



VERSION 7.4

Installation Guide

December 2002

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ABOUT THIS BOOK

This document describes Serena™ StarTool® FDM Version 7.4, a product of Serena Software, Inc. The product may also be referred to as File and Data Manager or StarTool FDM.

OBJECTIVE

Use this manual to install or upgrade Serena™ StarTool® FDM in your environment.

This manual covers the system requirements, the format of the distribution tape, the procedures for installation, and the procedures for installation verification.

AUDIENCE

Use this document if you are responsible for any of these tasks:

- Installing StarTool FDM and its components.
- Providing Global or Application Administration for StarTool FDM.
- Providing technical support for mainframe started tasks.
- Managing the mainframe security system at your data center.

This manual assumes that you have working knowledge with your mainframe operating system and are an expert in your security system.

MANUAL ORGANIZATION

This Chapter...	Explains...
<i>"Introduction"</i>	Lists new features and functions for this release, and a summary of previous installation changes.
<i>"Prerequisites"</i>	Lists storage requirements, authorization, software requirements, system software, and the contents of the distribution tape.
<i>"Installing StarTool FDM"</i>	Describes the steps for installing StarTool FDM including unloading the tape, SMP/E and non-SMP installation, applying key SERtificates, and tailoring your installation.
<i>"Tailoring an Installation"</i>	Guides you through the steps you need to perform to tailor your environment with the PDF #OPTR and PDS#OPT4 Options Modules.
<i>"Security"</i>	Discusses security considerations and requirements, including classifying users, security exit routines, and initializing security.
<i>"Setting up the Environment"</i>	Provides instructions for customizing the DB2 and IMS environments, how to modify installation defaults for variables in the SET panels, profiles, and other environmental requirements.
<i>"PDSE Started Task"</i>	Describes procedures for installing and using the PDSE started task.

RELATED PUBLICATIONS

The following related Product publications are included on the EPIC CD ROM:

Title	Description
Serena™ StarTool® FDM User Guide	Contains information on features useful to application programmers and operation analysts who are responsible for development and maintenance of MVS production systems. It includes concepts and facilities that explain how StarTool FDM operates.
Serena™ StarTool® FDM Reference Guide	An alphabetic guide to