/10/04  1996/01/30  12:22  359   359  USER07
PDSPNC4       01.09  1995/08/21  1996/01/16  12:18  359   43   USER07
PDSPNC5       01.04  1995/10/04  1996/01/30  12:22  359   358  USER07
PDSPNC6       01.12  1995/08/21  1996/01/30  12:19  371   43   USER07
PDSPNC7       01.13  1995/08/21  1996/01/18  12:30  371   43   USER07
PDSPN17       01.03  1995/08/21  1996/01/30  12:28  43    43   USER07
PDSPN18       01.10  1995/08/21  1996/01/30  12:25  43    43   USER07
PDSPN20       01.04  1995/08/21  1996/01/17  12:26  43    42   USER07
+-----+
| TOTAL=      23 | 01.12  1995/08/21  1996/01/30  12:27  55    43   USER07
| ADDS =      23 | 01.09  1995/09/07  1996/01/18  8:02   99    120  USER07
+-----+
| PDSSETC     01.02  1995/09/14  1996/01/30  16:42  189   190  USER07

```

Option 15 - Global Commands

Option 15 - Global commands controls global commands for DDNAME/LISTA, LIST/LISTF, LISTV and WORKPAD. You can create or extend the tables and initiate global processing.

Option 15 selections vary according to which StarTool FDM tables are active. If the corresponding table is not active, its menu entry is marked with NA.

The following sequence demonstrates how to activate a DDNAME table and perform a global search.

```
----- StarTool Global Selections -----
OPTION ==> 6

Note: Global processing is supported for LISTA, LISTC/F, WORKPAD, and LISTV.

NA - Global processing for LISTA (list of data sets is Inactive )
NA - Global processing for LISTC/F (list of data sets is Inactive )
NA - Global processing for WORKPAD (list of data sets is Inactive )
NA - Global processing for LISTV (list of online volumes is Inactive )
    An inactive list can be activated by selecting one of the following:
5 - Create a LISTA table containing all allocated data sets
6 - Create a new LISTA table for a given DDNAME or group of DDNAMEs
7 - Create or extend a LISTC/F table from the catalog
8 - Create or extend a LISTC/F table from volume table of contents
9 - Create or extend a LISTV table
10 - Jump to 3.4 (prompt panel for LISTC/F and LISTV creation)
11 - IMPACT reconcile load library members with related source libraries
12 - IMPACTXR Retrieve IMPACT batch mode WORKPAD results
```

```
----- DDNAME Command Selection -----
OPTION ==>

Enter operand for DDNAME:
==> SYSPROC

Required:
'mask' - DDNAME mask

Note: the mask can use : for DDNAME ranges, / for patterns, * for wildcards
and ? or % for a variable character.

Example: DDNAME ISP*
```

```
----- List Allocations ----- Row 1 to 5 of 5
COMMAND ==> 15 SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=: -----
-
CMD DDNAME DATA/MSG I/O's 0# VOLUME MEMBER ----- DATA SET NAME -----
SYSPROC 14 0 0S39R2 SYS1.SISPCLIB
# 2 1 0 SCPMV5 SYS1.CLIST
# 3 1 0 SER002 USER07.LIB.CLIST
# 4 0 0 0S39R2 SYS1.DGTCLIB
# 5 0 0 0S39R2 SYS1.HRFCLST
***** Bottom of data *****
```

```

----- StarTool Global Selections -----
OPTION ==> 1

Note: Global processing is supported for LISTA, LISTC/F, WORKPAD, and LISTV.

  1 - Global processing for LISTA (list of data sets is Active )
  NA - Global processing for LISTC/F (list of data sets is Inactive )
  NA - Global processing for WORKPAD (list of data sets is Inactive )
  NA - Global processing for LISTV (list of online volumes is Inactive )
      An inactive list can be activated by selecting one of the following:
  5 - Create a LISTA table containing all allocated data sets
  6 - Create a new LISTA table for a given DDNAME or group of DDNAMEs
  7 - Create or extend a LISTC/F table from the catalog
  8 - Create or extend a LISTC/F table from volume table of contents
  9 - Create or extend a LISTV table
 10 - Jump to 3.4 (prompt panel for LISTC/F and LISTV creation)

Note: Any Pending function has not completed line command processing and
      its table can not be extended or processed with global commands.

```

```

----- GLOBAL Commands -----
OPTION ==>

Type of data sets to process ==> 2 (1 to 10 as listed below)
  1 All data sets in the list          6 Load PDS and PDSE data sets only
  2 PDS and PDSE data sets only       7 Sequential/direct data sets only
  3 PDSE data sets only               8 Non-VSAM data sets only
  4 PDS data sets only (no PDSE's)    9 VSAM clusters only
  5 Source PDS and PDSE data sets only 10 Only data sets marked with *TAG*

Entry assist global prompting ==> FIND (NONE, COMPRESS, COMPDIR, COPY,
                                         CREATE, FIND, FIXPDS, HISTORY,
                                         IF, MAP, MODEL, REPLACE, USAGE,
                                         VERIFY, XREF)

GLOBAL command and operands (if NONE is specified above):
==>

Notes: The subcommand will bypass terminal and Jes files in this LISTA table
      or JES files in this LISTA table.

```

```

----- Global FIND: Search Data Set Members -----
OPTION ==>

Member or member group ==> :          (*, start*, start:end or part/)
Find string             ==>           (may be 'quoted')
Format for listing      ==> NUM       (NUM, SNUM, NONUM, LBLOCK, LDUMP, BLOCK, DUMP)
Find conditions         ==>           (WORD, PREFIX or SUFFIX)
List all data after find ==> NO       (YES or NO)
Display then take action ==> NO       (YES or NO)
Maximum members to find ==>           (1 to 99999999)
Maximum records input   ==>           (1 to 99999999; for each member)
Maximum records output  ==>           (1 to 99999999; for each member)
Maximum strings to find ==>           (1 to 99999999; for each member)

```

```

----- List Allocations ----- Row 1 to 5 of 5
COMMAND ==>                               +----- Search Data Set Results -----+
- DSN=USER07.LIB.CLIST,VO |
CMD DDNAME DATA/MSG I/ | OPTION => end |
  SYSPROC *NOMATCH |
    # 2 *NOMATCH | Number of data sets searched: 5 |
    # 3 *FIND* | Number of data sets with matches: 1 |
    # 4 *NOMATCH | Total number of members: 4 |
    # 5 *NOMATCH |
***** | Press ENTER to view the log |
| Press END to display data set table |
| Press RCHANGE (PF6/18) to remove Data |
| Sets bypassed or with no matches |
+-----+

```

```

----- List Allocations ----- Row 1 to 5 of 5
COMMAND ==>                               SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=: -----
CMD DDNAME DATA/MSG I/O's O# VOLUME MEMBER ----- DATA SET NAME -----
  SYSPROC *NOMATCH 14 0 0S39R2 SYS1.SISPCLIB
    # 2 *NOMATCH 1 0 SCPMV5 SYS1.CLIST
ml* # 3 *FIND* 1 0 SER002 USER07.LIB.CLIST
    # 4 *NOMATCH 0 0 0S39R2 SYS1.DGTCLIB
    # 5 *NOMATCH 0 0 0S39R2 SYS1.HRFCLST
*****Bottom of data *****

```

```

----- Source MEMLIST 1, Session# 4 ----- Row 1 to 4 of 4
COMMAND ==>                               SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=(
CMD NAME DATA/MSG VER.MOD CREATED LAST MODIFIED SIZE INIT ID
  UPDATE 01.06 1993/08/04 1996/08/22 9:45 12 8 USER07
***** Bottom of data *****

```

Option 16 - Comparex

Option 16 invokes COMPAREX, a separately licensed file comparison utility from Serena.

```

----- COMPAREX/ISPF Primary Menu -----
Option ==>

  0 - SHORT CUT - Single screen for options and dataset names (recommended)
  1 - OPTIONS   - Specify compare options for this session
  2 - DS NAMES  - Specify dataset names to be compared
  3 - SAVE     - Save options profile for future sessions
  4 - LOAD     - Select/Delete options profile from prior session(s)
  5 - CLEAR    - Clear previously loaded profile
  6 - FOREGROUND - Invoke COMPAREX in the foreground and wait
  7 - BACKGROUND - Invoke COMPAREX as a submitted batch job
  8 - BACKGROUND - Similar to above but edit job (and optionally SUBMIT)
  9 - PARSE    - Parse Copylib for keyword assistance
  M - M+R     - Invoke Merge+Reconcile Version 4.1.0
  X - EXIT    - Exit

Press HELP KEY for tutorial assistance at any point;
Enter END Command to terminate COMPAREX/ISPF 8.3.0 (2000/004).

```

For Options 0 and 2 from the COMPAREX/ISPF Primary Menu, the system displays the current StarTool FDM data set on the panels.

For more information on using COMPAREX, see the *Comparex User's Guide*.

Option 17 - CBSelect

Option 17 - CBSelect allows you to copy selected records, using copybook variables. This feature applies to single copybooks only; it is not available for Extended Copybook definitions.

The first panel Copybook Options for StarTool. Type `COPYBOOK` in the Copybook source field. Under Copybook options, type the data set and member name for the copybook you are using in the selection process. Change the other fields if necessary and press Enter.

```

----- Copybook Options for StarTool -----
COMMAND ==>

Primary command: MAP to view the copybook member before exiting this panel.
                  IMPORT or EXPORT to retrieve or save a copybook object.

Copybook source  ==> COPYBOOK  (COPYBOOK, EXTENDED, or TABLE)
                                                         More:  +
Copybook options:
Data set         ==> PDSDEMO.CNTL
Member name      ==> CBDEMO    (name of member if not included in dsname)
Data set type    ==> MVS       (MVS, Panvalet or Librarian)
Language type    ==> EITHER    (COBOL, PLI, EITHER, or ASM)
Starting name    ==>
Starting column  ==> 1         (1 to 32760 if first variable is offset)

Extended copybook options:
Extended copybook ==>          (Temp, Create, Mod, Use, or Import)
Copybook save name ==>        (3 to 6 character name)
Source library   ==>          (Profile, Group, Sample, or Other)
Other DSNAME     ==>

Table library options:
WARP table name  ==>          (3 to 6 character name)
Source library   ==> Profile  (Profile, Group, Sample or Other)
Other DSNAME     ==>

```

On the **Copybook for StarTool** panel, select the fields to filter.

```

----- Copybook for StarTool ----- Row 1 to 17 of 26
COMMAND ==>                               SCROLL ==> PAGE

Primary commands: S to Save table, B to Build JCL, O To Run Online
Line commands: S to Select records, W to Warp dates, MENU for command list

CMD  MSG      NAME                                PICTURE COLUMN TYP  LENGTH
----
01  TESTBOOK      80      1          80
02  MYFILE-SKIP    X(1)  1          CHR   1
02  MYFILE-IDENTIFIER X(14) 2          CHR  14
02  MYFILE-KEY     9 GRP 16          9
S   05  MYFILE-KEY-FIRST2 X(2) 16          CHR   2
05  MYFILE-KEY-REST X(7) 18          CHR   7
02  MYFILE-PLACE-OF-BUSINESS X(19) 25          CHR  19
02  MYFILE-DATE-OF-LAST-CHANGE X(8) 44          CHR   8
02  MYFILE-FIRST-BINARY 4 BIN 52          BIN   4
02  FILLER        X 56          CHR   1
02  MYFILE-MISSION-KEYS 4 GRP 57          4
05  MYFILE-KEY-ONE X(1) 57          CHR   1
05  MYFILE-KEY-TWO X(1) 58          CHR   1
05  MYFILE-KEY-THREE-FOUR X(1) 59          CHR   1
05  MYFILE-KEY-THREE-FOUR #2 60          CHR   1
02  FILLER        XX 61          CHR   2
02  MYFILE-GROUP   9 GRP 63          9

```

Press ENTER. The **IF, OR or AND Options** panel displays.

```

----- Select: IF, OR or AND Options -----
OPTION ==>

Copybook LEVEL and NAME                                PICTURE  COLUMN  TYP  LENGTH
05  MYFILE-KEY-FIRST2 X(2) 16      CHR   2

Type of selection ==> IF (IF, OR or AND)
Operator for compare ==> EQ (EQ, NE, GT, LT, GE, LE, AO, AZ, NO, or MX)
Compare data ==> c'90'

Notes:
For additional specific information on any of the above fields, place the
cursor in the field and press HELP for a detailed pop-up tutorial.

Type of Selection: This field specifies the type of StarBat keyword that is
to be generated to select records for warping.

Operator for Compare: This field specifies the type of comparison desired to
select records for warping.

Compare Data: This field specifies the data values to compare against record
values to select records for warping.

Because multiple strings are allowed, the following example would be valid:
C'This is one type',C"Another type",P"-1234",X'C1C2C3'

```

Type the selection criteria for the copybook field, then press Enter to return to the **Copybook for StarTool** panel.

- 13** The message in the upper right corner, *Control card stored*, confirms the selection. To select additional fields before copying, repeat steps 2 and 3. Then, issue one of the following primary commands:

- S to save the selection criteria
- B to build JCL to copy the records in batch
- O to copy the records online

B is illustrated in this example.

```

----- Copybook for StarTool ----- Control card stored
COMMAND ==> B                               SCROLL ==> PAGE

Primary commands: S to Save table, B to Build JCL, O To Run Online
Line commands: S to Select records, W to Warp dates, MENU for command list

CMD  MSG      NAME                                PICTURE COLUMN TYP LENGTH
----
01 TESTBOOK                                80    1          80
02 MYFILE-SKIP                              X(1)  1          CHR    1
02 MYFILE-IDENTIFIER                        X(14) 2          CHR   14
02 MYFILE-KEY                                9  GRP 16          9
*SELECT* 05 MYFILE-KEY-FIRST2                 X(2) 16          CHR    2
05 MYFILE-KEY-REST                           X(7) 18          CHR    7
02 MYFILE-PLACE-OF-BUSINESS                  X(19) 25         CHR   19
02 MYFILE-DATE-OF-LAST-CHANGE                X(8) 44          CHR    8
02 MYFILE-FIRST-BINARY                       4  BIN 52          BIN    4
02 FILLER                                    X    56          CHR    1
02 MYFILE-MISSION-KEYS                       4  GRP 57          4
05 MYFILE-KEY-ONE                            X(1) 57          CHR    1
05 MYFILE-KEY-TWO                            X(1) 58          CHR    1
05 MYFILE-KEY-THREE-FOUR                     X(1) 59          CHR    1
05 MYFILE-KEY-THREE-FOUR                      #2 60          CHR    1
02 FILLER                                    XX   61          CHR    2
02 MYFILE-GROUP                              9  GRP 63          9

```

14 On the CBSelect Data Set Prompt panel:

- Type the name of the input data set.
- Type the name of the output data set.
- If the output data set is not already allocated, type YES in Model the input to create an output data set similar to the input data set.
- Type COPYSOME in the Copy type operation field.
- Complete the JOB information.
- Fill in any optional fields.
- Press Enter.



NOTE COPYSOME is required when copying selected records.

```

----- CBSlect Data Set Prompt -----
COMMAND ==>

Input data set      ==> PDSDEMO.CNTL(DEMOVSAM)
Output data set     ==> TEMP
Model the input     ==> NO           (Yes or No to Model the input data set)
Copy type operation ==> COPYSOME   (COPYREC/COPYSOME/COPYALL/UPDATEREC/
                                   UPDATEALL) COPYSOME is for selective copy
Maximum date errors ==> 100       (1 to 9999999, for invalid date messages)
Record Desc Word    ==> 3         (RDW, default 3)

JOB and JOBLIB statements for the batch job:
==> //COPYRECS JOB (9999,MVS),MSGCLASS=X,NOTIFY=USER99,CLASS=A
==>
==>
==>

Optional Data Sampling:
Maximum input records ==>         (1 to 99999999)
Maximum output records ==>        (1 to 99999999)
Select every Nth      ==>         (1 to 99999999)

Optional Warp Default parameters:
Type of action        ==>         (ADD or SUB)
Date adjustment       ==>         (number and code like 90D)
Corrective action     ==>         (action to take, like FLAG)
Date validation       ==>         (validation check, like WKEND)
Ignore codes          ==>         (special date codes from BLHZ9PI)
Base year             ==>         (1500 to 9800 base for two digit years)
Pivot year            ==> 70      (0 to 99 for windowing two digit years)
Fiscal month number  ==>         (1 to 12; 1 is January, 2 is February,...)
Holiday exit name     ==>         (routine name for holiday date checking)
Exit library dsname  ==>

In background mode, a commented STEPLIB will be created. Note that you can
also include the library as a JOBLIB in the JOB statements above.

```

- 15** The following screen shows the generated JCL. Note the commented STEPLIB on line 4. Uncomment this line and type the name of your StarTool FDM load library.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help

EDIT      USER01.SPFTMP1.CNTL                      Columns 00001 00072
Command ==>                                       Scroll ==> PAGE
***** ***** Top of Data *****
000001 //COPYRECS JOB (9999,MVS),MSGCLASS=X,NOTIFY=USER99,CLASS=A
000002 /* USING SKELETON PDS$WBAT
000003 //PTJ16551 EXEC PGM=STARBAT,DYNAMNBR=10,REGION=5M
000004 /*STEPLIB DD DISP=SHR,DSN=SYS1.STARTOOL.LOAD
000005 //DD01 DD DISP=SHR,DSN=USER298.PDSDEMO.CNTL(DEMOVSAM)
000006 //DD010 DD DISP=SHR,DSN=USER298.TEMP
000007 //SYSPRINT DD SYSOUT=*
000008 //SYSLIST DD SYSOUT=*
000009 //SYSIN DD *
000010 DD01 COPYSOME RDW=3,MAXDATERR=100,
000011 WARPDEF=(PIVOTYR=70),
000012 IF=(16,EQ,C'90'), * MYFILE-KEY-FIRST2
000013 ABEND=1
000014 /*
***** ***** Bottom of Data *****

```

Type SUB on the command line and press Enter to submit the job. The following screen displays the results of the copy job.

```
DD01 COPYSOME RDW=3,MAXDATERR=100,
WARPDEF=(PIVOTYR=70),
IF=(16,EQ,c'90'),          * MYFILE-KEY-FIRST2
  ABEND=1
*** End of control statement

PDS220I //DD01      DD DSN=USER298.PDSDEMO.CNTL,DISP=SHR,UNIT=3390,
PDS220I //
      DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040,OPTCD=C,DSORG=PX),VOL=SER=SMS010
PDS220I //  STORCLAS=COMMON,MGMTCLAS=STANDEF,
PDS220I //  SPACE=(TRK,(24,8))          /*FREE TRK=0*/

STRB01I BSAM input is in use
STRB05I DDNAME=DD010 DSN=USER298.TEMP opened for QSAM output
STRB05I DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040),VOL=SER=SMS012

*** End of input data set
PDS051I Data set was copied; input=63; output=4
```

Option 18 - CBSelect

Option 18 is the same as Option 17, except that it allows you to use a saved copybook selection table.

- 1 At the **CBSELECT Table Prompt** panel, identify the saved copybook selection table.

```
----- CBSELECT Table Prompt -----
OPTION  ==>

Enter operands for CBSELECT:
CBSelect table name  ==>          (3 to 6 character name)
Reset current table ==> NO       (YES to reset and replace any CBSelect
table)
Source library      ==> PROFILE (Profile, Group, Sample or Other)
Other DSNAME       ==>
```

- Type the member name in the CBSELECT table name field.
- In the Source library field:
 - Type PROFILE if the table is saved in your ISPF profile data set.
 - Type OTHER if the table is saved in a PDS.

If OTHER was specified in the Source library field, type a PDS name in the Other DSNAME field.

- 2 Press Enter. The Copybook for StarTool panel appears. You can select additional fields to add to the saved copybook table. When you are satisfied with the selection criteria, issue one of the following primary commands:
 - S to save the selection criteria
 - B to build JCL to copy the records in batch
 - O to copy the records online

O, to copy the records online, is shown below.

```

----- Copybook for StarTool ----- Row 1 to 17 of 26
COMMAND ==> 0                               SCROLL ==> PAGE

Primary commands: S to Save table, B to Build JCL, O To Run Online
Line commands: S to Select records, W to Warp dates, MENU for command list

CMD  MSG      NAME                                PICTURE COLUMN TYP LENGTH
----
01  TESTBOOK                                80      1      80
02  MYFILE-SKIP                             X(1) 1      CHR    1
02  MYFILE-IDENTIFIER                       X(14) 2      CHR   14
02  MYFILE-KEY                               9 GRP 16      9
05  MYFILE-KEY-FIRST2                       X(2) 16     CHR    2
05  MYFILE-KEY-REST                         X(7) 18     CHR    7
02  MYFILE-PLACE-OF-BUSINESS                X(19) 25     CHR   19
02  MYFILE-DATE-OF-LAST-CHANGE              X(8) 44     CHR    8
02  MYFILE-FIRST-BINARY                     4 BIN 52     BIN    4
02  FILLER                                  X 56     CHR    1
02  MYFILE-MISSION-KEYS                     4 GRP 57      4
05  MYFILE-KEY-ONE                          X(1) 57     CHR    1
05  MYFILE-KEY-TWO                          X(1) 58     CHR    1
05  MYFILE-KEY-THREE-FOUR                   X(1) 59     CHR    1
05  MYFILE-KEY-THREE-FOUR                   #2 60     CHR    1
02  FILLER                                  XX 61     CHR    2
02  MYFILE-GROUP                            9 GRP 63      9

```

3 The CBSelect Data Set Prompt panel displays.

```

----- CBSelect Data Set Prompt -----
COMMAND ==>

Input data set      ==> PDSDEMO.CNTL(DEMOVSAM)
Output data set    ==> TEMPVSAM
Model the input     ==> NO           (Yes or No to Model the input data set)
Copy type operation ==> COPY SOME (COPYREC/COPY SOME/COPYALL/UPDATEREC/
                                UPDATEALL) COPY SOME is for selective copy
Maximum date errors ==> 100        (1 to 9999999, for invalid date messages)
Record Desc Word   ==> 3           (RDW, default 3)
Prompt before Run  ==> NO           (YES to Edit Control cards, No to Run Now)

Optional Data Sampling:
Maximum input records ==>          (1 to 99999999)
Maximum output records ==>         (1 to 99999999)
Select every Nth     ==>           (1 to 99999999)

Optional CBSelect Default parameters:
Type of action       ==>           (ADD or SUB)
Date adjustment      ==>           (number and code like 90D)
Corrective action    ==>           (action to take, like FLAG)
Date validation      ==>           (validation check, like WKEND)
Ignore codes         ==>           (special date codes from BLHZ9PI)
Base year            ==>           (1500 to 9800 base for two digit years)
Pivot year           ==>           (0 to 99 for windowing two digit years)
Fiscal month number ==>           (1 to 12; 1 is January, 2 is February,...)
Holiday exit name    ==>           (routine name for holiday date checking)
Exit library dsname ==>

In foreground mode, ISPLLIB LIBDEF will be used to allocate the exit
library.

```

- Type the name of the input data set.

- Type the name of the output data set.
- If the output data set is not already allocated, type YES in Model the input to create an output data set similar to the input data set.
- Type COPYSOME in the Copy type operation field.



NOTE COPYSOME is required when copying selected records.

- 4 Press Enter to copy the selected records.

CDDDD

Chapter 3

Dialog Processing

StarTool FDM is a TSO command processor that does not always have access to ISPF dialog services. StarTool FDM is invoked from the following environments:

- From the StarTool FDM primary panel - StarTool FDM starts as a full ISPF dialog; it locates or creates any required command processor control blocks.
- From ISPF - Start StarTool FDM from ISPF option 6, as a line command from ISPF option 3.4, or with the ISPF TSO command without restrictions.
- From READY mode - When you type the first subcommand that uses ISPF services, StarTool FDM calls an ISPF interface that invokes itself recursively as a full ISPF dialog.
- From another TSO command - If an ISPF environment was established by ISPF before calling the other command, there are no restrictions on the use of ISPF services by StarTool FDM as a called command. If, however, the ISPF environment was established by the other command processor itself, ISPF services cannot be used by called commands. If no ISPF services were used before starting StarTool FDM, this is equivalent to From READY mode above.
- In the background - If you execute StarTool FDM under IKJEFT01 (the TMP) in a batch job, ISPF services are available but StarTool FDM cannot perform panel prompting and line commands are not supported except by the APPLY command.

The BROWSE, EDIT, ISPF, ISPMODE, ISPXEQ, MEMLIST, OUTCOPY and CONTROL (with DSN or SYSOUT operands) subcommands can trigger the recursive StarTool FDM dialog invocation. The OUTCOPY and CONTROL subcommands do not require ISPF services; however, since they open a DCB for extended periods of time, an ISPF environment is established so that ISPF services can be used later.

In ISPMODE, several processing functions are available for use independently or together to give maximum productivity. . As a part of this productivity enhancement, these functions have a common look and feel. This is evident in the HELP panels, the CUA panels, the OPTIONS feature, the Menu system, the user command panels and the common features to manipulate StarTool FDM displays. CUA panels are documented later in this section; the following paragraphs explain several of the common features.

Most functions provide more than one display to provide more than one mix of information or one style of display. You select these displays in sequence using the LEFT and RIGHT commands or their related PF keys.

All functions but CALC, HEX, STATUS, PBROWSE and LOG allow for line commands. When line commands are allowed, the functions provide a command field and a data/message field. The command field is four characters long for a selection of commands as well as related block commands. Use the data/message field to enter operands allowed by some line commands. It is also used as a feedback area. The PEDIT edit processor does not provide a data/message field.

For any of the table or log panels, the command input field is 48 characters wide on an 80-character screen. If a command exceeds this input field, type the first 47 (or less)

characters followed by a + to indicate more data is required. A continuation panel with more room for operand entry displays.

In StarTool FDM each function is available concurrently in parallel mode. This means that as you create functions (logs, MEMLIST tables, LISTA tables, LISTC/LISTF tables, and so forth) you can move from one to another without losing the current function. When you select a function, StarTool FDM places you back in it in an intelligent fashion. For example in the log, you are placed at the top of the log for the last command; however, if you had previously repositioned the log and you select it again with no log output additions, you are placed at the same point again. Similarly, with the table panels, you are normally positioned where you left the table unless one or more line commands has acted on the table; in that case, positioning would be for the last selected item.

O Command

The O (for OPTION) command provides another way to select command operand prompt panels (syntax assist panels). This feature guides you to a desired subcommand or feature through the use of menu panels. When you reach the subcommand level of the panel, the panel serves as a prompting panel in that the syntax of the subcommand displays on the panel. For more specific assistance, press the HELP key to obtain the ISPF tutorial panels for that subcommand.

Use the O command on the command line to provide command selection and syntax assistance for primary commands. You can also use the O command as a line command for line command selection and syntax assistance. If you know which command you want assistance for, enter a chained command such as O.FIND to go to it directly.

If you enter a command with invalid syntax, StarTool FDM supplies syntax error assist panels that contain the data as you entered it and the syntax of the command on the remainder of the panel. For more information, use the HELP key to obtain the ISPF tutorial panels for a given command or function.

There are two types of function displays: sorted tables like those provided with MEMLIST or LISTC/LISTF and entry ordered tables like the log or the LISTA table. The sorted tables can be sorted by a given data key or with default keys. By sorting on specific keys, however, you can often locate information of interest easier. For example, in a MEMLIST source table, if you sort by date modified, the most recently modified members appear at the top of the table. If you position the table to the end of the members and type a table trim command (like X BELOW), you can customize the contents of the table.

F Command

Every function has an F (FIND) command to locate character strings within the function tables. Normally, only the first occurrence on a line is reported; however, in the log, each occurrence is reported since cursor positioning is supported. The F or RFIND command positions to the next occurrence.

The find string is positional (it must be entered just after the F keyword). It is entered as a simple string delimited by blanks; however, it can also be delimited with quotes. The following examples show several valid commands:

```
F 'This is the first string' first
F "this is the second string" last
F mydata dsname
```

Normally, the ANY keyword defaults with a find command, which means that all data columns are searched. To search only a specific column of data, type the name of that data column. Another way to direct the find search is with keywords such as NEXT, FIRST, LAST, PREFIX, SUFFIX and WORD. These keywords have the normal ISPF-implied meanings. If you are dealing with a lot of information, the find facility can locate any information.

Enter an invalid F command (for example, F XX XX) to force a prompt panel showing supported F keywords for a function.

EXCLUDE Facility

EXCLUDE facilities are available for all function tables. From a log or MEMLIST table, use the EXCLUDE subcommand to trim members from the MEMLIST table. The EXCLUDE subcommand supports the same attribute filtering operands that are available on a MEMLIST subcommand.

From other tables, use the EXCLUDE command to trim all table elements that match a search string (or do not match a search string with the NOT keyword). The EXCLUDE command supports the same operands as available on the F command with the exception of the directional keywords (NEXT, FIRST and LAST) because EXCLUDE always processes an entire table.

Type EXCLUDE with no operand to go to an EXCLUDE prompting panel.

EDITLOG Command

Use the EDITLOG command to examine the output from the last subcommand in an edit session. You can enter all edit subcommands but SAVE is disabled. You can use edit CREATE or REPLACE commands to place selected log lines into a data set but you cannot update data in the log. For certain types of StarTool FDM output, EDITLOG is a very effective way to process the data. Before EDITLOG was available, StarTool FDM users could get a similar effect by using the OUTPUT command to save the output from the last subcommand in a data set, CHANGE to the output data set and EDIT the data. One minor difference with EDITLOG, however, is that the edit session supports a line width of 159 characters (instead of 80 characters), if necessary.

Automatic Editlog

If your SETALL value for Automatic editlog is set to YES, line commands such as DIR, LIST or VER which output their results to the log also present the same output to you in an edit session. You can use any edit commands in this edit session; however, edit SAVE is not supported. This facility does not operate in situations where a panel prompt is necessary for a command.

As long as you are operating in an edit session, you cannot enter a mode switch command to go to a parallel StarTool FDM function. When you terminate the edit session (with a CANCEL or END command), control returns to the function to start processing the next line command or just display the function table.

EDITTBL Command

Use the EDITTBL command to examine the contents of the current table in an edit session. You can enter all edit subcommands but SAVE is disabled. You can use edit CREATE or REPLACE commands to place selected table lines into a data set but you cannot update data in a table. EDITTBL is also supported in the log (the entire log is provided in the edit session); each line in an EDITTBL session always has a width of 80 characters.

SORT Command

You can use the SORT command in functions with sorted tables: CAX, CSECTS, LISTC/LISTF, LISTV, MEMLIST and NUCMAP. SORT with no operands sorts the table in default order, while SORT with a field name sorts the table in that order. You can enter an invalid sort command such as SORT xx to force a prompt showing the valid sort fields for a function.

L Command

Use the L (or LOCATE) command in functions with sorted tables. The L command locates data in the current sorted column. A partial string can be supplied to obtain a generic search. Type L with no operand to go to a LOCATE prompting panel.

X Command

Another standardized feature is the X facility. Use the X facility as a line command, in the form XX through XX (a block line command) or as X followed by a number such as X3. With an operand, use X to trim an entire table when it is used as a primary command. The supported operands are ALL, ABOVE and BELOW where the current position in the table is the trim reference point. The X commands allow you to remove data from tables in a simple manner; each of the different function tables have their own commands to add data.

PLIST Facility

Use the PLIST facility to manage your personal list of data sets. PLIST is actually shorthand for invoking StarTool FDM with LISTC table 20; however, PLIST has several

unique characteristics. You can enter PLIST from any ISPF panel; just enter PL, PLI, PLIS or PLIST from the panel's command line. PLIST invokes StarTool FDM with LISTC table 20 (after prompting for a data set mask or data set prefix if the table does not exist).

You can enter any StarTool FDM commands to process your data set list. At the first END command with no pending functions to perform, StarTool FDM terminates. You can continue from where you entered PLIST.

Any additions (with LISTC, LISTF or LOAD commands) or deletions (with X commands, the DEL line command or the X line command) to LISTC table 20 during PLIST processing are saved at StarTool FDM termination.

When the PLIST data set table is retrieved, data sets do not have statistics (such as number of tracks allocated and used, creation and reference dates) unless automatic refresh is enabled in SETLF. You can use the REFRESH command to update these statistics and the RIGHT or LEFT command to see different views of data set attributes.

Use the PLIST facility to refer to your active set of data sets. Usually, this is the data sets saved under your userid.

User Commands

Several user command panels are supplied with StarTool FDM. The user command panel processor allows the StarTool FDM developers, your installation and you to connect external services to StarTool FDM in a very useful way. The user command panel both displays the supplied selections and defines the connection to the external service. The selections become an extension to the normal commands (primary or line commands) because StarTool FDM searches the user command tables for commands added there after searching its internal tables.

Select a user command panel through the O command, a CUA pull-down choice, or directly by using UT as a line command, or a primary command from any of the functions. For example, the following panel describes several user line commands (HDEL, HMIG, HML2 and HREC). It is the panel reached by an UT line command in LISTC/LISTF.

```
----- ut for LC   user line commands -----
OPTION  ==>

Choose one of the following:
  HDEL - HDEL command for data set 'SER07.SMSTEST.DATA9040'
  HMIG - HMIG command for data set 'SER07.SMSTEST.DATA9040'
  HML2 - HMIG to LEV2 for data set 'SER07.SMSTEST.DATA9040'
  HREC - HRECALL command for data set 'SER07.SMSTEST.DATA9040'

Dynamic Commands--note:  < = TS0003,
                        / = 'SER07.SMSTEST.DATA9040'
DSN3 - CMD(DSAT / VOL(<))  /* THIS IS A COMMENT
LCLC - TRP(LISTC ENT(/) ALL) /* THIS IS A COMMENT
ST__ - TRP(STARTOOL / USAGE) /* PROVIDE USAGE STATISTICS
```

Dynamic Commands

You can program your own line commands and primary commands dynamically and StarTool FDM retains them across sessions. The SETUSER command provides an entry panel for added primary commands and actions with several predefined substitution characters for variable data such as the current data set name in quotes.

To program your own dynamic line commands, type UT as a line command from any of the function tables. The last part of the user line command panels allow you to specify dynamic line commands and their corresponding actions using predefined substitution characters for variable data. The dynamic commands that you enter can then be used as line commands from that function. For example, the above LISTC user line command panel defines three dynamic line commands (DSN3, LCLC and ST) for which / is replaced by the data set name in quotes and < is replaced by the volume name.

Dynamic primary command names can be up to eight characters long while line command names can be up to four characters long. The related action uses a TSO command interface, a STARTOOL TRAP to log interface, a dialog program interface, a panel dialog interface, or it can be a StarTool FDM subcommand. Each of the action items are followed by a /* and any comments you want. See the sample SETUSER panel below.

```

----- SETUSER Dynamic User Commands -----
OPTION ==>

Choose one of the following or add an entry:
Dynamic Commands--note: < = SER006,
                        / = 'SER07.LIB.CNTL'

QW_____ - cmd(%qw prm(!))
LISTD___ - trp(listd / history)
IPCS2___ - pgm(bls) parm(panel(blspprim)) newappl(bls) /* invoke IPCS
COMMAND_ - xpanel(ispucma) newappl(isr) /* display a command table
MYDATA__ - listc 21 /* all data sets beginning with my userid
BASIC___ - workpad 15 /* my main workpad
CNTL____ - go lib.cntl
SETUP___ - workpad 5 setup /* initialize a startool session
More: +

```

The related actions can be any of the following:

CMD(...)	TSO command/CLIST interface; NEWAPPL(xyz) can be coded.
TRP(...)	Trap to log interface for any TSO command with PUTLINE output.
PGM(...)	ISPF dialog program interface; NEWAPPL(xyz) can be coded.
XPANEL(...)	ISPF panel interface; NEWAPPL(xyz) can be coded.
anycmd oper1 ...	StarTool FDM command interface.

Dynamic primary commands support operands, which means that these commands can perform any function performed by an ISPF command table entry in a StarTool FDM environment. Dynamic commands, however, are easier to program and modify. To designate a placeholder for operands in one of these dynamic commands, use the ! symbol. For example, if you type qw abc def ghi and the following SETUSER entries are in effect, CLIST QW is given control as though TSO %QW PRM(ABC DEF GHI) was coded.

In addition to QW, the following SETPANEL has names (LISTD, IPCS2, COMMAND, MYDATA, BASIC, CNTL and SETUP) and related actions to define several new primary commands. For the LISTD command, the current data set name in quotes is substituted for /. In addition, after StarTool FDM allocates a data set using the VOL parameter, < may be used to get the volume name substituted.

Global Commands

Global commands process multiple data sets in a LISTA/DDNAME, LISTC/LISTF or WORKPAD table. APPLY and TAG are global line commands that you use in this table as well as other StarTool FDM tables. The GLOBAL command allows any StarTool FDM subcommand to be used as a global command by entering the subcommand and any operands as operands of GLOBAL as in the following example:

```
GLOBAL  FIXPDS  RELEASE
```

Before entering a global command, which normally prompts for continuation (like FIXPDS), you can avoid prompts by first entering:

```
CONTROL  NOPROMPT
```

Be sure to set the CONTROL value back to PROMPT after global processing is complete since this parameter also affects several other subcommands. CONTROL subcommand settings only apply to the current session.

Several subcommands are understood to be global without the use of the GLOBAL command. These include COMPRESS, FIND, MODEL, REPLACE, SEEK and WHOHAS. These implicit global commands prompt before initiating any global activity unless Global prompt is set to NO in SETX.

If you type FIND, REPLACE or SEEK without operands, an appropriate syntax assist panel displays to prompt for command parameters, as shown in the sample below for the FIND global command.

```
----- GLOBAL FIND Subcommand -----
OPTION  ===>
Enter the member group name, the search string and any operands for FIND
===>

Operands:  memgroup  (e.g., *; start:end; start:; first*pat; range*; part/)
           'string'  NUM / SNUM / NONUM / LBLOCK / LDUMP / BLOCK / DUMP
                  CAPS/ASIS/IGNORE  FIRST/NOFIRST  WORD/PREFIX/SUFFIX
                  OFFSET(hex)      MODULE(Partname)
                  MAXIN(num)       MAXLEN(num)       MAXOUT(num)
                  SKIPCOL(num)     SKIPREC(num)     MAXFIND(num)

Defaults:  memgroup, If string is null, previous string;
           NUM or previous FIND/LIST/REPLACE format.

Notes: Operands THEN, ELSE and DISPLAY are valid but not recommended for use.
       All data sets in this LISTC table will be searched except for data
       sets not on the volume (V=N), VOL=SER=MIGRAT or ARCIVE.
       The FIND global command also bypasses non-partitioned data sets.
```

To request a syntax assist panel at any time, you can also type a chained command like O.COMPRESS.

APPLY and TAG are global line commands that you can use in any StarTool FDM table. You can use the APPLY command to apply the same line command to every entry in a table. For example, you could type APPLY UNC in a LISTC/LISTF table to uncatalog all data sets in the table. The TAG command is similar to the APPLY command, but it only applies the entered line command to those entries marked with *TAG*. You can mark individual entries with a TAG line command. For example, you could type TAG CAT to catalog data sets selectively in a LISTC/LISTF table.

In a LISTC/LISTF table, an additional global command called REFRESH is available. Use REFRESH to correct volume names for data sets that have been moved or migrated and to update data set statistics. If the value of Automatic REFRESH in SETLF is YES, a REFRESH command is issued automatically when a saved table is retrieved with the LISTC or LC function name. This is not performed for LISTF or LF regardless of the setting for this variable.

Since the global command is actually applied against each data set in the table, the syntax entered must apply to all data sets. This is a problem for the FIND and REPLACE global commands since the first operand is the member group name for a partitioned data set, but this parameter is not entered for non-partitioned data sets.

To avoid this problem in a LISTC/LISTF table, FIND, REPLACE, SEEK and COMPRESS only process partitioned data sets; non-partitioned data sets are bypassed. If you need to search or update non-partitioned data sets in a LISTC/LISTF table, type GLOBAL followed by the normal FIND or REPLACE command and the appropriate parameters.

In a DDNAME/LISTA or WORKPAD table, partitioned and non-partitioned data sets are all processed by FIND and REPLACE. Before typing a global FIND or REPLACE command, remove either all partitioned or all non-partitioned data sets from the table. If you have mixed data set types, you may encounter syntax errors as you process one or the other data set types. You can correct the syntax error for each data set on the syntax error assist panel or press END to ignore the subcommand for each data set.

After you type a global command, StarTool FDM changes to each data set in the table and performs the command on that data set. Then, StarTool FDM continues, selecting the next data set in express mode (with no pauses except for required prompting). After all data sets are processed, StarTool FDM normally goes to the log so that you can examine the results of the global command. A summary count of error messages displays.

The following examples show how to use the GLOBAL command to perform a global operation from a DDNAME/LISTA, LISTC/LISTF or WORKPAD table with entry assist prompting.

```

----- List Allocations ----- Row 1 to 5 of 5
COMMAND ==> global                               SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002  MEM=: -----
-
CMD  DDNAME  DATA/MSG I/O's 0#  VOLUME  MEMBER  ----- DATA SET NAME -----
  SYSPROC                14 0  0S39R2      SYS1.SISPCLIB
  # 2                    1 0  SCPMV5        SYS1.CLIST
  # 3                    1 0  SER002        USER07.LIB.CLIST
  # 4                    0 0  0S39R2      SYS1.DGTCLIB
  # 5                    0 0  0S39R2      SYS1.HRFCLST
***** Bottom of data *****

```

```

----- GLOBAL Commands -----
OPTION ==>

Type of data sets to process ==> 2      (1 to 10 as listed below)
  1 All data sets in the list          6 Load PDS and PDSE data sets only
  2 PDS and PDSE data sets only       7 Sequential/direct data sets only
  3 PDSE data sets only                8 Non-VSAM data sets only
  4 PDS data sets only (no PDSE's)    9 VSAM clusters only
  5 Source PDS and PDSE data sets only 10 Only data sets marked with *TAG*

Entry assist global prompting ==> FIND (NONE, COMPRESS, COMPDIR, COPY,
                                         CREATE, FIND, FIXPDS, HISTORY,
                                         IF, MAP, MODEL, REPLACE, USAGE,
                                         VERIFY, XREF)

GLOBAL command and operands (if NONE is specified above):
==>

Notes: The subcommand will bypass terminal and Jes files in this LISTA table
       or JES files in this LISTA table.

```

```

----- Global FIND: Search Data Set Members -----
OPTION ==>

Member or member group ==> :           (*, start*, start:end or part/)
Find string             ==>            (may be 'quoted')
Format for listing      ==> NUM        (NUM, SNUM, NONUM, LBLOCK, LDUMP, BLOCK, DUMP)
Find conditions         ==>            (WORD, PREFIX or SUFFIX)
List all data after find ==> NO        (YES or NO)
Display then take action ==> NO        (YES or NO)
Maximum members to find ==>            (1 to 99999999)
Maximum records input  ==>            (1 to 99999999; for each member)
Maximum records output ==>            (1 to 99999999; for each member)
Maximum strings to find ==>            (1 to 99999999; for each member)

```

```

----- List Allocations ----- Row 1 to 5 of 5
COMMAND ==> +----- Search Data Set Results -----+
- DSN=USER07.LIB.CLIST,VO |
CMD DDNAME  DATA/MSG I/ | OPTION => end |
  SYSPROC  *NOMATCH      | | |
  # 2 *NOMATCH          | | |
  # 3 *FIND*            | | |
  # 4 *NOMATCH          | | |
  # 5 *NOMATCH          | | |
***** | Press ENTER to view the log |
        | Press END to display data set table |
        | Press RCHANGE (PF6/18) to remove Data |
        |           Sets bypassed or with no matches |
        +-----+

```

```

----- List Allocations ----- Row 1 to 5 of 5
COMMAND ==>                                SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=: -----
CMD DDNAME DATA/MSG I/O's O# VOLUME MEMBER ----- DATA SET NAME -----
  SYSPROC *NOMATCH 14 0 0539R2 SYS1.SISPCLIB
  # 2 *NOMATCH 1 0 SCPMV5 SYS1.CLIST
ml* # 3 *FIND* 1 0 SER002 USER07.LIB.CLIST
  # 4 *NOMATCH 0 0 0539R2 SYS1.DGTCLIB
  # 5 *NOMATCH 0 0 0539R2 SYS1.HRFCLST
*****Bottom of data *****

```

```

----- Source MEMLIST 1, Session# 4 ----- Row 1 to 4 of 4
COMMAND ==>                                SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=( -----
CMD NAME DATA/MSG VER.MOD CREATED LAST MODIFIED SIZE INIT ID
  UPDATE 01.06 1993/08/04 1996/08/22 9:45 12 8 USER07
***** Bottom of data *****

```

Features and Codes

There are several ISPMODE commands to increase productivity by reducing key strokes, providing additional information and user-friendly interfaces to other services.

Several codes and features are common across all functions and are used as primary commands:

8	view the log table.
EDITLOG	provide the output from the last subcommand in an edit session.
EDITTBL	provide the current table in an edit session.
EXPRESS	execute line commands without pauses between them.
F	find an entry in the table.
M	provide primary command selection and entry assistance.
O	provide primary command selection and syntax assistance.
OUTPUT	output the current table to print or to a data set.
QUIT	terminate StarTool FDM with a single subcommand.
LOG	view the log table or select one of nine logs.
UT	select the user command panel.
X	clear (ABOVE, BELOW or ALL) the table relative to the current position.

Several commands are standardized line commands across the table functions:

+	provide an extension panel for TSO command entry; the command is based on information from the table line.
=	repeat the previous line command.
=nn	repeat the previous line command for nn entries.

K	kill and clear all following line commands.
LOG	copy the table line into the log.
M	provide line command selection and entry assistance.
O	provide line command selection and syntax assistance.
S	select line command (its value varies by function, it is set by the SETSEL command).
UT	select the user line command panel.
X	drop the table line.
Xnn	drop nn table lines.

Block line commands are double letters that delimit a range of table entries for which the same action is to be performed. The following are standardized block line commands:

==	= command, repeat the previous line command for the range of lines.
OO	O command, provide line command assistance for each line.
SS	S command, select each line in the range of table lines.
XX	X command, drop the range of table lines.

Several features invoke a prompt panel for another subcommand to highlight a subcommand and its operands:

RELEASE	prompts for FIXPDS operands that release unused directory blocks and disk space.
EXPAND	prompts for FIXPDS operands that add directory blocks and disk space.
MODEL	provides a preinitialized, overtypable entry assist panel for the CREATE or IDCAMS subcommand.

Several features provide additional information or provide an interface to external services:

?	provides extended help information in the log for up to five warning or error messages received during the last subcommand.
BLKSIZ E	provides information on disk track utilization for optimal blocking on various devices.
CISIZE	provides information on control interval sizes for VSAM data sets on various devices.
TRAP	provides an interface to TSO commands that directs the output to the log.
TRANS	provides a translation service to convert a hex, decimal or EBCDIC character to the other forms. It also performs bit conversions and displays operation codes and descriptions.

Several features work together to allow the application of StarTool FDM subcommands across several data sets:

SETALT	saves a StarTool FDM subcommand for repeated use on several data sets and executes the subcommand on the current data set. This subcommand is also a line command in the DDNAME/LISTA, LISTC/LISTF and WORKPAD functions.
ALTCMD	executes a StarTool FDM subcommand, which was saved for repeated use, on the current data set. This subcommand is also a line command in the DDNAME/LISTA, LISTC/LISTF and WORKPAD functions. Using this as a line command allows repeated execution on a list of data sets.
GLOBAL	executes any StarTool FDM subcommand against all data sets in a DDNAME/LISTA, LISTC/LISTF or WORKPAD table.
APPLY	executes any function line command against all entries in a table.
TAG	executes any function line command against all entries in a table marked with *TAG* by the TAG line command.

Several features help manage your StarTool FDM session:

DROP	allows you to terminate a StarTool FDM session by number.
GO	allows you to initiate (or resume) a StarTool FDM session by number or data set name.
INDEX	allows you to go directly to the StarTool FDM tutorial index panel.
LASTCMD DS	presents the last 32 primary commands entered and allows them to be retrieved by number.
QUIT	terminates StarTool FDM with a single subcommand.
RECALL	R for short. Presents the last command entered in a panel so it can be modified and reentered. RECALL can also retrieve commands from the log.
STATUS	presents the current status of all ISPMODE functions.
SUSPEND	allows you to temporarily suspend ISPMODE and enter line mode processing. You can restart ISPMODE with the same log by typing an ISPMODE, ISPXEQ or MEMLIST subcommand.
UT	as a primary command, goes to a user command panel. Several of these panels also support dynamic primary commands; you can specify command names and actions to take.
UT	as a line command, goes to a user line command panel. You can also specify your own dynamic line commands by specifying command names and corresponding actions to take.

SET Commands

The SET command allows you to set user session options. You can change parameters permanently (updates go to your ISPF profile) or you can change parameters for the

duration of the current session. Use the SET command as an index to these commands or typeenter any of the following names directly:

SETALL	change StarTool FDM combined defaults.
SETDSN	specify data set shortcuts and data set tracking controls.
SETCOLOR	specify screen colors and highlighting.
SETPANEL	specify panel controls.
SETKEYS	control PF keys. For ISPF 4.x users, the KEYS command and SETKEYS give equivalent results.
SETSEEK	specify the default member name for the SEEK line command.
SETSEL	specify alias names for S (or SELECT) by function.
SETUSER	specify dynamic primary commands. You can specify command names and corresponding actions to take.

OUTPUT Command

The OUTPUT command is available for all functions to output the current log or table to SYSOUT or a data set. You can avoid prompting for parameters by typing a parameter such as =x or memname after OUTPUT. If you type =x, output is directed to SYSOUT=X and if you type memname, output is directed to the data set last entered on the prompting panel using the specified member name.

XCOPY Command

The XCOPY (extended copy) command allows you to type a target data set name and optional volume. Then, based on source and target data set attributes, StarTool FDM chooses an appropriate copy utility (usually COPY or DUP).

EXPRESS Feature

Use the EXPRESS command with line commands to eliminate pauses between line commands. The line commands running under EXPRESS do not stop when output is produced for the log or another function; however, any required prompting is still performed. Type EXPRESS on the command line at the same time that line commands are typed on the rest of the display. EXPRESS mode ends with the last line command entered or when StarTool FDM detects an error for a line command.

Common User Access Panels

StarTool FDM offers Common User Access (CUA) compliant panels. With these panels, the top line is an action bar. You select an action bar item by positioning the cursor over an action bar item and pressing Enter.

This presents you with a pull-down menu similar to the sample panel shown below. Select an item from a pull-down menu by positioning the cursor over it and pressing Enter. Help displays on pop-up panels. To get help, position the cursor over an action bar item, a pull-down menu item or a table row item and press HELP. When you are finished with the help item, press END to return the screen as before the HELP request.

Another CUA feature, scrollable panels display for option O primary and line commands. Rather than split these into multiple panels, all choices appear on a single panel, allowing scrolling to be used effectively.

In CUA mode, you can also click on items from the log. To do this, move the cursor over a line in the log and press the RCHANGE PF key. This data displays in a panel that varies as follows.

- If the data line is a command, the entire line displays and you can modify it. You can chose to save the command in the WORKPAD, extract out a data set name or have the command executed again.
- If the line referenced is not a command (or if you extracted out a data set name), the data set name displays and you can modify it. You can append your userid to the data set name, change to the data set, save the data set name in the WORKPAD or just have a command formatted using the data set name.
- If the data referenced is a StarTool FDM message (PDSnnn), it does not appear in a capture panel; instead, reference material on that message displays in the log.

When you are in a CUA panel (any panel with a CUA action bar or a scrollable area), you can program the PF keys with the **STARTOOL** SETKEYS command (or equivalently, the ISPF KEYLIST command); otherwise, the PF keys are controlled by the ISPF KEYS command.

The HOME key positions the cursor over the CUA action bar instead of at the command line. To improve this, use a PF key instead of the HOME key. If you set PF12 or PF24 to CRETRIEV, you can perform this action without losing functionality. CRETRIEV performs a CURSOR function if you are in the body of a panel or a RETRIEVE function if you are at the command line already.

By default, the CUA action bar is not highlighted; however, it is effective if displayed with reverse video. To change this in StarTool FDM, type SETCOLOR; then, type CUA. Then, tab down to the line marked AB unselected choice and set the columns as:

Color as YELLOW
Intensity as HIGH
Highlight as REVERSE.

You can turn off CUA processing with the SETALL command. If you select the power user interface or use a level of ISPF lower than 3.3, StarTool FDM uses power mode user panels that do not contain CUA action bars.

```

FUNCTIONS CONTROL          DSN CMDS  MEM CMDS A-M  MEM CMDS N-Z  DEFAULTS  FEATURES
-----
|  1. CAX                | ----- ISPMODE Session# 1 Log# 1 ----- ROW 14 TO 31 OF 174
|  2. CSECT              |                                         SCROLL ==> CSR
|  3. GO                  | E,VOL=SER=SER002  MEM=@ALIAS -----
|  4. HEX                |
|  5. LISTA              | CT
|  6. LISTC              | RY PDSPATTE, PDSINVAB, PDSDIREN
|  7. LISTFILE           | RY PDSLSTX, PDSREPLA, PDSFIND, PDSDISAS
|  8. LISTV              | RN VTSOCMD
|  9. MASK               | 0
| 10. MEMLIST            | 1
| 11. NUCMAP             | 2
| 12. STATUS             | 3
| 13. WORKPAD            | 4
| 14. LOG                | 5
|-----|-----|-----|-----|-----|-----|-----|
| 000220 R7            | EQU 7

```

ISPMODE Functions

These are the other major ISPMODE functions:

CMDTBL	Display or update an ISPF command table
CSECTS	CSECTS list of a member
GO	Manage multiple StarTool FDM sessions
LISTA or LA	Data set list from current allocations
LISTC or LC	Data set list from a catalog source
LISTF or LF	Data set list from a volume (VTOC) source
LISTV or LV	Disk volume list
MEMLIST or ML	Member list
PBROWSE	Browse a PDS or PDSE member, a sequential or VSAM data set
PEDIT	Edit VSAM KSDS data set
WORKPAD	Data set list, StarTool FDM subcommand list and TSO command list
ZAP	Lines of a CSECT for updates

For each of these functions, StarTool FDM activates and maintains a separate ISPMODE table in parallel. You can toggle between one function and any other. For help, the STATUS command displays a panel that shows the currently active functions. This panel also

prompts you to select different ISPMODE functions, or to activate functions that are not currently active.

```

----- StarTool Function Status -----
OPTION ===>
- DSN=SER07.SMSTEST.DATA9040,VOL=SER=MVSD4B MEM=: -----
Enter an ISPF command, a StarTool subcommand, a menu code
or choose one of the following options:

Option      Function      -- Description --      ---- Status ----      More:  +
  8         - Log          View session log      ACTIVE
ZA         - ZAP          Modify a CSECT        INACTIVE
CS         - CSECTS      CSECTS of a module   INACTIVE
ML         - MEMLIST     Member list           ACTIVE
LA/DD      - LISTA/DDNAME Allocation list        ACTIVE
LC/LF      - LISTC/LISTF Catalog/file list     PENDING ACTION
LV         - LISTV       Volume list           INACTIVE
CAX        - CAX         Active catalog list   INACTIVE
WORKPAD    - WORKPAD     TSO command table    INACTIVE
CALC       - CALC        Floating calculator   INACTIVE
HEX        - HEX         HEX calculator        INACTIVE
CM         - CMDTBL     ISPF command table    INACTIVE
PB         - PBROWSE    Parallel browse       INACTIVE
PE         - PEDIT      Parallel VSAM edit    INACTIVE

Note: Functions are shown with the lowest logical function first.

```

Function status is defined as follows:

- INACTIVE means that the function was never activated or it was inactivated due to a CHANGE subcommand (applicable to the MEMLIST, CSECTS and ZAP functions only). You can initialize it with a function command.
- ACTIVE means that the function is currently initialized. You can select it again with a mode switch command.
- PENDING means that the function is currently active but one or more line commands are not complete. You can type a mode switch command to select the pending command or you can select pending line commands automatically (in the logical order shown above) by pressing END.

CMDTBL Function

The CMDTBL function manages ISPF command tables. CMDTBL can display command tables (by default, the current ISP command table is selected from the copy in memory) and manipulate command table entries. You can modify individual command table entries, and move and test in the CMDTBL application before saving the table.

A command table contains the specifications of general commands that you can type from any panel during the execution of an application. Command table entries are identified by an application id. They are maintained in the ISPF table input library (ISPTLIB).

Important primary commands are SAVE (to update the command table in memory or on disk) and NOSAVE (to terminate the command table update session).

Various line commands similar to those available for the ISPF edit command are available to modify a command table. You can copy, move, reproduce or insert command table

entries. Additionally, the TEST command is useful because you can use it to test a new command table entry before the table is updated in memory or on disk.

```

----- ISPF Command table display of ISP          ROW 10 TO 17 OF 57
COMMAND ==>>                                     SCROLL ==>> CSR
Enter an ISPF command or StarTool command, Enter SAVE to save the table
-----
CMD  VERB      T  ACTION
    DATA/MSG  DESCRIPTION
-----
    LISTC     0  &PDSPASS
-----
                PDS/USER CONTROLLED PASSTHRU
    PLIST     2  SELECT CMD(STARTOOL F(ISPPROF) ISPXEQS LISTC 20 PROMPT
-----
                StarTool PLIST facility
    TOP       0  ALIAS UP MAX
-----
                SCROLL TO TOP
    BACKWARD  0  ALIAS UP
-----
                SCROLL UP
    UP        0  SETVERB
-----
                SCROLL UP
    BOTTOM    0  ALIAS DOWN MAX
-----
                SCROLL TO BOTTOM
    TRYIT    0  SELECT PANEL(&ZPARM)
-----
                Display any panel: at COMMAND ==>> TRYIT panelname

```

CSECTS Function

The CSECTS function displays a map of a load member. When StarTool FDM is processing a load library, you can type CSECTS with a member name as a primary command or you can type CSEC as a line command in a MEMLIST of a load library.

The CSECTS table contains the name of each CSECT and ENTRY symbol in a load module. By default, this table is sorted in address order, but you can also sort it alphabetically. You can type line commands against CSECT table lines that apply only to that particular CSECT.

Use ZAP to initiate the ZAP function (see ["ZAP Function"](#)) as shown in the example below. In addition, the following line commands are useful in CSECTS:

BASE	assign a base value at this CSECT for a ZAP command on a following CSECT
DE	DELINK the CSECT
DIS	DISASM the CSECT
F	FIND data in the CSECT
H	HISTORY for the CSECT
L	LIST data from the CSECT
R	REPLACE data in the CSECT

```

----- CSECT Display for StarTool ----- ROW 1 OF 137
COMMAND ==>                                SCROLL ==> CSR
Enter an ISPF command or a special control code:
FUNCTION FEATURES CODES NAVIGATE DSNCMDS DEFAULTS OTHER
- DSN=SER07.LINK.LOAD,VOL=SER=SER002 MEM=PDSTOOLS -----
CMD  TYPE  DATA/MSG SECTION  ENTRY  -ADDR- -LENG- MD/SG
WEAK-U                VTSOCMD
WEAK-U                PDS#OPT4
WEAK-U                PDS#SECI
CSECT                PDSMAIN          000000 002E4C A24
ENTRY                PDSKLEAR        000138      A24
ENTRY                PDSNCMD         0006D0      A24
ENTRY                PDSSCAN4        000B06      A24
ENTRY                PDSCONVD        0011DC      A24
ENTRY                PDSLDATA        00144A      A24
ENTRY                PDSOPENX        0020CC      A24
ENTRY                PDSRETUR        002320      A24
zap CSECT                PDSPDSIN          002E50 000D9F A24
CSECT                PDSATTNX          003BF0 00015E A24
CSECT                PDSSTAEX          003D50 0002EA A24
CSECT                PDSALLOC          004040 00087D A24
CSECT                PDSEXCP          0048C0 000BDE A24
CSECT                PDSMSG          0054A0 003412 A24
CSECT *ENTRY          PDSMAINA          0088B8 0001A0 A24

```

GO Function

The GO function manages parallel StarTool FDM data set sessions. StarTool FDM supports up to nine independent GO sessions (1 through 9). Each of these GO sessions establish their own independent default member group, MEMLIST table, CSECTS table, PBROWSE (parallel browse) session, PEDIT session and ZAP table; however, a CHANGE subcommand in a GO session terminates any of these functions. Other tables, such as LISTA, LISTC, LISTV or WORKPAD are established independently of any GO sessions and are not affected by CHANGE subcommands.

To establish an alternate parallel session, type GO and a session number or a data set name. StarTool FDM prompts you for the data set name (if necessary), then initiates a parallel session. To transfer to an established parallel session, type **GO** and the session number or data set name. From a LISTA/DDNAME, LISTC/LISTF or WORKPAD table, type GO as a line command next to a data set to be activated. You can also use the menu primary option 9 (M.9) to activate or terminate GO sessions.

- To rotate through the active GO sessions, type GO **
- To toggle between active GO sessions, type GO * -- for toggling similar to CHANGE *
 - GO FILE(ddname) is the same as for CHANGE.
 - GO NUMBER(num) is supported for use with FILE(ddname).
 - GO SHR/OLD is the same as for CHANGE (SHR is the default).
- To select from one of the active GO sessions or activate a new GO session, type STATUS, M.9, 9 or GO. Each of these methods displays the data set associated with each GO session and its member group.

- Delete a GO session with the DROP command.

```

----- GO Command Selection -----
OPTION  ===>

Enter number of data set (1-9) or new data set name (and optional volume)
===>  _

- DSN=SER09.PDSES.ASM,VOL=SER=SER007 MEM=@DIA* -----
  1 - DSN=SER07.LINK.LOAD,VOL=SER=SER007 MEM=VTOC/ -----
  2  ** CURRENT ** -----
  3 - DSN=SER07.LIB.ASM,VOL=SER=SER006 MEM=VTOC/ -----
  4 - DSN=SER07.LIB.CNTL,VOL=SER=SER006 MEM=(ARTICLE -----
  5 - DSN=SER07.SDSF.LIST,VOL=SER=SER007 -----
  6 -----
  7 -----
  8 -----
  9 -----

```

LISTA Function

The LISTA or LA function is the list data set allocations function that displays a table of data sets allocated to your session in DDNAME concatenation order. The DDNAME function also uses the LISTA table; DDNAME allows you to specify a mask for data set selection by DDNAME.

Use the BATCHJCL primary command to convert the tailored LISTA table into batch JCL statements.

```

----- List Allocations ----- ROW 1 TO 18 OF 44
COMMAND ===> SCROLL ===> CSR
- DSN=SYS1.PARMLIB,VOL=SER=SYSRS2 MEM=COPY/ -----
CMD DDNAME DATA/MSG I/O's 0# VOLUME MEMBER ----- DATA SET NAME -----
  ISPLIB          968 1 SER006          SER07.LIB.MAIN
  # 2             1 1 TSG303          SYS1.IBMPDF.SYS350.PREPPLIB
  # 3             101 1 TSG302         SYS1.IBMPDF.SYS350.ISRPENU
  SYSTEM          0 0                   NULLFILE
o  ISPPROF        257 1 SYSR2C          SER07.ISPF.PROFILE
  ISP04261        66 1 SER004          SER07.SPFL0G2.LIST

```

To CHANGE to any data set that is allocated, type a C line command in the CMD field for a data set. The volume name for the data set is respected by this CHANGE command. You can also free a DDNAME allocation by typing a FREE line command for the first data set in the concatenation.

Obtain a full list of line commands by typing an O (for OPTIONS) line command as shown above. Type a line command from the O line command panel or just use the panel to review the options available and press END to return to the LISTA table.

```
----- StarTool o LISTA Line Command -----
OPTION  ===>

Choose one of the following line commands:

+      - provide an extension panel for command entry.
=      - repeat the previous line command.
6      - change to the data set and MEMLIST all.
a      - change to the data set and execute an alternate subcommand.
b      - change to the data set and MEMLIST all.
c      - change to 'SER07.ISPF.PROFILE'.
dcat  - deconcatenate non-permanent members in a concatenated group.
e      - change to the data set and MEMLIST all.
free  - free a dname or all data sets in a concatenated group.
go    - change to the data set using GO processing (a number is optional).
idc   - perform an IDCAMS LISTC with output to log.
k     - kill and clear all following line commands.
log   - format and copy line to log.

More:  +
```

The above panel is scrollable indicated by "More: +" above the list of available options. The + means that you can scroll down for more information; in this case, GO data set information follows. If "More: -" appears as a scrolling prompt, scroll up, and if "More: - +" appears, you can scroll up or down.

LISTC Function

Use the LISTC or LC function to display data sets from a catalog source. You can use multiple data set masks at the same time and you can add data sets after the table is established. The table displaying LISTC data sets is combined with LISTF data sets. You can also use the LOAD command to add data set names to the LISTC/LISTF table from the current system APFLIST, LINKLIST or LPALIST.

You can save and recall LISTC/LISTF tables. Use the SAVE and MERGE commands to explicitly manage saved LISTC/LISTF tables or set automatic save in the SETLF command for implicit table management. Data set entries merged from a saved table do not have data set statistics; the REFRESH command updates these statistics.

StarTool FDM supports global commands that apply to all data sets in a LISTC/LISTF table. These include FIND, REPLACE, SEEK, MODEL, REFRESH, COMPRESS, WHOHAS and GLOBAL (GLOBAL allows any StarTool FDM subcommand). FIND, REPLACE, SEEK and COMPRESS only support partitioned data sets; other types of data sets are bypassed by these global commands in a LISTC/LISTF table.

```
----- List files 0 ----- ROW 1 TO 4 OF 4
COMMAND ===> SCROLL ===> CSR
- DSN=SER07.SMSTEST.DATA9040,VOL=SER=MVSD4B MEM=PDSE*
CMD  C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL BLKSI
Y Y   SER07.LIB.TESTDIR_____ SER002 PO FB      80  9040
Y -   SER07.LIB.TESTLOAD_____ SER004 PO U        0 32760
N Y   SER07.LIB.TEST2_____   SER003 PO FB      80  9040
Y M *CHANGE* SER07.SMSTEST.DATA9040_____ MVSD4B PE FB      80  9040
```

```

----- VSAM KSDS information -----
OPTION ==>
Cluster name ==> SER07.VSAM.IS.CLUSTER
Data name ==> SER07.VSAM.IS.CLUSTER.DATA
Index name ==> SER07.VSAM.IS.CLUSTER.INDEX
Catalog name ==> ICFUCAT.VTSG312
Key length ==> 8 Owner ==> (NULL)
Key offset ==> 0 Creation Date ==> 1993.006
Average LRECL==> 200 Expiration ==> 0000.000
Maximum LRECL==> 9000 Update Date ==> 1994.183 10.24.54
SPND NERAS NRUS Storage class ==>
UNORD SHR(1,3) Management ==>
Data class ==>
Data space usage -TRACKS- KILOBYTES - CA's - - CI's - percent
Allocated space 1 40 1 10
High used space 1 40 1 10 100.0
Real used space 1 28 1 7 70.0
Index space usage -TRACKS- KILOBYTES - CA's - - CI's - percent
Allocated space 1 40 1 10
High used space 1 4 1 1 10.0

Usage indicators for space and performance
NIMBD NREPL SPEED

```

LISTF Function

Use the LISTF or LF function to display data sets from a volume (VTOC) source. You can use a volume mask and multiple data set masks at the same time and you can add data sets after the table is established. The table displaying LISTF data sets is combined with LISTC data sets.

Many line commands are supported in the LISTC/LISTF tables. You can use the C or GO line commands to select a data set with CHANGE or GO processing. YOU can perform basic data set management with the CAT, DEL, INFO, REN and UNC line commands. HSM line commands (HBDE, HDEL, HMIG, HML2 and HREC) are also provided. You can program dynamic line commands by entering UT on any data set line.

You can do mass operations, such as compresses, to a carefully selected list of data sets with the LISTC/LISTF facility. Entry of commands for single data sets, and block commands against many data sets at a time are tools that are part of LISTF.

```

FUNCTIONS CTL A-M CTL N-Z LINE CMDS A-M LINE CMDS N-Z DEFAULTS FEATURE
----- List files 0 ----- ROW 1 TO 4 OF 5
COMMAND ==> SCROLL ==> CSR
- DSN=SER07.SMSTEST.DATA9040,VOL=SER=MVSD4B MEM=PDS/X -----
CMD C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL BLKSI
- Y SER.CHANGMAN.CNTL_____ SER001 PO FB 80 6000
- Y SER.CICS210.DFHRSD.INDEX_____ SER001 VS U 0 4096
Y M *CHANGE* SER07.SMSTEST.DATA9040_____ MVSD4B PE FB 80 9040

```

```

FUNCTIONS  CTL A-M  CTL N-Z  LINE CMDS A-M  LINE CMDS N-Z  DEFAULTS  FEATURE
-----
----- List files 0 ----- ROW 1 TO 4 OF 5
COMMAND ===> SCROLL ===> CSR
- DSN=SER07.SMSTEST.DATA9040,VOL=SER=MVSD4B MEM=PDS/X -----
CMD  C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM
      LRECL KEY  CREATED EXPIRATION  --SIZE-  -DIR-  ALLOC USED
      BLKSI RKP  REFERENCED UPD EXT  --FREE-  -USED- -SEC-
- Y          SER.CHANGMAN.CNTL----- SER001 PO FB
      80    0  1989/11/27 ** NONE **    15T          CYL
      6000  0  1992/09/24          1          1T          10  93%
- Y          SER.CICS210.DFHRSD.INDEX----- SER001 VS U
      0    0  1992/02/10 1999/12/31          1T          TRK
      4096  0  ** NONE **          1          0T          1 100%
Y M *CHANGE* SER07.SMSTEST.DATA9040----- MVSD4B PE FB
      80    0  1992/09/29 1992/04/09    10T          1  TRK
      9040  0  1992/10/02 U          1          0T          1  10 100%

```

LISTC/LISTF tables contain a column of data under the C (for Catalog) header, which is Y if the data set is cataloged, N if the data set is not cataloged and - if the data set catalog status is not known.

The column of data under the V (for Volume) header provides feedback as to whether or not the data set is present on the volume. Y and N are short for YES or NO, M is short for Managed (meaning that it is a SMS data set) and - means that the status of the data set is not known.

LISTV Function

The LISTV or LV function lists mounted disk volumes for your system. The LISTV function requires operands if it is being newly activated – all volumes, or some volumes according to partial name or generic status, may display. Since the LISTV table is an ISPF table, it is sortable by many of its display fields. Named sort fields have been programmed in. You can obtain valid sort fields by entering **SORT** xx from the command line; a panel prompts for valid sort fields.

```

FUNCTIONS  CONTROL  LINE CMDS  DEFAULTS  FEATURES
-----
----- List Volumes ----- ROW 1 TO 8 OF 8
COMMAND ===> SCROLL ===> CSR
- DSN=SER07.SMSTEST.DATA9040,VOL=SER=MVSD4B MEM=PDS?5 -----
-----
CMD  VOLUME DATA/MSG DEV DEV  MOUNT USE  ---- TOTAL FREE ----  LARGEST  STAT
---- NAME ----- ADR TYPE  ATTR CNT  CYLS TRKS  NUM  DSCB  CYLS TRKS -INDC
      MVSD4B          734 3380  PRI  0    254  36   5  745  142  0  SIM
      SER001          719 3380  STO  13   46 1307 281  789   2  15 A SI
      SER002          71A 3380  STO  13    9 1282 354  665   1   8 A SI
      SER003          534 3380  STO  5   289  648 137 1123  66  0 A SI
ut  SER004          2A0 3390M2 PRI  37   370 1589 266  728  58  10 A S
      SER005          712 3380  STO 109  225  891  97 4141  47  8 A S
      SYSP02          202 3380K PRI  0    27  24   3  787  27  10 SI
      SYS42M          2A5 3390M9 PRI  2 10004  12   2 5542 10004 12 A SI
***** BOTTOM OF DATA *****

```

You can type line commands next to any volume name. SP (for SPACE), STAT, and VTOC are some valid commands. Additionally, you can type LF (for LISTF) to add data sets to the LISTF table from a volume.

If you type UT as a line command, as in the sample above, the following panel displays. This panel documents a command called DVOL that can be used as a line command from LISTV. This panel also defines dynamic line commands called LONG and OVER that can be used in a similar fashion. StarTool FDM users program their own dynamic commands. TRP(indicates the output of each command is to be directed to the log and that the volume name are substituted for < before each command is actually invoked.

```
----- ut for LV   user line commands -----
OPTION  ==>

Choose one of the following for volume SER004
      DVOL - DVOL command

Dynamic Commands--note:  < = SER004
LONG - TRP(DVOL < LONG) /* LONG FORMAT DVOL
OVER - TRP(VTOC < LIM(PCT LT 50) OR1(UNUSED GT 30))
-----
-----
-----
```

MEMLIST Function

The MEMLIST or ML function manages a member list. You can type StarTool FDM subcommands as line commands to process individual members.

You can save and recall MEMLIST tables with the SAVE and MERGE commands. You may want to use saved MEMLIST tables to checkpoint work in progress (perhaps to save where you were working at the end of a day) or to provide a list of members for another application (one example might be a batch process performing a VERIFY : MEMLIST command to select members with errors and saving the list for interactive review).

Several short-cut commands are available for building member list. Several of these commands filter members by age (using last update statistics or linkage-edit date):

ALL	All members; equivalent to ML :
TODAY	Members modified or added today; equivalent to ML : LAST(1)
WEEK	Members modified or added in the last week; equivalent to ML : LAST(7)
MONTH	Members modified or added in the last month; equivalent to ML : LAST(31)
MINE	Source members whose ID field is set to your userid; equivalent to ML : ID(userid)

```

FUNCTIONS CONTROL A-M LINE CMDS A-M DSN CMDS MEM CMDS A-M FEATURES
          CONTROL N-Z LINE CMDS N-Z          MEM CMDS N-Z  DEFAULTS
-----
----- Source MEMLIST 1, Session# 1 ----- ROW 1 TO 7 OF 20
COMMAND ==>                                SCROLL ==> CSR
- DSN=SER07.LIB.CNTL,VOL=SER=SER002 MEM=(@COPY -----
CMD  NAME      DATA/MSG VER.MOD   CREATED   LAST MODIFIED  SIZE  INIT  ID
    @COPY                01.18    87/11/11   93/10/09   9:22   1813  1408  SER07
    @DSNAME              01.45    89/03/26   93/10/09  12:27   1042   694  SER07
    @DUP                 01.31    92/05/01   93/10/09   8:56   1466   712  SER07
    @USAGE               01.20    87/11/11   93/10/09   7:03   1095   341  SER07
    PDSAAUX              01.05    92/07/30   93/10/09  14:56   128   122  SER07
ut   PDSMODL5          01.20    92/07/22   93/10/09   7:18   131   117  SER07
    PDSMODL6          01.12    92/07/22   93/10/09   7:18   125   117  SER07

```

The above figure resulted from entry of a TODAY command. The ut line command causes the following user line command panel to display. Several interesting dynamic line commands are programmed on this panel; the member name is substituted for ! before a command is issued.

```

----- ut for ML (Source)  user line commands -----
OPTION ==>

Choose one of the following for member PDSMODL5
EXEC - Invoke PDSMODL5 as a CLIST
%xxx - Invoke %XXX SER07.LIB.CNTL PDSMODL5

Dynamic Commands--note: < = ,      ! = PDSMODL5,
                       / = 'SER07.LIB.CNTL(PDSMODL5)'
NONE - ATTRIB ! NONE          /* REMOVE ISPF STATISTICS
STAT - ATTRIB ! ADDSTATS     /* CREATE ISPF STATISTICS
RADD - ATTRIB ! NONE ADDSTATS /* REMOVE, THEN CREATE ISPF STATISTICS
PRT_ - PRINT ! CLASS(X) FORM(DX00) ASA NOMSG
_____ -

```

```

FUNCTIONS CONTROL A-M LINE CMDS A-M DSN CMDS MEM CMDS A-M FEATURES
          CONTROL N-Z LINE CMDS N-Z          MEM CMDS N-Z  DEFAULTS
-----
----- Load MEMLIST 1, Session# 2 ----- ROW 1 TO 5 OF 5
COMMAND ==>                                SCROLL ==> CSR
- DSN=SER07.LINK.LOAD,VOL=SER=SER002 MEM=(ASID -----
CMD  NAME      DATA/MSG ALIASOF  LEN/LKED --  ATTRIBUTES  -- APF  MODE  MAIN
    ASID                92/06/15
    LOOK                90/12/19
    PDSPGM              93/01/17 RENT REUS
    PDSPGMV            PDSPGM  93/01/17 RENT REUS
    WHATO              89/02/17 RENT REUS

```

The figure above resulted from the ML : RENT command. If you press the RIGHT key, the following panel displays.

FUNCTIONS	CONTROL A-M	LINE CMDS A-M	DSN CMDS	MEM CMDS A-M	FEATURES			
	CONTROL N-Z	LINE CMDS N-Z		MEM CMDS N-Z	DEFAULTS			
----- Load MEMLIST 2, Session# 2 -----					ROW 1 TO 5 OF 5			
COMMAND ==>					SCROLL ==> CSR			
- DSN=SER07.LINK.LOAD,VOL=SER=SER007 MEM=(ASID -----								
CMD	NAME	DATA/MSG ALIASOF	TTR	MAIN	MATCH	LENGTH	LEN-KB	ENTRY
	ASID		000205			000C30	4K	000000
	LOOK		01370F			00D8F8	55K	000000
	PDSPGM		00AB1E			082D50	524K	0001A8
	PDSPGMV	PDSPGM	00AB1E	PDSPGM	PDSPGM	082D50	524K	024ED0
	WHATO		006E11			060D88	388K	000

MEMLIST supports line commands with up to four character names. Type a line command in the **CMD** column next to a member to be manipulated. Below are several commonly used member line commands:

ATTR	Displays the member attributes in an preinitialized entry assist panel for updates
B	Browses a member using ISPF services
COMP	Compares a member with another member that can be in another data set
COPY	Copies a member and, optionally, any of its aliases to another data se
CS	Builds an ISPF table of all CSECT and ENTRY symbols in a module
DEL	Deletes a member
E	Edits a source member using ISPF services
HIST	Displays CSECT IDR data and COBOL compile attributes
INFO	Displays all member attributes
M	Provides line command selection and subcommand entry assistance
MAP	Maps the CSECT structure of a load member
O	Provides line command selection and subcommand syntax assistance
PR	Prints a member
REN	Renames a member
S	Defaults to Edit in a source data set; otherwise, it defaults to Browse for load
SUB	Submits a member for background processing
UT	Selects the user line command panel.
X	Drops a member from the table
XREF	Displays intra-module references

In fact, you can use most StarTool FDM subcommands that define a memgroup as line commands. This set of subcommands includes ABE, ACFCOMP, ATTRIB, BROWSE, COPY, DCF, DELETE, DELINK, DIRENTRY, DISASM, DUP, EDIT, FIND, FSE, HISTORY, LIST, LLA, MAP, MEMLIST, OUTCOPY, PBROWSE, PGMDOC, PRINT, READOBJ, REPLACE, REPRO, REVIEW, SEPARATE, SUBMIT, TSOEDIT, TSOLIST, VERIFY, VPRINT and XREF.

You can also use the ALIAS, COMPARE, REPRO and RENAME subcommands as line commands but they each require another member name to be entered as an operand in the DATA/MSG field.

You must abbreviate each subcommand name to a maximum of four characters to fit into the CMD field. Also, several of the above subcommands are available only on source data sets (ABE, DCF, EDIT, FSE, READOBJ, SUBMIT and TSOEDIT) and others are available only on load data sets (DELINK, DISASM, HISTORY, LLA, MAP, PGMDOC and XREF).

MEMLIST and Deleted Members

If a MEMLIST keyword is present on a RESTORE subcommand, RESTORE adds deleted members to the MEMLIST table instead of resurrecting these members. In addition, if you set Remove deleted members in SETML to NO, members deleted by the DEL line command are also maintained in the MEMLIST table. You can use a REST line command (with an optional new name in the DATA/MSG column) to actually resurrect deleted members.

A restricted subset of line commands are available for examining and manipulating deleted members. The following line commands are supported for this purpose:

=	equal, repeat the previous line command.
DELI	delink the deleted member (for load only)
DISA	disassemble the deleted member (for load only)
DUP	copy the deleted member to another data set.
E	edit the member (the SAVE command is disabled).
F	find the deleted member.
HIST	display historical data from the deleted member (for load only).
K	kill, cancel and clear all following line commands.
L	list the deleted member.
LOG	copy the line into the log.
MAP	map the structure of the deleted member (for load only).
LLA	inform LLA that the member was deleted.
M	provide line command selection and operand entry assistance.
O	provide line command selection and operand syntax assistance.
PB	browse the deleted member with StarTool FDM services.
REST	restore this deleted member.
REV	review the deleted member.
X	drop this deleted member from the MEMLIST table.

PBROWSE Function

PBROWSE is very similar to ISPF browse, except that additional data types are supported. The SUPEREDIT feature includes the PEDIT and PBROWSE subcommands that you can invoke transparently with the EDIT and BROWSE subcommands. PEDIT (for parallel edit)

and PBROWSE (for parallel browse) operate under control of StarTool FDM. Use PB (for PBROWSE) as a line command in MEMLIST.

PBROWSE supports sequential, PDS, PDSE and all VSAM data types, including PATHS. Compressed files are supported, and you can also browse deleted members. Also, you can perform VSAM positioning.



NOTE PBROWSE does not support multivolume files. It also cannot be used with variable-length (VB or VS) file organizations. For these file types, use PVIEW or PEDIT instead of PBROWSE.

PBROWSE is called a parallel function because you can suspend a browse session to process other data sets using GO sessions. On returning control to the browse session, you can resume where you left off as with other StarTool FDM parallel activities.

You can use a LOG command to suspend PBROWSE and go to other StarTool FDM processes; however, you can use any function name or subcommand that does not conflict with the command names supported for PBROWSE.

```
PBROWSE - USER07.VSAM.CUST.CLUSTER ----- LINE 00000401 COL 001 080
COMMAND ==> f alpharetta first                                SCROLL ==> CSR
....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+...
Smith 0392      92A444510Yorba Linda,CA 92686      YYNB
Jones 0194      92A444511Minneapolis,MN 55416      YYNX
Green 1293      92A444512Denver, CO 80222      NNYD
Watson 1093     92A444513Middlesex,UB11 4AA England  NNNF
Aku 0394       92A444515Apu, Easter Island      NNYF
Ricker 0993     92A444518Ward Hill, MA 01835     YNYF
Jackson 0494    92A444519Springfield, MO 65890   YYND
Rogers 0394    92A444520Oakland, NJ 07436      XXMG
Thomas 0692    92A444521Naples, FL 33942      AACC
Schmidt 0993   92A444522Bremen, Germany        MMNN
Stone 1093     92A444523Blue ridge, PA 17214    VVGC
Apple 0294     92A444524Alpharetta, GA 30201    AABB
Cznski 1293    92A444525Springboro, OH 45066    YYMN
Smith 1292     92A444528Phoenix, AZ 85071      ABCE
Johnson 0394  92A444529Clinton, MD 20797      AAEE
Engel 0494     92A444533New york, NY 10117      UUFF
```

PEDIT Function

The SUPEREDIT feature includes the two subcommands: PEDIT and PBROWSE, which can be invoked transparently with the EDIT and BROWSE subcommands. PEDIT (for parallel edit) and PBROWSE (for parallel browse) operate under control of StarTool FDM.

PEDIT supports VSAM KSDS data sets (this could be either a base cluster or an AIX cluster but not a path over another VSAM data set), sequential data sets, striped sequential data sets, PDS, PDSE and other types of VSAM data sets as well. Record exclusions with the X line command or the EXCLUDE or X primary command are not yet supported.

PEDIT supports records lengths to 32K with updates made directly to a VSAM data set. PEDIT is called a parallel function because you can suspend an edit session to process other data sets using GO sessions. On returning control to the edit session, you can resume where you left off as with other StarTool FDM parallel activities.

You can use a LOG command to suspend PEDIT and go to other StarTool FDM processes. You can type any StarTool FDM function name to suspend PEDIT; however, you cannot suspend it with a StarTool FDM subcommand. For example, you can type LISTC to suspend PEDIT and go to the LISTC/LISTF function; however, if you type REPLACE, you get an invalid command prompt.

PEDIT is similar to ISPF edit and you can also perform VSAM positioning. You can make changes by typing over individual characters. These characters must not be in upper-case (the CAPS command is supported, however). If you move or copy VSAM keyed records out of sequence, PEDIT marks the record with ==SEQ> in the line number column. In a similar fashion, duplicate keyed records are marked with ==DUP>.

The keys for these records (and for records that are moved but remain in key sequence) are unprotected so that you can change the key field. PEDIT does not permit you to save a data set if records are out of order or if there are duplicate keys. You can, however, type a CANCEL command if you want to terminate the edit session with no additional data updates.

```
PEDIT --- USER07.VSAM.CUST.CLUSTER ----- LINE 0000403 COL 001 070
COMMAND ==> c Blue Mike first                                SCROLL ==> CSR
r2 403 Green 1293      92A444512 Denver, CO 80222                NNYD
=>COLS .....1.....+ .....2.....+ .....3.....+ .....4.....+ .....5.....+ .....6.....+ .....
000404 Watson 1093     92A444513 Middlesex,UB11 4AA England                NNNF
000405 Aku 0394        92A444515 Apu, Easter Island                        NNYF
d00406 Ricker 0993     92A444518 Ward Hill, MA 01835                       YNYF
000407 Jackson 0494    92A444519 Springfield, MO 65890                      YYND
000408 Rogers 0394     92A444520 Oakland, NJ 07436                         XXMG
==DUP> Rogers 0394    92A444520 Oakland, NJ 07436                         XXMG
==DUP> Rogers 0394    92A444520 Oakland, NJ 07436                         XXMG
000411 Thomas 0692     92A444521 Naples, FL 33942                          AACC
000412 Schmidt 0993    92A444522 Bremen, Germany                          MMNN
000413 Stone 1093     92A444523 Blue Ridge, PA 17214                      VVGC
.....
.....
000414 Apple 0294      92A444524 Alpharetta, GA 30201                       AABB
000415 Smith 1292      92A444528 Phoenix, AZ 85071                          ABCE
==SEQ> Cznski 1293    92A444525 Springboro, OH 45066                       YYMN
000417 Johnson 0394    92A444529 Clinton, MD 20797                          AAEE
000418 Engel 0494     92A444533 New york, NY 10117                        UUFF
000401 Smith 0392      92A444540 Yorba Linda,CA 92686                       YYNB
```

Using PEDIT offers several advantages:

Audit facility	StarTool FDM can record images of records in character, hexadecimal or copybook mode before and after changes.
Copybook mode	COBOL copybook data display mode is supported in addition to character and hexadecimal.
Selective EDIT	you can edit only selected records in an edit session.
Parallel EDIT	you can go from one edit session to any other PEDIT edit session or StarTool FDM function.
Long records	PEDIT supports record lengths up to 32K.

Large data sets	with the NOLOAD and BLOCK keywords, PEDIT only maintains changed records in memory using an update-in-place strategy for saving changed records.
Physical records	with the BLOCK keyword, you can examine and update RECFM=U, RECFM=F/FB and RECFM=V/VB physical blocks directly. With variable blocked data sets, you should be able to correct physical record construction errors.

The PEDIT command supports the following keywords:

COPYBOOK	indicates that StarTool FDM is to prompt for a COBOL or PL/1 copybook member to display a data defined view of each record. You may also type a COPYBOOK command during PEDIT. You can also specify a start column in the data record to start data mapping.
REUSE	each member is to be maintained in memory and rewritten for a SAVE. Line commands, such as I (insert), R (repro), D (delete), C (copy) and M (move) are available. This means that the data set or member must fit completely in memory and the VSAM data set be marked REUS (or it can be empty). Record length modifications are supported.
NOLOAD	only changed records are to be maintained in memory. Line commands that modify data records are not available.
BLOCK	physical records are to be presented in the edit session. Line commands that modify data records are not available.
BACKUP	for sequential data sets, StarTool FDM makes a backup copy of the data set before placing you in edit or selective edit mode. All line commands are available in this mode.
SELECT	StarTool FDM is to prompt for record selection parameters based on the data set type. Only selected records display in the edit session. No line commands are supported except for the D (delete) line command for VSAM KSDS data sets.
VIEW	the SAVE command is to be disabled; this PEDIT session is to examine records only. Note: the PVIEW command is shorthand for PEDIT with a VIEW keyword.
AUDIT	StarTool FDM prompts for an audit data set and record record images in the current mode (character, hexadecimal or copybook) before and after a change.

For sequential data sets, LOAD is the default; however, for very large data sets you can use NOLOAD. Only changed records are kept in memory; only changed data blocks are rewritten for a SAVE.

PEDIT supports editing a PDS load member; NOLOAD is forced. If a load member is updated with PEDIT, it marks the USERID as the ZAP IDR data and it assumes that the first CSECT of the module was modified (PEDIT is not aware of CSECT boundaries); this is equivalent to zapping the member.

For a PDS source member, LOAD is the default; however, you can specify NOLOAD or BLOCK. For a PDSE source member, LOAD is forced. An updated member is always entirely rewritten when it is saved. PEDIT does not currently support saving PDSE program objects.

For VSAM data sets other than KSDS data sets, NOLOAD is forced. Line commands that modify the data set are not supported and only modified records are rewritten to the data

set. For a variable RRDS, the lengths of individual records can be modified in a PEDIT session.

You can use the COPYBOOK command during an edit session to switch to (or back to) COPYBOOK mode. You can also use this command to turn off COPYBOOK mode and revert to the previous PEDIT display mode.

PL/1 copybooks have several unsupported features:

- Extended precision decimal like FLOAT(10) through FLOAT(17)
- GRAPHIC strings
- COMPLEX numbers
- VARYING character strings
- BASED structures are assumed to start at their beginning column (not the pointer value).

Following is an example selective edit prompting panel for a VSAM KSDS with data elements entered.

```

----- PEDIT: Record selection panel for KSDS -----
--
OPTION ==>

- DSN=USER50.PDSDEMO.VSAM.CLUSTER,VOL=SER=SER001 -----
--
                                                    More:    + Record
selection
by key and count, set any as needed:
FROMKEY value           ==>                               (partial key)
TOKEY value             ==>                               (partial key)
Starting record number ==>          (1-99999999 or blank to ignore)
Max records to select  ==>          (1-99999999 or blank) selected records
Interval of selection  ==>          (2-99999999 or blank to ignore)
Max records to search  ==>          (1-99999999 or blank) search limit

Additional record selection by content:
Column number          ==>  2          (1-32760 or Blank for no compare)
Compare operator/Length ==>  EQ          (LT,LE,EQ,GE,GT,NE or 1-9999 for range)
Compare Strings        ==>  smith       (char or hex)
                        strings may be quoted, use X'....' for HEX strings
AND/OR ==> OR
Column number          ==>                               (1-32760 or Blank for no compare)
Compare operator/Length ==>  EQ          (LT,LE,EQ,GE,GT,NE or 1-9999)
Compare Strings        ==>                               (char or hex)
                        strings may be quoted, use X'....' for HEX strings
                        92A444540      000401  Smith 0392
Yorba Linda,CA 92686          YYNB

```


Following is an example prompting panel issued by PEDIT to obtain the name of a copybook member.

```
----- copy book -----
COMMAND ==>

Specify copy book data set and member
Data set      ==> PDSDEMO.CNTL(CBDEMO)

Specify the name of the file definition level one variable name
Level 1 name  ==>

NOTE: If the level 1 name is blank the first level 1 name
      found in the copy book will be used.
```

After the copybook is read and interpreted, the data set displays in COPYBOOK format:

```
PEDIT --- USER07.PDSDEMO.VSAM.CLUSTER ----- COLUMNS 000001 000035
COMMAND ==>                                     SCROLL ==> CSR
000001 90A44452
LEVEL AND NAME                                LENGTH TYP DATA ...1....+....2....+....3...
01 TESTBOOK
02 MYFILE-SKIP                                1 CHR
02 MYFILE-IDENTIFIER                          14 CHR Apple 0294
02 MYFILE-KEY
05 MYFILE-KEY-FIRST2                          2 CHR 90
05 MYFILE-KEY-REST                            7 CHR A444524
02 MYFILE-PLACE-OF-BUSINESS                   27 CHR Alpharetta, GA 30201
02 MYFILE-FIRST-BINARY                       4 BIN 1
02 FILLER                                     1 CHR
02 MYFILE-MISSION-KEYS
05 MYFILE-KEY-ONE                            1 CHR A
05 MYFILE-KEY-TWO                            1 CHR A
05 MYFILE-KEY-THREE-FOUR                     1 CHR B
02 FILLER                                     2 CHR
05 MYFILE-HIT-DISTANCE-ONE                    3 PAC 2.1
05 MYFILE-HIT-DISTANCE-TWO                    5 PAC .02
02 MYFILE-HIT-ENTRY                          2 BIN 76
```



NOTE The display is in a default format. You can control the screen format with the SCREEN command; it changes the data displayed in the data type field and the displayed data field according to the SCREEN keyword used.

.SCREEN keywords follow:

SCREEN Keyword	Header	Example
data type=TYPE	LENGTH TYP	3 PAC
data type=PICTURE	PICTURE	S99V9
data type=OFFSET	OFFSET	62
data type=COLUMN	COLUMN	63
displayed data=DATA	DATA	2.1
displayed data=NODATA	OFFSET	62

```
PEDIT --- USER07.VSAM.CUST.CLUSTER ----- LINE 0000405 COL 001 070
COMMAND ==> pad x 55                                SCROLL ==> CSR
==DUP> Green 1293      92A444512 Denver, CO 80222      NNYD
      4C98894FFFF4444 FFCFFFFFF C89A8964CD4FFFFFF4444444444444444DDEC444444444
      079555012930000 921444512 455559B0360802220000000000000000584000000000
-----
=>COLS  ....+....1....+  ....2.... +....3....+....4....+....5....+....6....+....
      ....+....1....+  ....2.... +....3....+....4....+....5....+....6....+....
      ....+....1....+  ....2.... +....3....+....4....+....5....+....6....+....
-----
d 0406  Watson 1093      92A444513 Middlesex,UB11 4AA England      NNNF
      4E8AA994FFFF444 FFCFFFFFF D88898A8A6ECFF4FCC4C9898984444444DDDC444444444
      061326501093000 921444513 494435257B4211041105573154000000556000000000
-----
000407  Aku 0394        92A444515 Apu, Easter Island      NNYF
      4C9A4FFFF444444 FFCFFFFFF C9A644C8AA894CA9898444444444444DDEC444444444
      012400394000000 921444515 174B005123590923154000000000005586000000000
-----
```

The PEDIT VERTICAL command inputs a copybook similar to the COPYBOOK command and displays multiple records in a tabular copybook format. Press LEFT or RIGHT to scroll for additional data columns.

```
PEDIT      USER07.PDSE531.TSRC(DEM2VSAM) ----- COLUMNS 000001 000017
COMMAND ==> hide 4 to 6                                SCROLL ==> CSR
NAME  |TESTBOOK|MYFILE-SKIP|MYFILE-IDENTIFIER|MYFILE-KEY|MYFILE-KEY-FIRST2
TYPE  |LV1 80  |CHR 1  |CHR 14  |GRP 9  |CHR 2
COLUMN|(1:80)  |(1:1)  |(2:15)  |(16:24) |(16:17)
NUMBER|1      |2      |3      |4      |5
***** ***** TOP OF DATA *****
000001          Test 0311          92
000002          Smith 0392         92
000003          Jones 0194         92
000004          Green 1293         92
000005          Watson 1093        92
000006          Aku 0394           92
000007          Ricker 0993         92
000008          Jackson 0494        92
000009          Rogers 0394         92
000010          Thomas 0692         92
000011          Schmidt 0993        92
000012          Stone 1093          92
000013          Apple 0294          92
000014          Cznski 1293         92
000015          Smith 1292          92
000016          Johnson 0394         92
***** ***** BOTTOM OF DATA *****
```

Use the SHOW and HIDE commands to control the copybook elements to be displayed.

```

PEDIT      USER07.PDSE531.TSRC(DEM2VSAM) ----- COLUMNS 000001 000043
COMMAND ==> hide 2;show 5                                SCROLL ==> CSR
NAME |TESTBOOK|MYFILE-SKIP|MYFILE-IDENTIFIER|MYFILE-PLACE-OF-BUSINESS
TYPE |LV1 80 |CHR 1 |CHR 14 |CHR 19
COLUMN|(1:80) |(1:1) |(2:15) |(25:43)
NUMBER|1 |2 |3 |7
***** ***** TOP OF DATA *****
000001 Test 0311 Anytown, AW, 95120
000002 Smith 0392 Yorba Linda,CA 9268
000003 Jones 0194 Minneapolis,MN 5541
000004 Green 1293 Denver, CO 80222
000005 Watson 1093 Middlesex,UB11 4AA
000006 Aku 0394 Apu, Easter Island
000007 Ricker 0993 Ward Hill, MA 01835
000008 Jackson 0494 Springfield, MO 658
000009 Rogers 0394 Oakland, NJ 07436
000010 Thomas 0692 Naples, FL 33942
000011 Schmidt 0993 Bremen, Germany
000012 Stone 1093 Blue ridge, PA 1721
000013 Apple 0294 Alpharetta, GA 3020
000014 Cznski 1293 Springboro, OH 4506
000015 Smith 1292 Phoenix, AZ 85071
000016 Johnson 0394 Clinton, MD 20797
***** ***** BOTTOM OF DATA *****

```

WORKPAD Function

WORKPAD allows the storing of commonly used TSO commands, StarTool FDM subcommands and CLISTS; the output can be directed to the log. One keystroke accomplishes a lot of work. You can also save data set names (with an optional member group) for later activation.

You can save and recall WORKPAD tables with the SAVE and MERGE commands to explicitly manage saved WORKPAD tables or set "automatic save" in the SETWORK command for implicit table management.

Many of the mass operations available for LISTC/LISTF tables are also available for data sets in a WORKPAD table. Line commands for single data sets, dynamic line commands (programmed with the UT line command) and block line commands are supported. Also, global commands that apply to all data sets in a WORKPAD table are supported. WORKPAD global commands include FIND, REPLACE, SEEK, MODEL, COMPRESS, WHOHAS and GLOBAL (GLOBAL allows any StarTool FDM subcommand). Use the APPLY and TAG global line commands to apply line commands to all or selected entries in the WORKPAD table.

The SORT command is available in WORKPAD. This table is not maintained in sorted order like most other tables but you can use the SORT command to help order this table based on data in the PDS/TSO COMMAND or CLIST field.

```

----- StarTool WORKPAD Table 2 ----- ROW 1 OF 20
COMMAND ==>                               SCROLL ==> CSR
Enter an ISPF command or a special control code:
FUNCTION FEATURES CODES  NAVIGATE DEFAULTS
-----
OPT  MSG/RC  TYPE  ----- PDS/TSO COMMAND or CLIST -----
-----
          D 'SYS1.VTAMLIB'
-----
          D 'SYS1.LINKLIB'
-----
          T LISTC ENT('TST.SYSTEM.ARCHIVE.CLUSTER') ALL
-----
          P find : '@dialog'

```

ZAP Function

The ZAP function modifies load modules. ZAP is a line command supported by the CSECTS command (see ["CSECTS Function" on page 139](#)). To make modifications to the ZAP table, type over the character or hexadecimal data. After you make all changes to a CSECT, type ZAP as a primary command to update the changes on disk. The following are useful primary commands supported for the ZAP function:

BASE	reset the base address for this CSECT (equivalent to an AMASPZAP BASE statement)
BUILD	output AMASPZAP compatible output without changing the data set
F	find a ZAP table entry
IDRDATA	supply the IDRDATA for the current ZAP operation
L	locate a ZAP table offset
NOZAP	exit ZAP with no additional changes
O	provide primary command selection and operand assistance
OFFSET	reset the beginning display offset for this CSECT. Lower offsets do not display
ZAP	permanently update the current changed data lines on disk

The following useful line commands are supported in the ZAP function:

DIS	disassemble a few lines starting at the current offset
LOG	copy the line into the log
O	provide line command selection and operand assistance

UNDO	change this data back to its original value. This does not restore data from before a ZAP primary command
X	drop the table line

```

FUNCTIONS CONTROL LINE CMDS DEFAULTS FEATURES
-----
----- ZAP Display for DSAT-DSAT ROW 78 TO 100 OF 458
COMMAND ==> build SCROLL ==> CSR
- DSN=SER07.LINK.LOAD,VOL=SER=SER007 MEM=DSA* -----
      BASE = 000000 ADDRESS OFFSET = 000000
CMD  MODULE  BASE  MSG  ----- HEX DATA ----- -- CHARACTER --
ADDR  OFFSET  *CHA B7CA4100 000A4780 C23249F0 C60C4770 *.....B..0F...*
0004D0 0004D0 *CHA B512D507 D472C57C 4770B7CA D507D484 *..N.M.E@...N.Md*
0004E0 0004E0 *CHA C5804770 B7CA5810 D214D21F 1000C9D8 *E.....K.K...IQ*
0004F0 0004F0 *CHA 5820D210 D22B2000 D2354520 C48047F0 *..K.K...K...D..0*
000500 000500 *CHA BC7C49F0 C60A4100 00144770 C3B6D401 *.@.0F.....C.M.*
000510 000510 *CHA 904A904A 4100001E 4770C3B6 9610D22C *.`.``.....C.o.K.*
000520 000520 *CHA D205D579 D5735810 D5B05010 D5845010 *K.N`N...N.&.Nd&.*
000530 000530 *CHA D1B44121 000A5021 0000D2FD 2000D472 *J.....&...K...M.*
000540 000540 *CHA 4140D235 41440001 95404000 4770B554 *. K.....n .....*
000550 000550 *CHA 5040D588 47F0B5A0 41440001 95404000 *& Nh.0.....n .*
```


Chapter 4

Batch Processing

The batch operation of FDM is as flexible and easy to use as StarTool FDM in line mode from a terminal. Complicated maneuvers are accomplished easily in a batch job. The difference is that all the steps must be anticipated in advance. In batch, you usually cannot evaluate the results of the first step before beginning the execution of the following steps. The results of all StarTool FDM steps display in batch because StarTool FDM always uses the PUTLINE-GETLINE TSO interface in its operation. With a little practice, you can design incisive and efficient batch jobs to perform many tasks.

You may want to design a batch job, such as adding ISPF statistics for many libraries, or cloning system libraries or other libraries through repeated executions of COPY and CHANGE subcommands. CLISTS that execute StarTool FDM subcommands may run long and it might be easier to execute them in a batch job, rather than repeating the same process at a terminal.

StarTool FDM offers several facilities for handling these operations.

- 1 Place the CONDEND (conditional END) subcommand just after a critical StarTool FDM subcommand (see example 2 below) to terminate StarTool FDM if a warning or error message is generated.
- 2 Type CONTROL TESTSYNTAX to capture entered subcommands and test their syntax before creating a batch JOB. ISPMODE facilities still function, as well as the **CHANGE, CONTROL, QUIT** and END subcommands.
- 3 To suppress informational messages, type CONTROL NOINFO
- 4 To suppress subcommand echoing in the session log, type CONTROL NOCOMMAND
- 5 To suppress all messages (except error messages), type CONTROL NOPUTLINE
- 6 To capture the session output in a RECFM=FB,LRECL=80 data set, type a subcommand similar to CONTROL DSN(*data.set(memnam)*). You can also add a disposition parameter such as OLD, MOD, SHR or NEW.

It can be effective to generate input for StarTool FDM through some process that formats calls to a CLIST, as shown:

```
STARTOOL 'SYS1.PROCLIB'  
%CLISTP 'DATA.SET.TO.MANIPULATE '  
%CLISTP 'ANOTHER.DATA.SET '  
. . .S
```



NOTE CLISTP could contain a StarTool FDM subcommand to CHANGE to the data set with additional subcommands to manipulate the data set as needed. Any data encountered under CLIST mode (from an implied CLIST call or the EXEC subcommand) is assumed to be StarTool FDM subcommands or CLIST commands. If they conflict because their names are the same, use an abbreviated or alternate name to reference the StarTool FDM subcommand. For example, to reference IF and CONTROL subcommands, use the subcommand names, IFX and CONTRO, respectively.

Simplifying Batch Jobs

There are three methods for simplifying execution of complicated batch jobs:

- Executing StarTool FDM with JCL
- Cloning data sets
- Tuning SYS1.LPALIB

Executing StarTool FDM with JCL

The following example adds ISPF statistics to all members in several large libraries with JCL in the background, without ISPF facilities. This sample is in the CNTL library distributed with StarTool FDM as member PDSBATCH.

```
//TSOBATCH JOB (JOB CARD PARAMETERS)
//TSOBATX EXEC PGM=IKJEFT01,REGION=3600K,DYNAMNBR=50
//STEPLIB DD DISP=SHR,DSN=load.library (if applicable)
// DD DISP=SHR,DSN=load.library2 (if applicable)
//SYSPROC DD DISP=SHR,DSN=clist.library (if applicable)
// DD DISP=SHR,DSN=clist.library2 (if applicable)
//SYSTSPRT DD SYSOUT=* <== OUTPUT OF COMMANDS
//SYSTSIN DD * <== TSO COMMAND INPUT
STARTOOL 'SYS1.HELP'
ATTRIB : ADDSTATS
C 'SYS1.MACLIB'
ATTRIB :
ADDSTATS ID(ESA43)
END
```

To continue a parameter statement, use a dash (-) as seen in the example below:

```
FIND: 'here' ignore OR('there') or2('everywhere') -
      or3('test')oignore NUM DISPLAY THEN(members)
```

Cloning data sets

You can also simplify batch execution by cloning all the data sets on your system residence pack by copying the operating system data sets on another disk pack. The new data sets eventually have the same SYS1 names as the system data sets. This allows you to catalog these data sets to the IPL'ed system residence volume using the IDCAMS VOL(*****) keyword, so you can IPL either pack later as a system residence volume (assuming that you have also done other things necessary to IPL that volume, such as copying IPLTEXT to it, etc.).

```
//SYSTSIN DD *
STARTOOL 'SYS1.CMDLIB'
COPY : 'TST1.CMDLIB' NEW VOL(ALTRES) SUMMARY
TSO DELETE 'TST1.CMDLIB' NOSCRATCH
CHANGE 'SYS1.LINKLIB'
COPY : 'TST1.LINKLIB' NEW VOL(ALTRES) SUMMARY
TSO DELETE 'TST1.LINKLIB' NOSCRATCH
CHANGE 'SYS1.LPALIB' COPY : 'TST1.LPALIB' NEW VOL(ALTRES) SUMMARY
```



```

TSO DELETE 'TST1.LPALIB' NOSCRATCH
    ...
    (repeated for all system data sets on the SYSRES pack.)
    (afterwards do LISTF for all TST1 files on the ALTRES)
    ( pack, and rename them - uncataloged - to SYS1.*** )
    ...
END

```

Tuning SYS1.LPALIB

You can tune SYS1.LPALIB by moving some of its modules to a LINKLIST data set, to increase the size of available private storage for all address spaces. This involves copying some members, with their aliases, and deleting these members from SYS1.LPALIB, with all their aliases only if the copy is successful.

```

//SYSTSIN DD *
STARTOOL 'SYS1.LPALIB'
COPY XYZ* 'SYS2.LINKLIB' ALIAS
CONDEND
DELETE XYZ* ALIAS
END

```

Dynamic TSO Environment

You can invoke StarTool FDM for installations with TSO/E Version 2.3 or above, directly in non-TSO environments by using the TSO/E Environment Service (IKJTSOEV):

- Normal background jobs through JCL with PGM=STARTOOL. See the example in the pages that follow.
- In a program, such as Assembler or COBOL, call StarTool FDM and pass a single command, or invoke StarTool FDM with a data set and pass subcommands through DDNAME SYSTSIN. For an example of how to invoke StarTool FDM from an assembler program in a non-TSO environment, see member SAMPTSOE in the StarTool FDM ASSEMBLE distribution data set.
- In a VTAM application to execute TSO/E CLISTS or REXX execs.
- Use APPC to establish a link from a personal computer or workstation to TSO/E.

After initializing, StarTool FDM checks to see if a TSO environment is available. If TSO services are not available, StarTool FDM invokes IKJTSOEV to build and initialize a TSO environment to allow the use of TSO/E programming services outside of the TSO/E TMP and Service Routines.

The TSO/E environment service offers a number of performance benefits. Performance is improved because the TSO/E TMP is not executed; instead, StarTool FDM invokes TSO/E services and facilities directly. Thus, you can fine tune a given application to meet the needs of the installation.

When a dynamic TSO environment is initialized, IKJTSOEV checks for the presence of DDNAMES SYSTSIN (for subcommands) and SYSTSPRT (for session output). If either of these DDNAMES are not allocated, IKJTSOEV dynamically allocates them to DUMMY data sets. A batch program could allocate SYSTSIN and/or SYSTSPRT to disk data sets and dynamically format input data before calling StarTool FDM. Then, after receiving control

back from StarTool FDM, the program could analyze the session output data to determine if functions were performed properly.

The dynamic TSO Environment service has a number of restrictions:

- You cannot initiate Foreground Initiated Background commands, which means that if you attempt to submit a data set to JES, the system issues the message:

```
IKJ79204I You attempted to run an unsupported function in a dynamic TSO
environment
```

- If you attempt to perform authorized functions, the system issues the message:

```
IKJ56637I You attempted to run a command, CLIST or REXX exec from an
authorized environment. This is not supported under the dynamic TSO
environment
```

Because of these restrictions, the following StarTool FDM subcommands are not supported in a dynamic TSO environment.

SUBMIT subcommand

LLA subcommand

FIXPDS RELEASE for a PDSE

FIXPDS BLK, TRK, CYL or SPACE(nnn)

COPY with IEBCOPY as the invoked utility

COMPRESS with IEBCOPY or FDRREORG as the invoked utility

A sample of JCL to execute StarTool FDM in the background in a dynamic TSO environment follows. This sample is in the CNTL library distributed with StarTool FDM as member PDSDYNAM.

```
//TSOBATCH JOB (JOB CARD PARAMETERS)
//TSOBATX EXEC PGM=STARTOOL,REGION=3600K,DYNAMNBR=50,
//          PARM='STARTOOL 'SYS1.PARMLIB''
//STEPLIB DD DISP=SHR,DSN=load.library (if applicable)
//          DD DISP=SHR,DSN=load.library2 (if applicable)
//SYSPROC DD DISP=SHR,DSN=clist.library (if applicable)
//          DD DISP=SHR,DSN=clist.library2 (if applicable)
//SYSTSPRT DD SYSOUT=* <== OUTPUT OF COMMANDS
//SYSTSIN DD * <== TSO COMMAND INPUT
IF : USERID(SER08) THEN(SUBLIST)
ATTRIB *
END
```

ISPMODE in Batch

StarTool FDM supports the batch use of ISPMODE facilities if StarTool FDM panel and message data sets are allocated in an ISPF environment. This facility is useful for many different applications such as saving LISTC/LISTF, MEMLIST or WORKPAD tables for interactive use or processing multiple data sets in a table with global commands.

To support ISPMODE facilities in batch, several changes were made:

- Prompt panels simulate an END response.
- Syntax errors terminate the batch session.
- Checkpoints are ignored in the log.
- The OUTPUT command produces PUTLINE output by default.
- Line commands are not supported except with the APPLY command.

Several ISPMODE facilities are especially useful in a batch environment:

- 1** Global processing can process all data sets in a LISTA/DDNAME, LISTC/LISTF or WORKPAD table.
- 2** Global processing is very effective in searching, updating or compressing multiple data sets. In LISTC/LISTF tables, the FIND, REPLACE and COMPRESS commands skip over non-partitioned data sets.
- 3** FIXPDS with its percentage operators to modify data sets (DIRFREE, ADDFREE and RELFREE) is very effective at changing multiple data sets using the GLOBAL command.
- 4** Saved MEMLIST and LISTC/LISTF tables allow a batch application to save member or data set names of interest for other types of processing.
- 5** Use saved MEMLIST and LISTC/LISTF tables for a list of member or data set names that a batch application processes.
- 6** Use the EXCLUDE command to trim dialog tables.
- 7** Use the APPLY command to perform the same line command for all table entries.
- 8** Use the SORT command in conjunction with an F (Find) or LOCATE command to position to data in a table followed by an X ABOVE command to trim dialog tables.
- 9** Use the TRAP command to capture PUTLINE output from TSO commands in the log.
- 10** Use the MASK command to build LISTC/LISTF tables.
- 11** Use the FILTER command to set up data set filtering defaults for the MASK command.

In a batch application, you can filter data sets by type with global processing by using a variation of the GLOBAL name. This means that you do not need to trim a LISTC/LISTF table before executing GLOBAL commands.

You can use the following GLOBAL data set type filter names:

GLOBAL	process all data sets (except MIGRAT or ARCHIV data sets)
GLOBALM	process PDSE or PDS data sets
GLOBALE	process PDSE data sets
GLOBALO	process PDS data sets
GLOBALS	process source PDS or PDSE data sets only (RECFM is not U)
GLOBALL	process load PDS or PDSE data sets only (RECFM is U)
GLOBALQ	process sequential or direct data sets only
GLOBALN	process non-VSAM data sets only

GLOBALV	process VSAM clusters only
GLOBALT	process all data sets marked with *TAG* in the DATA/MSG field

A sample of JCL to execute StarTool FDM in the background with ISPF facilities follows. This sample is in the CNTL library distributed with StarTool FDM as member PDSISPF.

```
//TSOBATCH JOB (JOB CARD PARAMETERS)
//TSOBATX EXEC PGM=IKJEFT01,REGION=3600K,DYNAMNBR=50
//STEPLIB DD DISP=SHR,DSN=load.library (if applicable)
// DD DISP=SHR,DSN=load.library2 (if applicable)
//SYSPROC DD DISP=SHR,DSN=clist.library (if applicable)
// DD DISP=SHR,DSN=clist.library2 (if applicable)
//SYSTSPRT DD SYSOUT=* <== OUTPUT OF COMMANDS
//ISPPROF DD DISP=SHR,DSN=profile.library (or a temporary):
//ISPPROF DD DISP=NEW,DSN=&&ISPF,UNIT=SYSDA,SPACE=(TRK,(5,5,5)),
// DCB=(LRECL=80,BLKSIZE=9120,RECFM=FB)
//ISPPLIB DD DISP=SHR,DSN=panel.library (and concatenations)
//ISPMLIB DD DISP=SHR,DSN=message.library (and concatenations)
//ISPSLIB DD DISP=SHR,DSN=skeleton.library (and concatenations)
//ISPTLIB DD DISP=SHR,DSN=table.library (and concatenations)
//SYSTSIN DD * <== TSO COMMAND INPUT
PROF MSGID PREFIX(userid)
ISPSTART PGM(STARTOOL) PARM(STARTOOL SDS.CNTL) NEWAPPL(ISR)
FILTER NOMIGRAT
MASK SER08.*.DATA
OUTPUT
COMPRESS
END
```

F Command

Every function has a F (find) command to locate character strings within the function tables.

The find string is positional (that is, you must enter it just after the F keyword), and it is normally entered as a simple string delimited by blank. It can, however, be delimited with quotes. The following examples show several valid commands:

```
F 'This is the first string' first
F "this is the second string" last
F mydata dsname
```

Normally, the ANY keyword defaults with a find command. This means that StarTool FDM searches all data columns. If you want to search only a specific column of data, type the name of that data column. Another way to direct the find search is with keywords as NEXT, FIRST, LAST, PREFIX, SUFFIX and WORD. These keywords have the normal ISPF-implied meanings. If you are dealing with a lot of information, the find facility can help zero in on any information.

EXCLUDE Facility

EXCLUDE facilities are available for all function tables. From a log or MEMLIST table, use the EXCLUDE subcommand to trim members from the MEMLIST table. The EXCLUDE subcommand supports the same attribute filtering operands that are available on a MEMLIST subcommand.

From other tables, use the EXCLUDE command to trim all table elements that match a search string (or do not match a search string with the NOT keyword). The EXCLUDE command supports the same operands as available on the F command with the exception of the directional keywords (NEXT, FIRST and LAST) because EXCLUDE always processes an entire table.

SORT Command

Use the SORT command in functions with sorted tables, such as CAX, CSECTS, LISTC/LISTF, LISTV, MEMLIST and NUCCMAP. SORT with no operands sorts the table in default order, while SORT with a field name sorts the table in that order.

Locate Command

Use the LOCATE (or L) command in functions with sorted tables. The L command locates data in the current sorted column. You can also use a partial string for a generic search.

X Command

Another standardized feature is the X command. When you use X with an operand, it can trim an entire table. The supported operands are ALL, ABOVE and BELOW where the current position in the table is the trim reference point.

OUTPUT Command

The OUTPUT command, for all functions, outputs the current log or table to SYSOUT or to a data set.

In batch mode, if you do not enter an operand on the OUTPUT command, the table is output with PUTLINE messages. You can also type an operand such as =x or F(ddname) after OUTPUT. If you type =x, StarTool FDM directs output to SYSOUT=X. If you type F(ddname), StarTool FDM directs output to the named preallocated data set.

Chapter 5

Edit Macros

Several edit macros and a CLIST are available for your use during an edit session to recover from edit problems and in using edit effectively. During an edit session, you can use the O edit macro for help on the StarTool FDM edit macros; to get help on a specific edit macro, type O ADDCYL.

ADDCYL Edit Macro

Use the ADDCYL edit macro to add a secondary extent to a data set. Normally, you use this edit macro from an edit session after a SAVE command failed because of an out of space condition in the data set (ABEND SB37 or SD37).

This macro invokes StarTool FDM FIXPDS with the ADDCYL operand to add a secondary extent in cylinders. If the data set already has 16 extents, ADDCYL cannot add another extent.

To invoke ADDCYL for an extension of two cylinders, type:

```
ADDCYL 2
```



NOTE The number of cylinders to be added defaults to 1.

ADDDIR Edit Macro

Use this edit macro to add directory blocks to a data set. Normally, you use this edit macro from an edit session after a SAVE command failed because of a NO SPACE IN DIRECTORY message.

This macro invokes StarTool FDM FIXPDS with the EXPANDDIR operand to move members (if needed) and add directory blocks.

To invoke ADDDIR for an additional 15 directory blocks, type:

```
ADDDIR 15
```



NOTE The number of directory blocks to be added defaults to 10.

ADDTRK Edit Macro

Use this edit macro to add a secondary extent to a data set. Normally, you use this edit macro from an edit session after a SAVE command failed because of an out of space condition in the data set (ABEND SB37 or SD37).

This macro invokes StarTool FDM FIXPDS with the ADDTRK operand to add a secondary extent in tracks. If the data set already has 16 extents, ADDTRK cannot add another extent.

To invoke ADDTRK for an extension of 30 tracks, type:

```
ADDTRK 30
```



NOTE The number of tracks to be added defaults to 10.

ATTRIB Edit Macro

Use this edit macro to display a ISPF statistics for a member as notes in an edit session on a line just after the cursor. If you do not type an operand, ATTRIB formats attribute information on the current member; otherwise, the operand is taken to be a member group name and attribute information is formatted for all corresponding members in the current data set.

Output from the StarTool FDM ATTRIB subcommand displays as edit notes which are not saved when edit terminates; however, you can enter an MD line command over any note line to convert it to a data line.

To display attributes for a member group, type a command like ATTRIB pds/ux.

An ATTRIB command with no operand produces the following edit notes:

```
=NOTE= ISPF Stats: VER.MOD   CREATED   LAST MODIFIED   SIZE   INIT   ID
=NOTE= PDS4ED3      01.00  93/03/04   93/03/04   7:38    28    28  SER07
```

COMPRESS Edit Macro

Use this edit macro to compress a data set. Normally, you use this edit macro from an edit session after a SAVE command failed because of an out of data set space condition (ABEND SB37, SD37 or SE37).

This macro invokes the StarTool FDM COMPRESS subcommand. A compress removes unused space in a data set. This space is occupied by deleted members.

To invoke COMPRESS, type COMPRESS.

CUT and PASTE Edit Macros

The CUT and PASTE edit macros provide a simple method of moving data from one edit session to another. The CUT macro saves lines from an edit session into a temporary ISPF table and the PASTE macro places these lines into another edit session or the same session.

The CUT macro combines lines with previously saved lines. The PASTE macro places these lines into one or more edit sessions. The edit sessions can be on different screens and/or edit sessions started at a later time provided you do not exit ISPF.

The CUT macro works with the edit line commands for MOVE/COPY in their various forms (M, MM Mnn, C, CC, Cnn) to specify which group of lines to save. The CUT macro supports several optional operands.

- 1 The operands **P** or **PROMPT**, **D** or **DEFAULTS** display a prompting panel like the sample below. Use the **H** or **HELP** operand to display TUTORIAL panels.
- 2 The table name uses a default value if it is not provided or you can change the name in the prompting panel to any two character name.
- 3 The operand **A** or **ADD** for the CUT macro specifies that the selected lines are to be added to already saved lines, if any. The operand **R** or **REPLACE** for the CUT macro specifies that the lines selected are to replace or overlay the lines already saved. The default, if not changed, is **ADD**.

This is the prompting panel for the CUT edit macro from a CUT PROMPT command in edit.

```

----- CUT prompt panel -----
COMMAND ===>

Action      =====>      ADD, REPLACE, DEFAULTS, or blank for normal action

CUT table name====>      any two character name for this one time
                           blank for default

CUT size limit====> 1000    any number 100 to 99999

ADD will add CUT lines to the end of previous CUT lines if any.
REPLACE will clear any previous CUT lines and replace them with
newly CUT lines.
DEFAULTS will display a panel to set defaults.
blank will request the default action.

```

The PASTE macro works with the edit line commands After or Before (A or B). This specifies where all lines previously saved are to be inserted.

The operand **Z** or **ZERO** specifies that the table is to be cleared after the lines have been inserted.

The operand **K** or **KEEP** specifies that the table is not to be cleared and that the saved lines are to be kept for future PASTE requests or to be added to by other CUT requests. The default, if not changed, is **ZERO**.

The use of the operands **ADD**, **REPLACE**, **ZERO**, and **KEEP** define the mode for the CUT and PASTE macros. The most common mode is the gather mode with operands **ADD** and **ZERO**. This means that several groups of lines are gathered from here and there and pasted into one member.

The other main mode could be called the distribution modes where one group of lines is CUT and then placed in several members or in several spots in one member. This uses the operands REPLACE and KEEP. The defaults can be set for the mode you like most.

Either mode works when working in a one-for-one basis where each CUT is followed by one PASTE. If you set the defaults to ADD and KEEP you must keep track when to override with either REPLACE or ZERO or you accumulate lines.

Following is the prompting panel for the PASTE edit macro from a PASTE PROMPT command in edit.

```

----- PASTE prompt panel -----
COMMAND ==>
Action      ==>          ZERO, KEEP, DEFAULTS, or blank for normal action
CUT table name==>      any two character name for this one time
                          blank for default

ZERO will delete previously CUT lines after the PASTE operation.
KEEP will keep previously CUT lines after the PASTE operation to
      be used by a later PASTE or added to by later CUT operations.
DEFAULTS will display a panel to set defaults.
blank will request the default action

```

EQUAL Edit Macro and REEQUAL CLIST

The EQUAL macro sets up and executes edit finds and changes. The FIND/CHANGE options are saved for reuse in later edits. If the FIND/CHANGE options are invalid or cannot be serviced, you can reinvoke EQUAL to correct or continue the request.

Use this macro as an initial MACRO or call it directly. If you use it as an initial MACRO, a set of options control if and when prompting is to be provided. You can force prompting with the RESET option or by using the REEQUAL TSO CLIST.

If called directly, you can specify one of the following options:

- **C/CHANGE** – to override the previously set CHANGE processing option without prompting. This override is for a single request.
- **F/FIND** – to override the previously set FIND processing option without prompting. This override is for a single request.
- **N/NOPROMPT** – execute current options without prompting.
- **R/RESET** – to force prompting if EQUAL is used as an initial macro.
- **H/HELP** – to display TUTORIAL panels.
- **P/PROMPT** – to display a prompt panel for the above options.

Following is the prompting panel for the EQUAL edit macro from an EDIT member MACRO(EQUAL) subcommand in StarTool FDM.

```

----- EQUAL MACRO Prompt -----
OPTION ==>

Process option ==> FIND    FIND/CHANGE

FIND and CHANGE TO Strings:  (use QUOTES if necessary for imbedded blanks)
FIND    ==>
CHANGE ==>

Column range (optional) See Edit TUTORIAL on FIND for more information
Starting  ==>            (blank or 1-255, not to exceed record length)
Ending    ==>            (blank or 1-255, not to exceed record length)

Embedded search options ==>          (blank, CHARS, PREFIX, SUFFIX, WORD)

Control options:
EXCLUDE ALL before search    ==> YES      (Yes or No)
Set to RCHANGE after find    ==> NO       (Yes or No) for Find processing
Set to AUTOSAVE OFF PROMPT  ==> NO       (Yes or No) for Change processing

Options used when macro used as initial macro
Prompt before any action     ==> YES      (Yes or No)
Display after changes        ==> YES      (Yes or No)
Action if change errors      ==> DISPLAY  (DISPLAY, CANCEL, SAVE)

```

EXCLUDE ALL before search of YES directs the EQUAL macro to first exclude all edit lines before processing the FIND or CHANGE. This allows the matched or changed lines to stand out.

The EQUAL macro can setup the RCHANGE edit function when used in a find mode. PF6 is normally assigned a RCHANGE function. By specifying YES to Set to RCHANGE after find and providing a CHANGE TO string the PF5 and PF6 keys can be used to make selected changes.

When using the CHANGE function you can verify that changes are appropriate. Set the AUTOSAVE OFF PROMPT option to YES to prevent the changes from taking effect if you use the END key accidentally. You can keep this setting in the edit profile.

Use this macro for processing a group of members without intervention. In this case, no prompting is necessary and Prompt before any action and Display after changes can be set to NO. Otherwise, specify YES on either as needed. Prompt before any action can be reset to YES by using the REQUAL TSO CLIST at any time a TSO command can be entered.

The Action if change errors option controls the edit action when processing a group of members with PROMPT and DISPLAY set to NO and an error occurs. Use CANCEL to continue processing by skipping the updating of members with change errors. Use SAVE to continue processing and save any changes even with errors. Use DISPLAY to delay processing while reviewing any errors resulting from the change operation.

The REEQUAL CLIST sets or resets processing options for the EQUAL macro. Call this CLIST before or between edit sessions that use the EQUAL macro. If the EQUAL processing options are setup for no prompting and the EQUAL macro is being used as a initial macro, use the RESET option of this CLIST to force prompting at the next edit session. If no options are used, the REEQUAL CLIST displays the EQUAL processing options panel.

Call the REEQUAL CLIST with the following options:

- **R/RESET** – to force prompting if EQUAL is used as an initial macro.
- **H/HELP** – to display TUTORIAL panels.
- **P/PROMPT** – prompt panel for the above options.

PACKOFF Edit Macro

Use this edit macro to unpack members using ISPF edit and a PACK OFF statement. It performs its operation and ends so you do not actually enter edit.

The following example finds all packed members and then unpacksthem:

```
IF : packed then(sublist)
    EDIT * macro(packoff)
```

PACKON Edit Macro

Use this edit macro to pack members using ISPF edit and a PACK ON statement. It performs its operation and ends so you do not actually enter edit. The following example finds all unpacked members and then packs them:

```
IF : nopacked then(sublist)
    EDIT * macro(packon)
```

PDSEDSN Edit Macro

This edit macro initiates a StarTool FDM session on a data set name in edit. The name of the data set must be fully qualified and it must be cataloged. To use PDSEDSN from an edit session, type KEYS as a primary command and assign PDSEDSN to one of the PF keys. Exit from the KEYS function with an END command.

Position the cursor over any data set name and press the PF key assigned to PDSEDSN. This invokes StarTool FDM for that data set. When finished, terminate StarTool FDM to return to the edit session.

RESTORE Edit Macro

This edit macro recovers deleted members. RESTORE places you in a stacked StarTool FDM MEMLIST session containing only the deleted members for the data set. When you exit from the stacked StarTool FDM session, you return to your edit session.

To invoke RESTORE, type RESTORE.

You can also recover only deleted members that a text string. To recover only members that THIS DATA, type RESTORE this data.

TRAP Edit Macro

This edit macro displays output from a TSO command as notes in an edit session on a line just after the cursor. This CLIST uses TSO/E SYSOUTTRAP facilities so it can only capture data from TSO commands that use PUTLINE output. Output from the TSO command displays as edit notes that are not saved when edit terminates; however, you can enter an MD line command over any note line to convert it to a data line.

For example, to capture output from the DSAT command, type TRAP DSAT sdsf.

This command produces the following edit notes:

```
=NOTE= SERIAL  ALLOC  FREE  EX  DSORG  -DCB  ATTRIBUTES-  CR.  DATE  -DSNAME-
=NOTE= SER007      6      2   1  A-PS  FBA   23474   121 03/04/92 SER7.S#
=NOTE= SER006     15      4   1  A-PO  FB    13680    80 05/03/93 SER7.S5
=NOTE=              21      6                                2 DATA SETS
```

VOLUME Edit Macro

This edit macro displays the current data set and volume name as a note in an edit session on a line just after the cursor. Use this edit macro with uncataloged data sets to verify that the correct data set is being edited. An edit note is not saved when edit terminates; however, you can enter an MD line command over any note line to convert it to a data line.

To display the data set and volume name for the current edit data set, type VOLUME to produce the following edit note:

```
=NOTE= DATA SET 'SER07.PDSE311.PANELS' IS ON VOLUME TS0006
```


Chapter 6

Change Management and StarTool FDM

StarTool FDM manages members and data sets before, during and after you implement change management at an installation. This section discusses several ways in which StarTool FDM can work with Serena ChangeMan ZMF, a change management package from Serena.

A facility that assists in all of these phases of ChangeMan ZMF implementation is saved as data set lists. You can build, save, recall and merge data set lists with any combination of data sets.

The HISTORY subcommand searches COBOL modules compiled with specific options (for example: COBOL(RESIDENT,NORENT,DATA31)). It can also search for load members by generic compiler or assembler names (for example: TRANS(COBOL), TRANS(COBOL370), TRANS(ASM), or TRANS(ASMH)). Before implementing change management, StarTool FDM can help inventory development, test and production data sets.

During ChangeMan implementation, StarTool FDM can help convert components to ChangeMan control. StarTool FDM can process multiple members or multiple data sets with a single command. These facilities identify and correct components that do not yet comply with the new standards required by the change management system.

After implementing ChangeMan, StarTool FDM can analyze and convert new versions of existing applications under ChangeMan control. In addition, StarTool FDM validates that members and data sets are being used correctly and effectively under ChangeMan.

Several facilities in StarTool FDM are useful in a change management environment:

MEMLIST	displays the package date based on the SSI information added by ChangeMan for a stage or recompile from baseline
COPYPREP	prepares a target data set for copy by conditionally expanding the number of directory blocks or adding a suitable secondary extent to prevent copy failures
MAPLCT	produces Linkage Control Table data (linkage edit control statements) for CMNSSIDN.
LCTJCL	separates MAPLCT data into individual LCT members
GENERATE	produces data that to preload the ChangeMan history file. This helps convert new applications to ChangeMan control and new versions of existing internal or vendor-supplied systems to ChangeMan control.
CMNLOAD	produces CMNBAHST inputs from HISTORY GENERATE outputs. This REXX exec is tailored at each installation to identify compiler and linkage options before preloading ChangeMan history.

MEMLIST Function for ChangeMan

StarTool FDM displays the package date based on the SSI information added by ChangeMan for a stage or recompile from baseline if the SETPANEL option for the ChangeMan panel is enabled.

```
----- Set Panel Defaults -----
OPTION ==>
  To save these variables in your ISPF profile as defaults for future StarTool
  FDM
  sessions, enter SAVE as a primary command or press PF6 or PF18
                                     More:      +
. . . . .

MEMLIST Displays for load modules in order of RIGHT rotation:
Show Attributes view ==> YES (Yes/No) -- Load module attributes
Show TTR, Size view  ==> YES (Yes/No) -- TTR location and Size in bytes
Show Double line view ==> YES (Yes/No) -- Combined information
Show Change Man view ==> YES (Yes/No) -- Change Man date
```

The Change Man MEMLIST panel becomes available for displaying load members.



NOTE This field is formatted from the SSI field of the directory (ChangeMan sets this field to the number of seconds since January 1, 1960 whenever it updates a member).

```
FUNCTIONS  CONTROL A-M  LINE CMDS A-M  DSN CMDS  MEM CMDS A-M  FEATURES
          CONTROL N-Z  LINE CMDS N-Z          MEM CMDS N-Z  DEFAULTS
-----
----- Load MEMLIST (Change Man), Session# 1 --- Row 1 to 3 of 3
COMMAND ==>
- DSN=USER07.LINK.LOAD,VOL=SER=SER001 MEM=PDSE -----
-
CMD  NAME      DATA/MSG ALIASOF  LEN/LKED  -- ATTRIBUTES  - CMN date time
CMNAPSPL
CMNOFM
PDSE          *ALIAS  1996/05/03 REFR RENT
```

COPYPREP -- Prepare for a Data Set Copy

COPYPREP is a REXX exec that prepares a target data set for a copy operation. It does so by conditionally expanding the number of directory blocks or adding a suitable secondary extent to prevent copy failures. It also has a warning mode in which it issues messages stating how much secondary space or directory space the target data set needs.

Example panels for the COPYPREP function are shown below.

```
----- ISPMODE Session# 1 Log# 1 ----- Row 65 to 79 of 79
COMMAND ==>
- DSN=USER07.LIB.CNTLQ,VOL=SER=SER001 MEM= -----
>----->u
PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR 3380 C FB 80 6320 2X 6 5 3 TRK 6

PDS181I Extents in tracks: 3, 3

PDS182I Tracks: ALLOCATED USED FREE EXTENTS VOLUME
PDS182I 6 1 5 2 SER001

PDS183I Directory: BLOCKS USED FREE TRACKS MEMBERS ALIASES
PDS183I 7 1 6 1 0 0
```

```
----- ISPMODE Session# 1 Log# 1 ----- Row 85 to 99 of 99
COMMAND ==> %COPYPREP LIB.CNTLS LIB.CNTLQ
- DSN=USER07.LIB.CNTLS,VOL=SER=SER001 MEM= -----
>----->u
PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR 3380 C FB 80 6400 6X 110 17 20 TRK 9

PDS181I Extents in tracks: 10, 20, 20, 20, 20, 20

PDS182I Tracks: ALLOCATED USED FREE EXTENTS VOLUME
PDS182I 110 93 17 6 SER001

PDS183I Directory: BLOCKS USED FREE TRACKS MEMBERS ALIASES
PDS183I 20 11 9 1 68 0
```

```
----- ISPMODE Session# 1 Log# 1 --- Row 106 to 120 of 120
COMMAND ==>
- DSN=USER07.LIB.CNTLQ,VOL=SER=SER001 MEM= -----
>----->u
PDS200I DISP UNIT OPT RECFM LRECL BLKSIZE ALLOCTRK FREETRK SECONDARY FREEDIR
PDS200I SHR 3380 C FB 80 6320 3X 99 98 3 TRK 16

PDS181I Extents in tracks: 3, 3, 93

PDS182I Tracks: ALLOCATED USED FREE EXTENTS VOLUME
PDS182I 99 1 98 3 SER001

PDS183I Directory: BLOCKS USED FREE TRACKS MEMBERS ALIASES
PDS183I 17 1 16 1 0 0
```

MAP LCT -- Produce Linkage Control Table Statements

The MAP subcommand has an LCT option to produce Linkage Control Table inputs for the CMNSSIDN program.

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          -----> map cmnapspl                      Columns 00001 00072
Command ==>                               Scroll ==> CSR
***** ***** Top of Data *****
000001
000002 ** MAP          CMNAPSPL
000003 CMNAPSPL 00000000 00005CF0  RMODE ANY AMODE ANY
000004 PDS441W IGZETUN (Weak)
000005 PDS441W IGZEOPT (Weak)
000006 IGZEBST 00005CF0 00000450  RMODE ANY AMODE 31
000007                                           IGZEB52 00005FAE
000008
000009 PDS103I Entry point at 00000000 -- CMNAPSPL
000010 PDS104I Module length 00006140 --      25K

```

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          -----> map CMNAPSPL lct                      Columns 00001 00072
Command ==>                               Scroll ==> CSR
***** ***** Top of Data *****
*****
000001
000002 ** MAP          CMNAPSPL
000003 **LKED      EXEC  PGM=IEWL,
000004 **          PARM='NCAL,MAP,LIST,LET,RENT,REUS'
000005 INCLUDE     SYSLIB(CMNAPSPL)
000006 ORDER       CMNAPSPL,IGZEBST
000007 SETSSI      40BE1799
000008 MODE        RMODE(ANY),AMODE(31)
000009 ENTRY       CMNAPSPL
000010 NAME        CMNAPSPL(R)

```

The LCTJCL batch JCL member separates MAP LCT statements into sets of linkage edit inputs by name.

```

-----
----- Source MEMLIST 1, Session# 1 ----- Row 1 to 19 of 19
COMMAND ==>                               SCROLL ==> CSR
- DSN=P390.LIB.JCL,VOL=SER=SER001 MEM=: -----
CMD  NAME      DATA/MSG VER.MOD  CREATED      LAST  MODIFIED  SIZE  INIT  ID
    DSAT
    DSATL
    DSATMAIN
    DSATREPL
    DSATZ
    DSAT2
    DSAT2000
    DSAT2001
    DSAT381

```

```

Menu Utilities Compilers Help
-----
BROWSE      P390.LIB.JCL(DSAT)                               Line 00000000 Col 001 080
Command ==>                                           Scroll ==> CSR
***** Top of Data *****
**LKED EXEC PGM=IEWL,
**      PARM='NCAL,MAP,LIST,LET,RENT,REUS,REFR'
INCLUDE SYSLIB(DSAT)
ORDER DSAT,DSATPDS,DSATPCL
SETCODE AC(1)
ENTRY DSAT
ALIAS DSATA,DSATAA
NAME DSAT(R)

```

Load Module HISTORY Preload

StarTool FDM produces inputs for the CMNBAHST to implement change management.

```

----- ISPMODE Session# 1 Log# 1 --- Row 337 to 363 of 420
COMMAND ==>                                           SCROLL ==> CSR
- DSN=USER07.LINK.LOAD,VOL=SER=SER001 MEM=(CMN/ -----
>----->history (cmn/,dsat)

** HISTORY CMNAPSPL
PDS060I Translator history by CSECT -
CMNAPSPL 94/06/02 566895801-COBOLII V14 M00
IGZEBST 93/01/06 566896201-ASMH V02 M01 93/01/06 C'PL/AS' V01 M03
PDS260I
      CSECT__VER_TEST_SSRANG_OPT_CMPR2_ZWB_NUMPR_TRUNC_RES_RENT_DYNAM_DATA_
PDS260I CMNAPSPL II OPT ZWB NOPFD (OPT) RES RENT DYNAM 24
PDS061I AMASPZAP update history by CSECT -
PDS067I Member has 1 IDR blocks with space for 19 IDR entries
PDS068I 0 IDR entries are in use; 19 are available for use
PDS062I User-supplied update history by CSECT -
CMNAPSPL 94/06/02 CMNAPSPL/40BE1799/C410000021
IGZEBST 93/01/06 RSI30060557
PDS064I Last link-edited on 94/06/02 by LKED 5695DF108 V01 M01

** HISTORY CMNOFM
PDS060I Translator history by CSECT -
CMNZDRV 94/04/14 5740CB103-COBOLVS V02 M04
CMNZFRM 94/04/14 5740CB103-COBOLVS V02 M04
CMNZMGR 94/04/14 5740CB103-COBOLVS V02 M04
CMNZNTF 94/04/14 5740CB103-COBOLVS V02 M04
COBTOCMN 94/03/28 566896201-ASMH V02 M01
IGZEOPT 94/03/28 566896201-ASMH V02 M01
PATDATES 93/10/15 566896201-ASMH V02 M01

```

```

----- ISPMODE Session# 1 Log# 1 --- Row 421 to 441 of 441
COMMAND ==>                                SCROLL ==> CSR
- DSN=USER07.LINK.LOAD,VOL=SER=SER001 MEM=(CMN/ -----
>----->history (cmn/,dsat) generate

** HIST CMNAPSPL      RENT REUS                RANY A31
PDS260I CMNAPSPL II  NYNNNNYNNYNNYNNYNNYNNYNNNNNNNNNNNNNNNNNNNN

** HIST CMNOFM          REUS                R24  A24
PDS250I CMNZMGR  VSS  NNNNNYNNNNNNNNYNNNNNNNNNN
PDS250I CMNZDRV  VSS  NNNNNYNNNNNNNNYNNNNNNNNNN
PDS250I CMNZFRM  VSS  NNNNNYNNNNNNNNYNNNNNNNNNN
PDS250I CMNZNTF  VSS  NNNNNYNNNNNNNNYNNNNNNNNNN
PDS250I CMNZVRB  VSS  NNNNNYNNNNNNNNYNNNNNNNNNN
PDS255I Run-time options: NNNNNNNNNNNYNNYNNYNNNNNNNNNNNNNNNNNNNNNN
PDS251I CMNCCASM ASS
PDS251I COBTOCMN ASS
PDS251I SERDATES ASS
PDS251I PATDATES ASS

** HIST DSAT          RENT REUS REFR          R24  A24
PDS251I DSAT        AS
PDS251I DSATPDS    ASS
PDS251I DSATPCL    ASS
***** Bottom of data *****

```

```

----- ISPMODE Session# 1 Log# 1 ----- Row 73 to 91 of 133
COMMAND ==>                                SCROLL ==> CSR
- DSN=USER07.HISTOUT,VOL=SER=SER001 -----
*
CMP=CMNAPSPL,LIB=LOD
COP=
LOP=RENT,REUS,RMODE(ANY),AMODE(31)
*
CMP=CMNAPSPL,LIB=SRC
COP=NOADV,APOST,DATA(24),NOD,DYN,LIB,NUM,OPT,RENT,NOSEQ,TERM,TRUNC(OPT),
LOP=RENT,REUS,RMODE(ANY),AMODE(31)
PRC=CMNCOB2,LNG=COBOL2
*
CMP=CMNZMGR,LIB=SRC
COP=FLOW,OPT,STATE LOP=REUS

```

```

CMNUSR01 ----- STAGE: USER OPTIONS -----
COMMAND ==>

NAME: LIOCCP          TYPE: SRC          LANGUAGE: COBOL

COMPILE ONLY          ==>          ENTRY TO DLITCBL  ==>
CICS PRE-COMPILE      ==> Y          DROP INCLUDE STMTS ==>
EASYTRIEVE NO NAME    ==>          USER OPTION 06    ==>
USER OPTION 07        ==>          USER OPTION 08    ==>
USER OPTION 09        ==>          USER OPTION 10    ==>
USER OPTION 11        ==>          USER OPTION 12    ==>
USER OPTION 13        ==>          USER OPTION 14    ==>
USER OPTION 15        ==>          USER OPTION 16    ==>
USER OPTION 17        ==>          USER OPTION 18    ==>
USER OPTION 19        ==>          USER OPTION 20    ==>

Use Y or N to select or deselect additional processing options;
Press ENTER to continue; Enter END command to exit.

```

```
CMNSTG04 ----- STAGE: COMPILE AND LINK EDIT -----  
COMMAND ==>  
  
      PACKAGE ID: CKLY000712      STATUS: DEV      INSTALL DATE: 960611  
  
STAGED NAME:      LIOCCP  
LIBRARY TYPE:     SRC - Source Code  
LANGUAGE:         COBOL  
DATASET NAME:     USER99.CMN.S410DP.CKLY.#000712.SRC  
  
COMPILE PROCEDURE ==> CMNCOBOL (Blank for list; ? for designated procedure)  
COMPILE PARMS     ==> APOST  
LINK EDIT PARMS   ==> NCAL  
DB2 PRE-COMPILE   ==> NO      (Y/N)  
OTHER OPTIONS     ==> YES     (Y/N to display other options)
```


Chapter 7

Load and Source Member Expert

StarTool FDM has many useful module and member utilities; however, most of these utilities process members individually. The utilities in this section analyze an entire source or load library or just selected members.

These routines use StarTool FDM subcommands internally and produce work files to produce a variety of analysis reports.

IMPACT	itemizes CSECTS within load members and compares these CSECT names to source member names and program names within source members.
COMPCHK	summarizes the historical information of multiple members or an entire load library.
CSECTCHK	identifies inconsistencies of CSECTS use across multiple load members or an entire library.
LANGTYPE	analyzes source members to identify languages used and marks a member list.

IMPACT -- Load to Source Reconciliation

Load Option 10.14 or IMPACT identifies CSECTS within load members and matches these CSECT names to source library member names (and program names within members) to locate matching source and load members.

IMPACT performs the following steps:

- 1 prompts for any number of source and load libraries and builds a customized data set table.
- 2 prompts for member groups to analyze for each of the following member types: load library members, assembler members, COBOL members and PL/I members.
- 3 analyzes and extracts the CSECT names and member names and builds a list of members to find.
- 4 searches the source data sets with a GLOBAL FIND command for each source language type (Assembler, COBOL and PL/I) for program names, matches CSECT names to these program names and displays intermediate search results.
- 5 At the conclusion of the searches, IMPACT places you into a WORKPAD that has an entry for each member name, program name or CSECT, date if available, and the corresponding data set name. Comments are added to WORKPAD to indicate potential missing source or missing load members.

Initiate IMPACT as Option 10.14.

```

----- StarTool Search and Replace Selections -----
OPTION  ==> 14

Choose one of the following:

  1 - MODULE   - search system for module name
  2 - ADDRESS  - search system for module using memory address
  3 - SEEKDS   - search group of libraries for a member
  4 - FINDDS   - search group of libraries for members containing a string
  5 - REPLDS   - update members in a group of libraries
  6 - SEEKCON  - search data set concatenation for a member
  7 - FINDCON  - search data set concatenation for members containing a string
  8 - REPLCON  - update members in a data set concatenation
  9 - FIND     - search current source data set for members containing a string
 10 - REPL     - update current source data set members which contain a string
 11 - IF       - search current source data set for members with given
      attributes
 12 - VERIFY   - search current source data set for members with errors
 14 - IMPACT   - reconcile load library members with associated source
      libraries
 15 - COMPCHK  - check a load library for compiler usage
 16 - CSECTCHK - check a library for like CSECTS with different compile dates
 17 - LANGTYPE - check a source library for languages used and mark a MEMLIST

Current data set is USER07.LIB.CLIST,VOL=SER=SER002  MEM=(

```

The following panel builds a customized data set list that contains all source and load data sets to be searched in the IMPACT matching process. From this data set prompt panel, type up to 10 data set names or data set masks, press **Enter** and continue entering data set names or data set masks.

```

----- IMPACT: Impact analysis--locate source for load -----
OPTION  ==>

Enter one or more data set names or data set masks.
Note that names must be fully qualified with no quotes.

Press ENTER to add entries to the LISTC table or
press END (PFK 3) when you have specified all source and load data sets.

==> user07.test.sourc*
==> user07.test.load*
==>
==>
==>
==>

The Data set mask field should be entered as a partial data set name and
each level may contain an asterisk before or after any characters in a level.
For example, the following specifications would be valid:
SYS1.THE.DATASET.NAME
HABL.LI*.*.NTL

```


After pressing Enter on the prompting panel, a transient panel displays like the following showing the table of source and load data sets as they are being built. Control returns to the data set prompt panel allowing you to enter additional data set names.

```
----- List files 0      - (Attributes) ----- Row 1 to 4 of 4
COMMAND ==>
                                SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=LANGTYP -----
CMD  C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL
BLKSI
  Y Y      USER07.TEST.LOAD1_____ SHARE1 PO U      6144 19069
  Y Y      USER07.TEST.LOAD2_____ SHARE1 PO U      6144 19069
  Y Y      USER07.TEST.SOURCE1_____ SHARE1 PO FB      80 9040
  Y Y      USER07.TEST.SOURCE2_____ SHARE1 PO FB      80 9040
***** Bottom of data *****
```

You can continue entering as many data set names or masks as you want. To terminate this prompting sequence, type END.

```
----- IMPACT: Impact analysis--locate source for load -----
OPTION ==> end

Enter one or more data set names or data set masks.
Note that names must be fully qualified with no quotes.

Press ENTER to add entries to the LISTC table or
press END (PFK 3) when you have specified all source and load data sets.

==>
==>
==>
==>
==>

The Data set mask field should be entered as a partial data set name and
each level may contain an asterisk before or after any characters in a level.
For example, the following specifications would be valid:
SYS1.THE.DATASET.NAME
HABL.LI*.*.*NTL
```

In this panel, type the member or member groups for analysis. Enter a member group for the load libraries and at least one member group for Assembler, COBOL and PL/I source members. In this case, all members for each member type are to be analyzed.

This process executes its analysis phase in the background. If you run IMPACT in the background be sure to execute CLIST IMPACTXR to copy the results back into your edit profile after the batch job completes.

```

----- IMPACT: Impact analysis--locate source for load -----
OPTION ==>

- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=LANGTYP -----
  Member or member group for load libraries ==> :
  Member or member group for ASM libraries ==> :
  Member or member group for COB libraries ==> :
  Member or member group for PL/I libraries ==> :
  Process in foreground ==> YES (No for background)
  Note: If a language type search is not required, leave the prompt field
        blank.

After processing in the background, use CLIST IMPACTXR to retrieve results.

You need to enter a member name or member group name to specify which
members are to be processed. The following are example names:
  abcde - for the single member ABCDE
  : - for all members in the data set
  aa* - for all members beginning with AA (* denotes a generic)
  (a,b,c2) - for members A, B and C2 (parentheses enclose a member list)
  (acc*,inv*,xyz*) - List of generic names enclosed in parentheses

Field level help from the member group input field will provide additional
samples (place the cursor on the input field and press PF1).

```

This intermediate results panel displays after load members are analyzed. Press Enter on each of the intermediate results panels when you are ready to proceed to the next IMPACT segment.

```

----- List files IMPACT - (Attributes) ----- Row 1 to 4 of 4
COMMAND ==>                                     SCROLL ==> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=: -----
CMD  C V DATA/MSG ----- +----- Search Data Set Results -----
-+
- Y *HISTORY USER07. |
- Y *HISTORY USER07. | OPTION =>
- Y *BYPASS* USER07. |
- Y *BYPASS* USER07. |
*****|
|      Number of data sets searched:          2
|      Number of data sets with matches:      2
|      Total number of members:              13
|
| Press ENTER to view the log
| Press END to display data set table
| Press RCHANGE (PF6/18) to remove data
|      sets bypassed or with no matches
+-----+

```

This optional intermediate results panel displays if Assembler source members are analyzed. In this case, three Assembler routines were identified in one data set.

```
----- List files IMPACT - (Attributes) ----- Row 1 to 4 of 4
COMMAND ===>                                     SCROLL ===> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=: -----
CMD  C V DATA/MSG ----- +----- Search Data Set Results -----+
  - Y *BYPASS* USER07. |
  - Y *BYPASS* USER07. | OPTION =>
  - Y *NOMATCH USER07. |
  - Y *FIND   USER07. |   Number of data sets searched:      2
***** |   Number of data sets with matches:  1
          |   Total number of members:         3
          |
          | Press ENTER to view the log
          | Press END to display data set table
          | Press RCHANGE (PF6/18) to remove data
          |       sets bypassed or with no matches
          +-----+

```

This optional intermediate results panel displays if COBOL source members are analyzed. In this case, ten COBOL members were identified in two data sets.

```
----- List files IMPACT - (Attributes) ----- Row 1 to 4 of 4
COMMAND ===>                                     SCROLL ===> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=: -----
CMD  C V DATA/MSG ----- +----- Search Data Set Results -----+
  - Y *BYPASS* USER07. |
  - Y *BYPASS* USER07. | OPTION =>
  - Y *FIND*   USER07. |
  - Y *FIND*   USER07. |   Number of data sets searched:      2
***** |   Number of data sets with matches:  2
          |   Total number of members:         10
          |
          | Press ENTER to view the log
          | Press END to display data set table
          | Press RCHANGE (PF6/18) to remove data
          |       sets bypassed or with no matches
          +-----+

```

This optional intermediate results panel displays if PL/I source members are analyzed. In this case, a single PL/I member was identified in one of the source libraries.

```
----- List files IMPACT - (Attributes) ----- Row 1 to 4 of 4
COMMAND ===>                                     SCROLL ===> CSR
- DSN=USER07.LIB.CLIST,VOL=SER=SER002 MEM=: -----
CMD  C V DATA/MSG ----- +----- Search Data Set Results -----+
  -+
  - Y *BYPASS* USER07. |
  - Y *BYPASS* USER07. | OPTION =>
  - Y *NOMATCH USER07. |
  - Y *FIND*   USER07. |   Number of data sets searched:      2
***** |   Number of data sets with matches:  1
          |   Total number of members:         1
          |
          | Press ENTER to view the log
          | Press END to display data set table
          | Press RCHANGE (PF6/18) to remove data
          |       sets bypassed or with no matches
          +-----+

```

After pressing **Enter** on each of the intermediate results panels, a WORKPAD called IMPACT displays the final results with all source and load matches. You can type line commands such as ED to edit any source member.

The IMPACT WORKPAD is sorted in PGM NAME order. Also, several other sorts are defined so that you can view this information in other ways.

Following are some notes for interpreting the WORKPAD.

- 1** Load member TBLHNDLR contains a CSECT called ALLOCMEM in data set USER07.TEST.LOAD1.
- 2** Source member MEMALLOC contains a program called ALLOCMEM that corresponds to this member.
- 3** Source member BREAKOUT contains a program called BREAKDSN with no corresponding load member.
- 4** Source member CNV2GREG is at an earlier level than load member CNV2GREG.
- 5** Source member CONVDATE does not have ISPF statistics; it may be at the level of the two load members.
- 6** Source member DATECONV is at a later level than load member DATECONV; however, source member DATECON2 was modified on the same date that this load member was created.

- 7 Load member WATDSN contains a CSECT called DSNTAB that has no corresponding source member.

```

----- StarTool WORKPAD Table IMPACT ----- Row 1 to 32 of 44
COMMAND ==>                                SCROLL ==> CSR
Enter an ISPF command or a special control code:
-----
OPT  MSG/RC  TYP MEMBER  PGM NAME  -- DATE --  ----- DSNAME/COMMAND -----
ed   D TBLHNDLR ALLOCMEM 1994/04/06 'USER07.TEST.LOAD1'
      D MEMALLOC ALLOCMEM 1994/04/06 'USER07.TEST.SOURCE2'
      D BREAKOUT BREAKDSN 1996/01/07 'USER07.TEST.SOURCE2'
      * *          BREAKDSN          No matching load
      D CNV2GREG CNV2GREG 1992/12/10 'USER07.TEST.LOAD1'
      D CNV2GREG CNV2GREG 1990/05/24 'USER07.TEST.SOURCE1'
      D DATECONV CONVDATE 1987/12/07 'USER07.TEST.LOAD1'
      D GETDSCB1 CONVDATE 1987/12/07 'USER07.TEST.LOAD1'
      D CONVDATE CONVDATE          'USER07.TEST.SOURCE2'
      D DATECONV DATECONV 1991/12/22 'USER07.TEST.LOAD1'
      D DATECON2 DATECONV 1991/12/22 'USER07.TEST.SOURCE1'
      D DATECONV DATECONV 1996/08/14 'USER07.TEST.SOURCE1'
      D WATDSN   DSNTAB   1991/07/01 'USER07.TEST.LOAD1'
      * *          DSNTAB          No matching source
      D GETDSCB1 GETDSCB1 1992/07/27 'USER07.TEST.LOAD1'
      D GETDSCB1 GETDSCB1 1992/07/27 'USER07.TEST.SOURCE1'
      D DATECONV IKJUPDT 1994/06/25 'USER07.TEST.LOAD1'
      * *          IKJUPDT          No matching source
      D LOADEXTR LOADEXTR 1990/02/01 'USER07.TEST.LOAD1'
      D LOADEXTR LOADEXTR 1990/02/01 'USER07.TEST.SOURCE1'
      D LOADPRNT LOADPRNT 1990/01/07 'USER07.TEST.LOAD1'
      D LOADPRNT LOADPRNT 1990/01/07 'USER07.TEST.SOURCE1'
      D VSAMMAPP 0929B15 1996/07/07 'USER07.TEST.LOAD2'
      D CBT1269  0929B15 1996/07/07 'USER07.TEST.LOAD2'
      D VSAMMAPP 0929B15 1996/07/07 'USER07.TEST.SOURCE2'
      D GETDSCB1 PASSDSCB 1990/11/21 'USER07.TEST.LOAD1'
      * *          PASSDSCB        No matching source
      D DATECONV PCL      1991/12/22 'USER07.TEST.LOAD1'
      * *          PCL            No matching source
      D TBLHNDLR SCAN4HIT 1994/04/06 'USER07.TEST.LOAD1'
      * *          SCAN4HIT        No matching source
      D DATECONV SERLCONV 1991/06/01 'USER07.TEST.LOAD1'
      D SERLCONV SERLCONV 1991/06/01 'USER07.TEST.LOAD1'
      D SERLCONV SERLCONV 1991/06/01 'USER07.TEST.SOURCE1'
      D SSR01AR  SSR01AR 1996/06/09 'USER07.TEST.LOAD1'
      D SSR01AR  SSR01AR          'USER07.TEST.SOURCE1'2

```

The following edit session is the result of typing an ED line command in the WORKPAD.

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          USER07.TEST.SOURCE2(BREAKOUT) - 01.00          Columns 00001 00072
Command ==>
***** Top of Data *****
000001 000010*****
000002 000100 ID DIVISION.
000003 000110*****
000004 000200 PROGRAM-ID.          BREAKDSN.
000005 000300 AUTHOR.             GARY DUFFIELD.
000006 000310 REMARKS.
000007 000320                      THIS PROGRAM EDITS ANY DATASET NAME PASSED TO IT
000008 000330                      AND SPLITS OUT THE PDS MEMBER NAME IF IT EXISTS.
000009 000340
000010 000350*****
000011 000400 ENVIRONMENT DIVISION.
000012 000410*****
000013 000500 CONFIGURATION SECTION.
000014 000600 SOURCE-COMPUTER.  IBM-370.
000015 000700 OBJECT-COMPUTER. IBM-370.
000016 000800
000017 000810*****
000018 000900 DATA DIVISION.
000019 000910*****
000020 001100 WORKING-STORAGE SECTION.

```

COMPCHK - Load Library Summary

Option 10.15 or COMPCHK summarizes the contents of a load library. It provides four different load library reports to evaluate selected members or an entire load library.

```

----- StarTool Search and Replace Selections -----
OPTION ==> 15

Choose one of the following:

  1 - MODULE   - search system for module name
  2 - ADDRESS  - search system for module using memory address
  3 - SEEKDS   - search group of libraries for a member
  4 - FINDDDS  - search group of libraries for members containing a string
  5 - REPLDS   - update members in a group of libraries
  6 - SEEKCON  - search data set concatenation for a member
  7 - FINDCON  - search data set concatenation for members containing a string
  8 - REPLCON  - update members in a data set concatenation
  9 - FIND     - search current source data set for members containing a string
 10 - REPL     - update current source data set members which contain a string
 11 - IF       - search current source data set for members with given
      attributes
 12 - VERIFY   - search current source data set for members with errors
 14 - IMPACT   - reconcile load library members with associated source
      libraries
 15 - COMPCHK  - check a load library for compiler usage
 16 - CSECTCHK - check a library for like CSECTS with different compile dates
 17 - LANGTYPE - check a source library for languages used and mark a MEMLIST

Current data set is USER07.LIB.FILE112,VOL=SER=SER002 MEM=VTOC

```

COMPCHK operates with the StarTool FDM log. COMPCHK first clears the log and places the output of a StarTool FDM HISTORY subcommand for the specified members into the log. Then, COMPCHK filters out IBM compiler run-time routines, sorts the data and places the results of its analysis into the log after the end of the HISTORY output.

The load library analysis reports are as follows:

Compiler summary	shows the compilers (with the translator identifier) and versions used in compiling the specified members. A member can be counted for several different compilers or compiler levels if it is made up of multiple separately compiled CSECTS.
AMASPZAP summary	is produced if any CSECTS analyzed have zaps applied.
USERDATA summary	is produced if any CSECTS analyzed contain user IDR data (IBM and other software vendors use USERDATA information to document internal changes).
Linkage edit summary	provides a summary of linkage edit dates. With this information, you can determine the relative age of the members in a data set.

The first panel permits you to specify which load library and, optionally, which members the COMPCHK process is to analyze.

```

----- Compiler analysis -----
OPTION ==>

- DSN=USER07.LIB.FILE112,VOL=SER=SER002 MEM=(DSAT -----
  Enter Load DSNAME      ==> LINK.LOAD
  Member or member group ==> (DSAT,PDSE5*)
  Main members only      ==> YES          (Yes to perform SUBLIST ONLYMAIN or
                                          No to process all members in the
                                          member group including alias members)

You need to enter a member name or member group name to specify which
members are to be processed. The following are example names:
abcde   - for the single member ABCDE
:       - for all members in the data set
aa*     - for all members beginning with AA (* denotes a generic)
(a,b,c2) - for members A, B and C2 (parentheses enclose a member list)
(acc*,inv*,xyz*) - List of generic names enclosed in parentheses

Field level help from the member group input field will give
additional samples (put cursor on the input field and press PF1)

```

Results display in the log as shown below.



NOTE All of the analyzed output from the HISTORY subcommand is in the log just above the beginning of these results.

```

----- ISPMODE Session# 1 Log# Row 1,011 to 1,037 of 1,062
COMMAND ==>
SCROLL ==> CSR
- DSN=USER07.LINK.LOAD,VOL=SER=SER002 MEM=(DSAT -----
>----->Analysis results

Compiler summary:
Compiler  Trans-id      Vnn Mnn  members
-----  -
ASMA90    569623400  V01 M01    205
ASMA90    569623400  V01 M02     18
ASMH      566896201  V02 M01     22
COBOL370  566895807  V11 M00     31
PL1       5734-PL1   V03 M00      7

AMASPZAP summary:
Zapname   members
-----
P440END      12
P510AFT       4
P510COK       1

USERDATA summary:
User data name                      members
-----
STARTOOL, VERSION 7.7.1.0, 2001.146    1
UZ23355                      14
UZ25385                      3

Linkage edit summary:
Linkdate   members
-----
1994/03/17    22
1995/12/19   101
1997/04/03     2
    
```


CSECTCHK - Load Library Component Check

Option 10.16 or CSECTCHK identifies inconsistencies in CSECTS (differing compilers, link dates, USERDATA, ZAP or translator level) within multiple load members. CSECTCHK evaluates selected members of a load library or an entire load library.

```

----- StarTool Search and Replace Selections -----
OPTION  ===> 16

Choose one of the following:

  1 - MODULE   - search system for module name
  2 - ADDRESS  - search system for module using memory address
  3 - SEEKDS   - search group of libraries for a member
  4 - FINDDS   - search group of libraries for members containing a string
  5 - REPLDS   - update members in a group of libraries
  6 - SEEKCON  - search data set concatenation for a member
  7 - FINDCON  - search data set concatenation for members containing a string
  8 - REPLCON  - update members in a data set concatenation
  9 - FIND     - search current source data set for members containing a string
 10 - REPL     - update current source data set members which contain a string
 11 - IF       - search current source data set for members with given
      attributes
 12 - VERIFY   - search current source data set for members with errors
 14 - IMPACT   - reconcile load library members with associated source
      libraries
 15 - COMPCHK  - check a load library for compiler usage
 16 - CSECTCHK - check a library for like CSECTS with different compile dates
 17 - LANGTYPE - check a source library for languages used and mark a MEMLIST

Current data set is USER07.LIB.FILE112,VOL=SER=SER002 MEM=VTOC

```

CSECTCHK assumes that if a CSECT appears in a load member, it should be at the same level for all load members checked. If the checked members represent multiple release levels of the same source member or if the same CSECT name is used in multiple load members, the CSECTCHK routine reports many lines of potential problems.

CSECTCHK operates with the StarTool FDM log. CSECTCHK first clears the log and places the output of a StarTool FDM HISTORY subcommand for the specified members into the log. Then, CSECTCHK filters out IBM compiler run-time routines, sorts the data and places the results of its analysis into the log after the end of the HISTORY output.

The internal consistency report shows several types of potential problems:

Compilation date differs	in the following example, a CSECT named DVOL in members DVOL and DVOL3 were compiled or assembled on different dates.
Zap date differs	in the following example, a CSECT named DVOL in members DVOL and DVOL3 have different AMASPZAP dates.
Translator or level differs	in the following example, a CSECT named DVOLPCL was compiled or assembled with a different compiler or a different level of the same compiler.
User-supplied data differs	in the following example, a CSECT named IXTOFMT5 in MEMBERS DUSE and XREFA has different user IDR information; IBM and other software vendors use IDR information to document internal module changes.

Internal consistency example:

CSECT	MEMBER1	MEMBER2	Problem
DVOL	DVOL	DVOL3	Compilation date differs
DVOL	DVOL	DVOL3	Zap rate differs
DVOLPCL	DVOL	DVOL3	Translator or level differs
IXTOFMT5	DUSE	XREFA	User-supplied data differs

The first panel permits you to specify which load library and, optionally, the members CSECTCHK is to analyze.

```

----- CSECT consistency analysis -----
OPTION ==>

- DSN=USER07.LIB.FILE112,VOL=SER=SER002 MEM=(DSAT -----
-
  Enter Load DSNAME      ==> LINK.LOAD
  Member or member group ==> (DSAT,PDSE5*)
  Main members only      ==> YES          (Yes to perform SUBLIST ONLYMAIN or
                                          No to process all members in the
                                          member group including alias members)

You need to enter a member name or member group name to specify which
members are to be processed. The following are example names:
  abcde - for the single member ABCDE
  :      - for all members in the data set
  aa*    - for all members beginning with AA (* denotes a generic)
  (a,b,c2) - for members A, B and C2 (parentheses enclose a member list)
  (acc*,inv*,xyz*) - List of generic names enclosed in parentheses

Field level help from the member group input field will give
additional samples (put cursor on the input field and press PF1)

```

Results display in the log as shown below.



NOTE All of the analyzed output from the HISTORY subcommand is in the log just above the beginning of these results.

```

----- ISPMODE Session# 1 Log# Row 1,001 to 1,027 of 2,826
COMMAND ==>
- DSN=USER07.LINK.LOAD,VOL=SER=SER002 MEM=(DSAT -----
>----->Analysis results
Internal consistency problems:
CSECT MEMBER1 MEMBER2 Problem
-----
COMPARED PDSE510 PDSE510B Compilation date differs
COMPARED PDSE510 PDSE510D Compilation date differs
COMPARED PDSE510 PDSE520 Compilation date differs
PDSMAIN PDSE510D PDSE520A Zap date differs
PDSMAIN PDSE510D PDSE520A User-supplied data differs
PDSMAIN PDSE510D PDSE520B Compilation date differs
PDSMAIN PDSE510D PDSE520B Zap date differs
PDSMAIN PDSE510D PDSE520B User-supplied data differs
PDSMAIN PDSE520 PDSE520A Compilation date differs
PDSVERIF PDSE520 PDSE520B Compilation date differs
PDSVERIF PDSE520A PDSE520B Compilation date differs
PDSVTOCR PDSE510 PDSE510B TRANSLATOR or LEVEL differs
PDSVTOCR PDSE510 PDSE510B Compilation date differs

```

LANGTYPE -- Categorize Source Languages

Load Option 10.17 or LANGTYPE identifies the type of language used in individual source members. LANGTYPE is a guided dialog for categorizing the contents of a source library. You can evaluate selected members of a source library or an entire source library.

```

----- StarTool Search and Replace Selections -----
OPTION ==> 17

Choose one of the following:

 1 - MODULE - search system for module name
 2 - ADDRESS - search system for module using memory address
 3 - SEEKDS - search group of libraries for a member
 4 - FINDDS - search group of libraries for members containing a string
 5 - REPLDS - update members in a group of libraries
 6 - SEEKCON - search data set concatenation for a member
 7 - FINDCON - search data set concatenation for members containing a string
 8 - REPLCON - update members in a data set concatenation
 9 - FIND - search current source data set for members containing a string
10 - REPL - update current source data set members which contain a string
11 - IF - search current source data set for members with given
    attributes
12 - VERIFY - search current source data set for members with errors
14 - IMPACT - reconcile load library members with associated source
    libraries
15 - COMPCHK - check a load library for compiler usage
16 - CSECTCHK - check a library for like CSECTS with different compile dates
17 - LANGTYPE - check a source library for languages used and mark a MEMLIST

Current data set is USER07.LIB.CLIST,VOL=SER=SER002 MEM=(

```

First, a LIST subcommand outputs the number of lines specified in the Search limit for each processed member of the source library. Then, a summary report categorizes members by language type based on the listed text from each member.

If Build MEMLIST and Flag is set to YES, a member list is created for all members in the group and each member is marked in its DATA/MSG field to indicate the language type. For example, a panel member is marked as *PANEL.

Specify the source data set to analyze and the members to be processed.

```

----- Language Type Analysis -----
OPTION ==>

- DSN=USER07.LIB.ASM,VOL=SER=SER001 MEM=ACUT -----
  Enter source DSNAME ==> LIB.ASM
  Member or member group ==> :
  MEMLIST already built ==> NO (Yes or No; YES to ignore the above entries)
  Build MEMLIST and Flag ==> YES (Yes or No; YES to mark MEMLIST entries)
  Search limit ==> 15 (1 to 999; for maximum records to search)

You need to enter a member name or member group name to specify which
members are to be processed. The following are example names:
  abcde - for the single member ABCDE
  : - for all members in the data set
  aa* - for all members beginning with AA (* denotes a generic)
  (a,b,c2) - for members A, B and C2 (parentheses enclose a member list)
  (acc*,inv*,xyz*) - List of generic names enclosed in parentheses

Field level help from the member group input field will give
additional samples (put cursor on the input field and press PF1)

```

The following is a LANGTYPE output sample that shows the language types that can be identified.)

```

EDIT          ----->Analysis results                      Columns 00001 00072
Command ==>                                           Scroll ==> CSR
***** ***** Top of Data *****
000001 Member summary:
000002
000003 Language          Total
000004 -----          -----
000005 Assembler              7
000006 CLIST                   2
000007 COBOL                   0
000008 EDITMAC                 0
000009 JCL                      6
000010 PL/I                     1
000011 REXX                     2
000012 PANEL                   6
000013 MSGS                     0
000014 SKEL                     1
000015 TSOHELP                 2
000016 COPYBOOK                3
000017 unknown                  5
000018 -----
000019 Total members          35
000020

```

```

EDIT          ----->Analysis results                      Columns 00001 00072
Command ==>                                         Scroll ==> CSR
***** ***** Top of Data *****
000021
000022 Member details:
000023
000024 Language      Members
000025 -----
000026 Assembler     $$$530A, $$$531, $LOOS, $REREAD, $SMSSTG, $STARBA2,
000027                $STARBA3
000028 CLIST         IBM@1026, IBM@1027
000029 JCL           $$DOCFMT, $PDSE0FX, $PDSE0GN, $PDSRX, $SMPGEN, PDSXGEN
000030 PL/I          AMAGNUS
000031 REXX          AX0BOBB1, PDSIS000
000032 PANEL        $$$DOCP, PDSIP100, PDSIP200, PDSOH002, PDSOP000, PDXPANL
000033 SKEL          PDSIS100
000034 TSOHELP      $LISTC, $SPACE
000035 COPYBOOK     $SECUR, PDSIS230, PDSIS240
000036 unknown      $$$530F, $MODLOOK, $MODS, $NOTES, $PDSEMON

```

After you end the edit display, go to a generated MEMLIST like the following.

```

----- Source MEMLIST 1, Session# 1 ----- ROW 1 TO 20 OF 35
COMMAND ==>                                         SCROLL ==> CSR
- DSN=USER07.LIB.ASM,VOL=SER=SER001 MEM=($$$530A -----
  CMD  NAME      DATA/MSG  VER.MOD  CREATED      LAST  MODIFIED  SIZE  INIT  ID
    $$$530A *ASSEMBL  01.02  1998/05/22  1998/05/29  9:25  221    39  USER07
    $$$530F *UNKNOWN  01.02  1998/03/24  1998/03/24  7:49  111   100  USER07
    $$$531  *ASSEMBL  01.31  1998/09/03  1998/10/29  17:58  44    11  USER07
    $$$DOCP *PANEL    01.09  1995/12/20  1997/12/01  12:09  37    37  USER07
    $$DOCFMT *JCL     01.10  1993/08/06  1993/09/23  19:03  22    11  USER07
    $LISTC   *TSOHELP  01.00  1993/05/12  1993/05/12  11:25  333   33  USER07
    $LOOS    *ASSEMBL  01.00  1989/02/17  1989/02/17  12:37  122   121  USER07
    $MODLOOK *UNKNOWN  01.00  1992/09/03  1992/09/03  13:52  112   11  USER07
    $MODS    *UNKNOWN  83.32  1985/06/16  1989/02/28  9:10   23    21  USER07
    $NOTES   *UNKNOWN  80.00  1986/03/04  1986/03/04  10:35  23    21  USER07
    $PDSEMON *UNKNOWN  01.05  1994/05/03  1994/05/03  15:36  23    21  USER07
    $PDSE0FX *JCL     01.03  1994/08/15  1995/09/15  15:28  111   121  USER07
    $PDSE0GN *JCL     01.27  1993/03/04  1999/03/31  9:39   121   121  USER07
    $PDSRX   *JCL     01.15  1989/05/10  1989/07/08  12:43  131   121  USER07
    $REREAD  *ASSEMBL  01.00  1994/06/10  1994/06/10  11:36  33    44  USER07
    $SECUR   *COPYBOO  80.00  1985/06/16  1985/11/10  11:22  122   21  USER07
    $SMPGEN  *JCL     01.00  1993/12/17  1993/12/17  13:52  12    33  USER07
    $SMSSTG  *ASSEMBL  01.00  1994/06/14  1994/06/14  11:11  15    39  USER07
    $SPACE   *TSOHELP  01.00  1993/05/12  1993/05/12  11:23  11    39  USER07
    $STARBA3 *ASSEMBL  01.01  1999/05/24  1999/05/24  17:06  67    21  USER07
    AMAGNUS  *PL/I     01.00  1998/05/29  1998/05/29  11:44  321   15  USER07
    AX0BOBB1 *REXX    01.00  1997/03/07  1997/03/07  9:50   15    11  USER07

```


Appendix A

Quick Start

This appendix presents alternatives and options where appropriate for performing tasks. An attempt is also made to show how subcommands are related to each other.

You can chain references by using the menu system; that is, you can separate multiple levels by periods. For example, M.A.10.2 is similar to entering M (for MENU), A (for ADVANCED), followed by option 10 (for search) and finally option 2 (one difference between these two methods is using the END key since chained options are not used to back up in a panel hierarchy).

The following table lists tasks and their associated page numbers. Click on the task name or on the page number to go directly to a description for that task.

"Adding Directory Blocks"
"Adding a Single Extent in Tracks"
"Adding a Single Extent in Cylinders"
"Allocating a Data Set"
"Building a Member List"
"Changing Secondary Allocation"
"Checkpointing the Log"
"Cloning a Member"
"Comparing Members"
"Compressing Data Sets"
"Copying Members"
"Deleting Multiple Members"
"Editing Multiple Members"
"Excluding Multiple Members"
"Formatting Member Data"
"Listing Module History"
"Locating Data in Dialog Tables"
"Managing Data Set Lists"
"Managing Member Lists"
"Migrating Test Modules to Production"
"Modifying AMODE and RMODE"
"Modifying Member Statistics"
"Obtaining Help"
"Processing Multiple Data Sets"

"Releasing Space in a Data Set"
"Resurrecting Deleted Members"
"Saving a LISTC Table"
"Saving a MEMLIST Table"
"Searching a Data Set"
"Searching Multiple Data Sets"
"Selecting Members"
"Specifying a Member Group"
"Trimming Dialog Tables"
"Updating a Data Set"
"Updating Multiple Data Sets"
"Validating Data"

Adding Directory Blocks

The FIXPDS subcommand can dynamically add directory blocks to a data set. For example, you can add 30 directory blocks to a partitioned data set with any of the following:

- M.FIXPDS option: Add directory blocks ==> 30
- FIXPDS EXPANDDIR(30)
- While in an edit session in a member of the data set, type ADDDIR 30.

The FIXPDS subcommand checks the area that will be occupied by the expanded directory for existing members and prompts you with the names of these members. After a YES response, these members are moved to the end of the data set and the new directory blocks are added after the current directory blocks.

Adding a Single Extent in Tracks

If a data set has less than 16 extents, you can add a single secondary extent of any size. Add 25 tracks to a data set with any of the following:

- M.FIXPDS option: Add disk tracks ==> 25
- FIXPDS ADDTRK(25)
- While in an edit session in a member of the data set, type ADDTRK 25.

Adding a Single Extent in Cylinders

If a data set has less than 16 extents, you can add a single secondary extent of any size. Add 2 cylinders to a data set with any of the following:

- M.FIXPDS option: Add disk cylinders ==> 2
- FIXPDS ADDCYL(2)
- While in an edit session in a member of the data set, enter ADDCYL 2

Allocating a Data Set

The MODEL command acts as a front end to the IDCAMS subcommand for VSAM data sets or the CREATE subcommand. In both cases, allocation parameters are presented in a prefilled entry assist panel. Use either of the following:

- M.3.2 option A
- MODEL



NOTE The MODEL command does not support allocation of multivolume data sets.

Building a Member List

The ML or MEMLIST function builds member list tables. MEMLIST is always additive; that is, each invocation adds to the current MEMLIST unless you specify the RESET keyword. Partial member lists are often built using member group specifications as follows:

Range	<p>Example: MEMLIST start:end AB:C selects all members beginning with AB through all members beginning with C.</p> <p>C: selects all members beginning with C through the end of the members.</p> <p>:F selects all members up through members beginning with F.</p> <p>: selects all members.</p>
Pattern	<p>Example: MEMLIST part1/part2 AB/C selects all members whose names contain AB anywhere and C anywhere.</p> <p>ABC/ selects all members containing ABC anywhere.</p> <p>/ABC selects all members containing ABC anywhere.</p> <p>You can use placeholders (% or ? symbols) that match any single character anywhere in a pattern specification.</p>
Combination	<p>Example: MEMLIST start*end AB*C selects all members whose names start with AB and contain C at the end of the member name.</p> <p>ABC* selects all members whose names start with ABC.</p> <p>*ABC selects all members containing ABC at the end of the member name.</p>
	You can use placeholders (% or ? symbols) that match any single character anywhere in a combination specification.
Placeholder	<p>Example: MEMLIST start%end A%?E selects all members with four character names beginning with A and ending with E.</p> <p>A% selects all members with two character names beginning with A.</p> <p>?F selects all members with two character names ending with F.</p>
	Placeholders % and ? are interchangeable; you can use these placeholder symbols anywhere in a pattern or combination name.

After the member name position, enter operands to filter members by attributes. For example, enter **LAST(nn)** where *nn* is a number of days to filter member age. For source members with ISPF statistics, filter on userid with ID(partial-userid). For load members,

filter using linkage attributes such as RENT, REUS, AUTH, DC, RMODE24, ... For a complete list of operands, type M.ML or O.ML.

To refer to all members from the current member list with a subcommand, use = as the member group specification. This makes the current member group equal to the members in the member list before performing the operation.

You can save and recall MEMLIST tables with the SAVE and MERGE commands to manage saved member list tables. MEMLIST table names contain one- to six-alphanumeric characters.

Several MEMLIST short-cut commands are available for source or load libraries: TODAY, WEEK and MONTH. These commands add members that were linked or updated recently (according to ISPF statistics). Another useful command is MINE that adds source members saved with your userid in a member's ISPF statistics. If you want a complete list of members in a MEMLIST table, type ALL or the 6 command.

You can trim member lists with the X line command, the X primary command or the EXCLUDE subcommand. The EXCLUDE subcommand drops MEMLIST members based on attributes.

The IF subcommand has some additional capabilities for selecting members by attributes as compared to the MEMLIST subcommand. For example, to select members updated by USERMOD UZ23654, type:

```
IF : USERMOD(UZ23654) THEN(MEMLIST)
```

You can also use the FIND subcommand to select members by contents. For example, to select members that contain the string ABCX, type:

```
FIND : 'ABCX' THEN(MEMLIST)
```

You could have used THEN(NEWML) in either of the above examples to RESET any current member list.

Changing Secondary Allocation

If the secondary allocation type or amounts are not optimal, change them to a value of 25 tracks with either of the following:

- 1 M.FIXPDS option: Secondary space type ==> TRK
and Secondary amount ==> 25
- 2 FIXPDS TRK SPACE(25)

Checkpointing the Log

When a single StarTool FDM subcommand produces more than a fixed number of output lines (by default, 250 lines), StarTool FDM prompts you with a checkpoint panel. You decide whether or not to continue or terminate the processing subcommand.

- To continue the subcommand, type CONTINUE
- To terminate the subcommand, press END

- To find data in the log, type an F command; to find the next string, press RFIND
- To change the checkpoint interval, type SETLOG

Cloning a Member

The easiest way to clone a member is with the REPR (REPRO) line command. From a MEMLIST table, type **REPR** in the **CMD** field next to the member to be duplicated; tab over to the DATA/MSG field and type the name for the new member. If a member with that name is already present in the data set, the system prompts you about whether or not you want to replace that member.

Comparing Members

Use the COMPARE subcommand to compare members. The COMPARE subcommand uses SuperC, COMPAREX or the Yale Compare program to perform the data comparison as specified during StarTool FDM installation. The COMPAREX program is very effective for comparing load members since it compares them logically CSECT by CSECT and it marks differences with underscore characters.

Use a COMP line command in a member list to compare two members in the same data set (type the second member name in the **DATA/MSG** field). If the members are in different data sets, type O.CO to open a syntax assistance panel where you can specify the comparison data set name (and member).

The syntax assistance panel for COMPARE remembers operands across sessions; also, if you type the second data set name without a member name for a PDS, the member name defaults to the first member name (this is useful for comparing a member with a backup version in a different data set).

Compressing Data Sets

The COMPRESS subcommand invokes an external utility program to perform compress functions. You can choose the level of reporting detail desired: NOLIST (no details), LIST (all details) or SUMMARY (summary and any error messages). Start the COMPRESS subcommand with either of the following:

- 1 M.COMPRESS option: Message level desired ==> SUMMARY
- 2 COMPRESS SUMMARY
- 3 While in an edit session in a member of the data set, type COMPRESS

Copying Members

The COPY subcommand invokes an external utility program to copy members to another data set. You can choose the level of reporting detail desired: NOLIST (no details), LIST (all details) or SUMMARY (summary and any error messages).

For load members, associated members (aliases) are included in a copy automatically. In addition, if COPYMOD reblocking of load members is required because of data set blocksize differences, a COPYMOD operation is requested for the blocksize of the output data set.

Members can be copied selectively. For example,

- REPLACE specifies that existing members in the output data set be replaced.
- EXIST specifies that a member only be copied to the output data set if a member with that name is already there; use this parameter in conjunction with the REPLACE operand.
- NOEXIST specifies that a member only be copied to the output data set if a member with that name is not already there.
- EXCLUDE specifies that only members not in the identified member group should be copied.

An output data set is created by the COPY subcommand if you specify the NEW keyword. Other parameters for allocation of the data set default to values used for the current data set; however, you can override any of these parameters.

To copy selected members into a new data set, type a subcommand similar to COPY memgroup new.data.set new.

Deleting Multiple Members

The DELETE subcommand also deletes associated (alias) members. If you wanted to delete load members beginning with ABC, type the following to clean up any associated members:

- 1 M.DELETE option: Delete associates also ==> YES
- 2 DELETE abc* ALIAS

If you type a subcommand to delete multiple members, the **DELETE** subcommand displays the members that are affected and prompt for continuation.

Editing Multiple Members

The EDIT subcommand processes a group of members. When you type an **EDIT** subcommand with such a group, each member displays in edit (in group order) with no intervening panels.

To modify several members with no displays to the terminal, request an appropriate initial edit macro. As an example for edit macro DOALL, type `EDIT ABC* MACRO(DOALL)`.

Excluding Multiple Members

Use the X command and the EXCLUDE subcommand to trim MEMLIST tables. The X primary command supports an operand (ALL, ABOVE or BELOW) to trim the member table based on the top member in the table. It is often effective to sort the MEMLIST table on some criterion (for example, SORT ID to sort by userid) and position to a desired member by scrolling, with the LOCATE command or the F command and then enter X ABOVE or X BELOW to trim the table. In addition, the X line command or the XX block line command are also effective at eliminating undesired members after a SORT.

The EXCLUDE subcommand can filter members using the same attributes as the MEMLIST subcommand (type O.EXCLUDE or M.EXCLUDE to see possible attributes). To exclude members, use the = member group to examine the members in the current MEMLIST table; however, any member group specification is supported. If a member not in the member list is excluded, its status is not changed.

You can exclude members by attributes (with the IF subcommand) or by contents (with the FIND subcommand) by specifying a THEN(EXCLUDE) operand on the IF or FIND subcommand.

Formatting Member Data

The FIND, LIST and REPLACE subcommands format member data identically. FIND and REPLACE display segments of members; that is, only those lines that contain a search string.

Seven formats are supported: NUM, NONUM, SNUM, LDUMP, LBLOCK, DUMP and BLOCK. NUM is the default for source data; LDUMP is the default for load members and LBLOCK is the default for VSAM data. When you specify any of these formats for a FIND, LIST or REPLACE subcommand, that format is then used for these subcommands until you choose a different format.

For load members or VSAM data sets, the NUM, SNUM and NONUM formats do not apply (they are equivalent to the default format). Use LDUMP or LBLOCK formats to list or search CSECT data in load members. With these formats, OFFSET(hexoffset) and MODULE(csectname) are supported. For VSAM index or data components, DUMP and BLOCK format physical data records.

Listing Module History

For information on module history, IDR data and COBOL compile options, use the HISTORY subcommand. If you need translator (compiler or assembler) information by CSECT, type CONTROL TRANSLATOR to ensure that this information is provided by default for the remainder of the current session.

- 1 To obtain all history data for a load member, type `HISTORY memname`. If CONTROL NOTRANSLATOR is in effect, StarTool FDM still provides COBOL compile options data.
- 2 To obtain translator (and COBOL compile option) data only, type `HISTORY memname translator`.
- 3 To obtain USERDATA (or SYSMOD) information only, type `HISTORY memname userdata`.
- 4 To obtain ZAP information only, type `HISTORY memname zap`.

You can also search a data set for TRANSLATOR, USERDATA, ZAP or LKED (linkage-editor) information. For example, to search a data set for SYSMOD UZ23546, type `HISTORY : userdata(uz23546)`.



NOTE You can select members that contain specific IDR data by adding a MEMLIST, NEWML or SUBLIST operand to the HISTORY subcommand.

Locating Data in Dialog Tables

Use the LOCATE (L) command to position to data in a sorted StarTool FDM table (this is not supported in the log, LISTA/DDNAME or WORKPAD). LOCATE searches for data in the field on which the table is sorted.

For example, in a source MEMLIST, the LOCATE command normally positions to a member name. After the command SORT ID, LOCATE searches the userid data field.

Managing Data Set Lists

StarTool FDM allows you to create an active data set list similar to ISPF's DSLIST. Unlike DSLIST, StarTool FDM allows you to save these lists across sessions, maintain multiple data set lists and add to or exclude data set names from a list. This facility enables you to maintain customized data set lists. To build an initial data set list, type the LISTC primary command.

LISTC displays a panel for you to specify a catalog look-up for various data set qualifiers in a single invocation. Try this using your own TSO userid as the high-level qualifier to test this facility. After pressing Enter the LISTC processor displays all matching data sets in a scrollable table. Many commands are available to operate on these data sets. Type an O line command next to a data set name to get a list of all line commands.

To save this data set list, type SAVE INTEL as a primary command. This saves the table as member ##INTEL in your ISPPROF (profile) data set. You can retrieve it in a later session by typing LISTC INTEL as a primary command.

Additional invocations of LISTC from an active LISTC table merge new entries in sorted order in the current list. Use the X line command to drop data sets from the list. After obtaining the data sets you want in the LISTC table, save the list for later use.

To search disk volumes for data set names, use the LISTF function. The input is similar to the LISTC function except that a volume name or a volume name mask must also be specified.

LISTC/LISTF use a combined table; thus, you can have data sets from a volume source as well as from a catalog source. The following line commands are commonly used in LISTC/LISTF applications:

=	Repeats the last line command on a different data set
C	Changes to a data set
DEL	Deletes a data set
IDC	Displays the result of an IDCAMS LISTC ENTRY ALL for a data set
INFO	Displays VSAM or non-VSAM data set statistics and space use for a data set
ML	Changes to a data set and builds a MEMLIST of all members
REN	Renames a data set
U	Changes to a data set and displays USAGE information
X	Drops a data set from the table

Some very powerful primary commands make the LISTC/LISTF function a file management facility. From the primary command line, type FIND or REPLACE to activate a global function that searches or updates all partitioned data sets in the table.

Managing Member Lists

To obtain a member list that contains all members in a data set similar to an ISPF member list, type ALL as a primary command. An equivalent command is ML : since the colon specifies no start or end range and all members are included. If this was a load library, the processing to build the initial member list display would take slightly longer than a source member list because each member is read to obtain the linkage-edit date.

To refer to all members from the current member list with a subcommand, use = as the member group specification. This makes the current member group equal to the members in the member list before performing the operation.

You can save and recall MEMLIST tables can be saved and recalled to manage saved member list tables. MEMLIST table names can be from one to six alphameric characters.

Specify member ranges using a starting member name followed by a : and then an ending member name. To limit the member list displayed, use a selected range such as ML ABC:BCD RESET. This requests that a member list be built starting with members named ABC... and ending with members named BCD... The RESET keyword indicates that the member list is to be discarded and rebuilt with the specified member group; otherwise, MEMLIST is an additive process.

You can build a member list of members whose names contain a common string. For example, ML IST/ builds a member list containing all members with the character string IST somewhere in the name.

Further combinations are possible that limit the member list to members whose names begin with a common string such as IEB. In this case, the command is ML IEB*.

Member names are not the only potential method for obtaining member lists. The criteria varies with over 80 selectable options from linkage-edit date and module attributes to SSI and IDR data contained within the members. This flexibility expands the ease in identifying the members you want to manipulate. See the *StarTool FDM Reference Guide, Appendix A, Member Names Forms*, for member group specification rules and the MEMLIST function for additional information on filtering members.

A simple approach to managing members consists of building a member list based on the last update or linkage-edit date of members in a library. For example, type ML : WEEK or WEEK to build a list of members modified or added in the last week. Use commands TODAY and MONTH for simple date filtering. Another approach for source members is the MINE command that builds a member list of all members whose ID is equal to your USERID.

MEMLIST supports line commands with up to four character names. Type a line command in the **CMD** column next to the member you want to manipulate. You can enter multiple line commands on the same member list screen. The following are commonly used member line commands:

B	Browses a member using ISPF services
COMP	Compares a member with another member that can be in another data set
COPY	Copies a member and, optionally, any of its aliases to another data set
CS	Builds an ISPF table of all CSECT and ENTRY symbols in a module
DEL	Deletes a member
E	Edits a source member using ISPF services
MAP	Maps the CSECT structure of a load member
PR	Prints a member
REN	Renames a membe
S	Defaults to Edit in a source data set; otherwise, it defaults to Browse for load
SUB	Submits a member for background processing
S	Drops a member from the table
XREF	Displays intra-module references

Member Name Matching

StarTool FDM supports asterisk (*) in member name matching in the same manner as ISPF performs this function. StarTool FDM also supports underscore (_) to match member names.

For example:

MEMBER a*test matches ATEST and A234TEST, but not ATESTX or ATESXT.

MEMBER a_test matches ATEST, A234TEST and ATESTX but not TESTA or ATESXT. ATESTX or ATESXT.

Migrating Test Modules to Production

Test modules are transferred to production by copying the current production library to a backup library and copying test modules into the production library with REPLACE.

StarTool FDM improves this process in several ways.

Perform the following steps in a batch process.

1. In the batch JCL, allocate TEST, PROD and BACKUP files //TEST DD DSN=test.library,DISP=OLD //PROD DD DSN=production.library,DISP=SHR //BACKUP DD DSN=backup.library,DISP=SHR	
2. Type the test data set	STARTOOL FILE(TEST)
3. Start a SYSOUT data set	CONTROL SYSOUT(A)
4. Validate all test members	VERIFY :
5. Terminate if any errors	CONDEND
6. Form an actual list of members	SUBLIST :
7. Document all member attributes	ATTRIB * SHORT
8. Change to backup library	CHANGE FILE(BACKUP)
9. Delete test members	DELETE *
10. Compress backup data set	COMPRESS
11. Change to production library	CHANGE FILE(PROD)
12. Copy members to backup	COPY * FILE(BACKUP)
13. Delete production members	DELETE *
14. Compress production data set	COMPRESS
15. Change to test library again	CHANGE FILE(TEST)
16. Copy to production	COPY * FILE(PROD)
17. Reset test data set for reuse	FIXPDS RESET
18. Close the SYSOUT data set	CONTROL NOSYSOUT

Modifying AMODE and RMODE

To modify the AMODE or RMODE for an entire module, use the ATTR line command from a MEMLIST table. A prefilled entry assist panel displays showing the current statistics of the member. You can change individual attribute entries if you want.

To modify the AMODE or RMODE of a CSECT within a load member, use the MAP command with the MODULE keyword to identify the CSECTs to be updated and AMODE24/AMODE31/AMODE64/AMODEANY or RMODE24/RMODEANY operands to indicate how the addressing or residence modes are to be changed. Use the MAP line command in the CSECT function to update the AMODE or RMODE of a CSECT.

Modifying Member Statistics

The recommended way to modify a source member's ISPF statistics is with the ATTR line command from a MEMLIST table. A prefilled entry assist panel displays that reflects the member's current statistics. You can change individual attribute entries if you want. If a member has no ISPF statistics, you can add them.

Obtaining Help

For help in StarTool FDM:

- Type INDEX for a list of tutorials on all StarTool FDM topics
- Press the Help function key for an explanation of the current subcommand or function
- For a list of topics in an action bar, tab or position the cursor over the area, then press Enter
- For a functional description of an action bar menu item, position the cursor next to the item and press the HELP function key
- For a functional description of any other area in a table panel, position the cursor over the area and press the HELP function key
- For a syntax assist panel for a item in an action bar, position the cursor next to the item and press Enter
- To obtain an explanation just after receiving warning (PDSnnnW) or error (PDSnnnE) messages, type ?
- To obtain an explanation of any StarTool FDM message (PDSnnn) in the log, position the cursor over the message identifier (the PDSnnn) and press RCHANGE (PF6 or PF18)
- For a directory of available commands, type O (OPTIONS) as a line command or primary command. This displays a syntax assist panel for the command. You can also chain options. For example, O.LI requests a syntax assist panel for the LIST subcommand.
- For a menu of available subcommands and functions, type M (MENU) as a line command or primary command. This displays an entry assist panel for the command. You can also chain options. For example, M.LI requests an entry assist panel for the LIST subcommand.
- From either a syntax assist or entry assist panel, for a subcommand tutorial, press the HELP function key.

Processing Multiple Data Sets

Use global commands to process multiple data sets in a LISTA/DDNAME, LISTC/LISTF or WORKPAD table. For more information, see ["Global Commands"](#). The GLOBAL command allows you to use any StarTool FDM subcommand on a global basis (against each data set

in a table). Other commands are understood to have a global scope. The following commands are global in LISTA/DDNAME, LISTC/LISTF and WORKPAD tables.

FIND	See "Searching Multiple Data Sets" for more information.
MODEL	Changes to each data set in the table and performs a MODEL command to create a data set based on the data set in the table. Use MODEL as a front end to the CREATE subcommand or the IDCAMS subcommand for VSAM data sets.
REPLACE	See "Updating Multiple Data Sets" for more information.
SEEK	Changes to each data set in the table and checks for a member.
WHOHAS	Performs an ENQUEUE check on all data sets in the table.

Releasing Space in a Data Set

When unused space in a data set needs to be returned to the system, you have several options.

1. M.FIXPDS option	Release all free space == => YES
2. FIXPDS RELEASE (to release all free space)	
3. M.FIXPDS option	Release any free extents == => YES
4. FIXPDS RELEXT (to release all unused extents)	
5. M.FIXPDS option	Percent of data set free == => 30
6. FIXPDS RELFREE(30) (to release up to 30% free space)	

Resurrecting Deleted Members

If an editor deletes or updates members, the previous version of these members remains in the data set until the data set is compressed. Use the RESTORE subcommand with a MEMLIST option to add the deleted members into a MEMLIST table. Then, you can examine these members with several StarTool FDM line commands: DELI, DISA, HIST, LIST, FIND, MAP and REV. After determining which members you want restored, the REST line command converts these deleted members back into normal members.

Use either of the following to add deleted members into the MEMLIST.

1. M.RESTORE option	Partial member name == => @@@
2. RESTORE @@@ MEMLIST	

To reduce the number of deleted members added to the MEMLIST, use the FIND('any string') and the MODULE(modname) operands whenever possible to filter the deleted members that are considered for resurrection.

You can recover deleted members even after a data set has been compressed. For this to be possible, however, the deleted members must not have been overwritten by the compress operation itself. Potential members for resurrection using this technique include

any data recorded after the current DS1LSTAR pointer. This includes data that may not have been initialized in this data set and may contain residual values (garbage).

First, type a FIXPDS MAXSPACE subcommand to reset the DS1LSTAR marker to the end of the allocated space in the data set; then, restore any desired deleted members as shown above; and finally, compress the data set again.

Saving a LISTC Table

To build a LISTC/LISTF table, enter LISTC to obtain data sets from a catalog source or enter LISTF to obtain data sets from a volume (VTOC) source. A prompt panel asks you to specify one or more data set name masks. The LISTF prompt panel also requires either a volume name or a volume name mask. Once you enter the LISTC/LISTF function, you can add to the table by typing LISTC and/or LISTF to search for additional data sets.

You can trim the table with the X line command. One very effective way to trim the LISTC/LISTF table is to first sort the table on some criteria (such as SORT TYPE to sort by DSORG) and position to any point in the table (by scrolling or the F command) and typing a primary command such as X ABOVE.

You can name the table with a command such as ID B27 for table B27 and type SAVE to save the table in your profile data set. In a later session, you can retrieve this table by typing LISTC B27. Data set statistics are updated by typing the REFRESH command.

Saving a MEMLIST Table

You can save and restore MEMLIST tables. Use saved MEMLIST tables to checkpoint work in progress (perhaps to save where you were working at the end of a day) or to provide a list of members for another application (one example might be a batch process performing VERIFY : MEMLIST commands to select members with errors and saving the list for interactive review).

If you want to save a MEMLIST table for later reference, type a command such as SAVE mydata. Names of saved MEMLIST tables can have from one to six alphanumeric characters.

To recall a previously saved table, type a command such as MERGE mydata. This command adds (or merges) members into any existing MEMLIST table. Add a RESET operand on the command to nullify the current MEMLIST table before adding the saved members.

Searching a Data Set

The FIND subcommand finds members that contain a search string and takes a conditional action. For example, if all members containing the string //STEPLIB were to be copied to a different data set and deleted you could perform the following:

```
1 FIND '//steplib' display then(memlist) (selects the proper members)
```

- 2 COPY * new.data.set new (copies the selected members into a clone of the current data set)
- 3 DELETE * (deletes the selected members)



NOTE Add the display operand on the FIND subcommand above to a FIND subcommand if FIND results are displayed in the log, in addition to taking a conditional action (such as "then(memlist)"). DISPLAY is particularly useful if you are selecting members for inclusion in a MEMLIST or SUBLIST.

Searching Multiple Data Sets

To find data in multiple data sets, use the global FIND command. First, build a LISTA/DDNAME, LISTC/LISTF or WORKPAD table containing the data sets to be searched. All data sets should be either partitioned or non-partitioned.

In a LISTC/LISTF table, the global FIND command bypasses non-partitioned data sets. If you actually want to search non-partitioned data sets, type a command similar to the following:

```
GLOBAL FIND 'string' ...
```

Finally, from the command line in that table, type a FIND command to transit to the global FIND syntax assist panel. If all of the data sets are partitioned, add a member group specification such as : to search all members. Otherwise, be sure to omit this positional parameter.

Selecting Members

The FIND subcommand filters members by contents and the IF subcommand filters members by attributes. For either of these subcommands, the first operand is a member group (see "[Specifying a Member Group](#)").

For the IF subcommand, enter attributes next (for example, you could enter RENT, AMODE24 or AUTH for load members). All specified conditions must be met to select a member; these are "and" conditions. Finally, specify an action to take if true (with THEN(command)) and/or take an action if false (with ELSE(command)). Normally, specify THEN(SUBLIST) so that following subcommands can be specified with operands on the members selected. For example,

```
IF copy* ID(myid) LAST(7) THEN(sublist)
PRINT * SYSOUT(a) DEST(rmt21)
COPY * other.data.set
```

can be used to print selected members that were recently by "myid" and copy them to another data set.

For the FIND subcommand, enter the character string being searched for after the member group specification. It is specified as a delimited string with 1 to 32 characters; the first character is the final delimiter and the delimiter must not be used within the

string itself. In practice, use the single quote (') or double quote (") as FIND string delimiters. If you use X as the string delimiter, the data is assumed to be hexadecimal digits; the string can contain 2 to 64 hexadecimal digits.

Following the string specification, other parameters may be in any order. You can specify FIND boundary conditions (WORD, SUFFIX or PREFIX), FIND limits (MAXIN, MAXOUT, MAXFIND, MODULE, OFFSET, ...) and FIND list format (NUM, NONUM, SNUM, LDUMP, LBLOCK, DUMP or BLOCK).

To select members with a given string and certain conditions, specify an action to take if found (with THEN(command)) and/or an action to take if not found (with ELSE(command)). You can specify FIND limits (MAXIN, MAXOUT, MAXFIND, MODULE, OFFSET, ...) and FIND list format (NUM, NONUM, SNUM, LDUMP, LBLOCK, DUMP or BLOCK). Normally, you specify THEN(SUBLIST) so that the following subcommands can be specified with operands on the members selected. For example,

```
FIND COPY* 'PGM=IEBCOPY' DISPLAY THEN(SUBLIST)
PRINT * SYSOUT(A) DEST(RMT21)
DELETE *
```

can be used to print JCL members that invoke IEBCOPY and delete them.

Specifying a Member Group

All subcommands that allow a member group specification (except for DISPLAY and PATTERN) also modify the current member group. These subcommands can specify lists of members and/or member groups. If you specify a list of members, it must be enclosed in parentheses and individual items in the list must be separated with one or more blanks and/or a comma.

You can specify individual member group items with the following entry types:

Range	<p>MEMBERS start:end</p> <p>AB:C includes all members beginning with AB through all members beginning with C.</p> <p>C: includes all members beginning with C through the end of the members.</p> <p>:F includes all members up through members beginning with F.</p> <p>: includes all members.</p>
Pattern	<p>MEMBERS part1/part2</p> <p>AB/C includes all members whose names contain AB anywhere and C anywhere.</p> <p>ABC/ includes all members containing ABC anywhere.</p> <p>/ABC includes all members containing ABC anywhere.</p> <p>Use placeholders (% or ? symbols) that match any single character anywhere in a pattern specification.</p>

Combination	MEMBERS start*end AB*C includes all members whose names start with AB and contain C at the end of the member name. ABC* includes all members whose names start with ABC.
	*ABC includes all members containing ABC at the end of the member name. Use placeholders (% or ? symbols) that match any single character anywhere in a combination specification.
Placeholder	MEMBERS start%end A%?C includes all members with four character names beginning with A and ending with E. A% includes all members with two character names beginning with A. ?F includes all members with two character names ending with F. % and ? are interchangeable; use these placeholder symbols anywhere in a pattern or combination name.
Asterisk	MEMBERS * Use a single asterisk to refer to the current member group.
Equal	MEMBERS = Use an equal symbol to indicate that the current member group is to be set equal to the list of members in the current MEMLIST before passing control to the subcommand.

The current member group is maintained across CHANGE subcommands until a subcommand specifies a different member group. An example that includes several of the elements above would be

```
MEMBERS (AB:C, ABC/FX?Z, CO%Y*, A%?E)
```

A MEMBERS subcommand like this causes the associated members in the data set to be listed. To convert this to a sublist (a list of actual member names), follow this with a subcommand such as

```
SUBLIST * ALIAS (where ALIAS indicates that associated members also be included).
```

Trimming Dialog Tables

You can trim all StarTool FDM dialog tables with the X primary command. The supported operands (ABOVE, BELOW and ALL) trim the table in relation to the top line in the current table display. For tables that support line commands, use the X line command or the XX block line command pair to drop individual table lines.

REMOVE and EXCLUDE facilities are available for all function tables. From a log or MEMLIST table, use the EXCLUDE subcommand to trim members from the MEMLIST table. The EXCLUDE subcommand supports the same attribute filtering operands that are available on a MEMLIST subcommand. From any table, use the REMOVE command to trim all table elements that match a search string (or do not match a search string with the NOT keyword). The REMOVE command supports the same operands as available on the F

command with the exception of the directional keywords (NEXT, FIRST and LAST) because the REMOVE command always processes an entire table.

For sorted tables, sort the table in a specific order (for example, with load members for which you might enter SORT DATE (to sort by linkage-edit date), position to a point in the table by scrolling, or with the F command, or with the LOCATE command and enter an X primary command to trim the entire table. Finally, type SORT (with no operands) to sort the table back into its default order.

Updating a Data Set

To update multiple members in a data set, use the REPLACE subcommand; it performs an update in place. Type a command similar to the following: REPLACE memgroup 'datanow' 'datanew' or to use delimited strings, type a command similar to the following: REPLACE memgroup /datanow/datanew/.

For the menu system, type M.REPLACE:

Member or member group	== >	memgroup
Find data	== >	datanow
Replacement data	== >	datanew
Update data on disk	== >	NO

By default, the above subcommand only performs a trial update. After examining the output from the REPLACE subcommand, recall the subcommand and add the WRITE keyword or change the M.REPLACE panel to

```
Update data on disk ==> YES
```

to update the members.

To enter hexadecimal data in the REPLACE subcommand, use a special format with X delimiters:

```
REPLACE memgroup XhexbeforeXhexafterX
```

Updating Multiple Data Sets

To update data in multiple data sets, you use the global REPLACE command. First, build a LISTA/DDNAME, LISTC/LISTF or WORKPAD table containing the data sets to be updated. All data sets should be partitioned or non-partitioned.

In a LISTC/LISTF table, the global REPLACE command bypasses non-partitioned data sets. If you want to update non-partitioned data sets, type a command similar to the following:

```
GLOBAL REPLACE 'string1' 'string2' ...
```

Finally, from the command line in that table, type a REPLACE command to go to the global REPLACE syntax assist panel. If all of the data sets are partitioned, add a member group specification such as `:`. Otherwise, omit this positional parameter. If you do not enter the WRITE keyword, REPLACE only performs a trial update. Repeat the REPLACE command with the WRITE operand to update the data sets.

Validating Data

To validate members or an entire data set use the VERIFY subcommand. For a PDS, if the member group name is `:` (a colon), the entire data set is checked and error members are identified; otherwise, members are checked individually and statistics are generated for each member.

- To check individual members, type VERIFY A:B (where A:B is the group of members to be checked).
- To validate an entire PDS, type VERIFY `:`
- For the menu system, type M.VERIFY option: Member or member group ==>
A:B

You can add the MEMLIST option to select members with errors.

By default for VSAM data sets, VERIFY performs an IDCAMS VERIFY operation on the data set followed by an IDCAMS EXAMINE for KSDS data sets. The VERIFY subcommand accesses a KSDS data set by key, and in addressed mode verifies that all records are accessible.

Appendix B

Comparing ISPF Utilities

StarTool FDM offers functions equivalent to most of the ISPF functions through its menu system. For example, if you wanted to use the equivalent of ISPF 3.4 in StarTool FDM, type M.3.4 or 3.4. To perform an ISPF function and return to StarTool FDM, stack an ISPF session with a command like ISPF 3.4.

ISPF	Function	StarTool	Description
=1	Browse	BROWSE	Browse a member, data set or VSAM file
=2	Edit	EDIT	Edit a member, data set or VSAM file (SAVE is not supported for VSAM)
=3.1	Library Applications	ALIAS	Define a member alias
"	"	ATTRIB	List or alter member statistics or module attributes
"	"	BROWSE	Browse members
"	"	DELETE	Delete members
"	"	RENAME	Rename members
"	"	VERIFY	Validate members
=3.2	Data Set Applications	CREATE	Create a new data set
"	"	DSNAME	Display summary data set information
"	"	MODEL	Create a new data set with overtyping (including VSAM)
"	"	USAGE	Display additional data set information
"	"	USAGE ALL	Display detailed data set information
=3.3	Data Set Move/Copy	COPY	Copy selected members; by default, this includes all aliases unlike =3.3 COPYMOD is requested if load member reblocking is required
"	"	DUP	Copy selected members with possible conversion from FB to VB or vice-versa including CLIST conversion
"	"	REPRO	Copy members to a new name in the same data set
=3.4	Data Set List	PLIST	List a saved data set table from anywhere in ISPF
"	"	LISTC	List data sets using a catalog source
"	"	LISTF	List data sets using a volume source

ISPF	Function	StarTool	Description
"	"	MASK	Add selected data sets to a LISTC/LISTF table
"	"	LISTA	List data sets allocated to a TSO session by attributes
"	"	DDNAME	List data sets allocated to a TSO session by DDNAME mask
"	"	WORKPAD	Display selected data set names and/or commands in a selectable table
=3.5	Reset Stats	ATTRIB	List or alter member statistics or module attributes
=3.8	Command Table	CMDTBL	Display and modify an ISPF command tables
=3.13	Compare Members	COMPARE	Compare two members using SUPER, COMPAREX or COMPARE\$
"	"	COMPDIR	Compare multiple members for similarities or differences
=3.14	Search for	FIND	Search members and perform conditional processing
"	"	REPLACE	Update strings in members

Appendix C

Comparing IBM Batch Utilities

IBM Utility	Function	StarTool	Description
AMBLIST	List load member attributes	ATTRIB	List all attributes of a module including the linkage-edit date
"	"	CSECTS	Display CSECTS in a selectable table
"	"	HISTORY	List IDR data (zap, userdata and translator information)
"	"	MAP	Map internal CSECT structure or rebuild linkage-edit statements
"	"	MEMLIST	Display members in a selectable table
"	"	XREF	Cross-reference CSECT and EXTERNAL symbols
IEBCOPY	Copy members	COPY	Copy members to an existing or new data set By default, all member aliases are included COPYMOD reblocking of load members is requested if necessary COPY can also copy data to a sequential data set
"	"	DUP	Copy members without calling another program Records can be converted from FB to VB Records can be converted from VB to FB CLIST members can also be converted
"	Compress PDS data sets	COMPRESS	Compresses data sets and checks if the data set is in the linklist Checks if the data set is managed by LLA
IEBGENER	Copy sequential data sets	DUP	Copy members to sequential data sets or copy sequential data sets
IEHLIST	VTOC list utility	LISTF	Data sets in a selectable table with statistics Delete or rename data sets Catalog or uncatalog data sets
"	"	LISTV	List attributes and available space on disk volumes
"	"	USAGE	Map the Format 1 DSCB in the log (with the ALL operand)
IEWL	Linkage-edit	ATTRIB	Alter most load member linkage attributes
"	"	ALIAS	Define a member alias
IEBUPDTE	Unload/reload members	COMBINE	Combine members using IEBUPDTE control statements preserving ISPF statistics
"	"	SEPARATE	Separate combined members into original members

IBM Utility	Function	StarTool	Description
IDCAMS	IDCAMS Utilities	IDCAMS	Format IDCAMS commands using a menu approach with results in the log
"	"	LISTC	List data sets from the system catalog in a selectable, sortable table
"	"	IDC	LISTC line command to display an IDCAMS LISTCAT with ENTRY and ALL
"	"	INFO	LISTC line command to display VSAM space use and attributes
"	"	DUP	Similar to IDCAMS REPRO (but only sequential or PDS member output) with <i>shared</i> access
"	"	VERIFY	Perform IDCAMS VERIFY and EXAMINE, also validate data
AMASPZAP	Zap load members	ZAP	Zap load members with character or hexadecimal overtyping Update with zap IDR history or provide AMASPZAP controls

Glossary

A

Alias member	A member whose directory entry indicates that the member entry is an alternate name for a main member; a main member and its aliases are associated with the same recorded data in a data set.
Apparent alias member	Data in a PDS pointed to by more than one main directory entry.
Associated members	Members with the same TTR address. For a main member, the associated members could be alias members or an apparent alias member. For an alias member, the associated members could be other aliases or a main member.

B

Batch mode	A StarTool FDM operation mode. In batch mode, all user communication is performed with PUTGET, GETLINE and PUTLINE TSO services. ISPF services are available. In this mode, StarTool FDM operates under control of the batch Terminal Monitor Program (TMP or IKJEFT01).
BLDL	A BPAM function used to check for the existence of members.
BPAM	An acronym for Basic Partitioned Access Method. BPAM is very similar to BSAM which is for sequential data. StarTool FDM often uses BPAM for member check operations and always uses BPAM for directory updates and reading PDSE data sets.
BSAM	An acronym for Basic Sequential Access Method. StarTool FDM uses BSAM for several utility functions.

C

CCHHR	An acronym for Cylinder, Cylinder, Head, Head, Record which is a ten-byte hexadecimal disk address relative to the start of the volume.
Command	A request for an operation. For example, STARTOOL is a command and FIXPDS is a StarTool FDM subcommand.
Compress	A process that removes deleted members from a PDS. Disk space formerly occupied by these deleted members is made available for new members. In a PDSE data set, space from deleted members is managed dynamically. You cannot compress a PDSE.

D

Deleted member	Member data that is not pointed to by any directory entry. Deleted members remain in a PDS until the data set is compressed. In a PDSE data set, space from deleted members is managed dynamically. You cannot restore deleted members.
Directory	A segment of a PDS that is a sequential data set with eight-byte keys and 256-byte data records containing pointers to data in the PDS member portion of the data set. For a PDSE, PDS directory and member data is created in a virtual PDS data set.
Directory entry	A logical entry in a PDS or PDSE directory that points to its associated data in the member data. It consists of an eight-character member name field and one or more three-byte relative address (TTR) fields.
DS1LSTAR	A pointer in the data set control block (DSCB) that indicates the last used disk address for a data set. This pointer is updated after a member is added to a PDS data set or after a PDS is compressed.

E

EXCP	An acronym for EXecute Channel Program. StarTool FDM uses this access method to read an entire disk track with a single operation.
-------------	--

F

Function	A request for an ISPF (or ISPMODE) operation. Most ISPMODE functions support their own commands.
-----------------	--

I

ISPMODE	A StarTool FDM mode of operation. With ISPMODE, StarTool FDM operates as an ISPF dialog. Normal ISPF services (HELP, TSO, SPLIT, SWAP,...) and all StarTool FDM services are available.
----------------	---

L

Line command	A command entered on a table line in the CMD field. Line commands can be up to four characters long.
Line mode	A StarTool FDM mode of operation. In line mode, all user communication is performed with PUTGET, GETLINE and PUTLINE TSO services. No ISPF services are available.
Load library	A PDS or PDSE that has record format U and contains executable modules.

M

Main member	A non-alias directory entry and its associated recorded data.
Member	Data in a PDS or PDSE pointed to by one or more directory entries. Members can be alias or main members. Deleted members that have no associated directory entries. For a PDSE, space from deleted members is managed dynamically. You cannot restore deleted members or compress a PDSE.
Module	A member in a load library. Also known as a load module or load member.

O

Orphan member	A member marked as an alias with no associated main member.
----------------------	---

P

PDS or Partitioned data set	PDS. A data set with fixed, variable or undefined format used as a library for related types of information. Partitioned data sets contain two segments of data: a directory of information and member data. This type of library is requested as DSNTYPE(PDS) in JCL or a TSO ALLOCATE.
PDSE or Partitioned Data Set Extended	PDSE. A SMS managed data set logically similar to a PDS. This type of library is requested as DSNTYPE(LIBRARY) in JCL or on an ALLOCATE command. A PDSE can be accessed by BPAM or BSAM access methods to obtain a virtual data set that looks like a PDS.
Primary command	A subcommand or command entered from the command line of a panel.

Q

QSAM	An acronym for Queued Sequential Access Method. StarTool FDM uses QSAM for several utility functions.
-------------	---

S

Source library	A PDS or PDSE data set with fixed or variable format data. Source libraries contain non-executable data.
Subcommand	A request for an operation that is within the scope of work requested by the previously issued command. STARTOOL is a command; FIXPDS is a StarTool FDM subcommand.

T

TTR

An acronym for Track, Track, Record (a 1- to 6-digit hexadecimal disk address relative to the start of the data set). This type of address is stored in the member directory entry to indicate the start of a member.

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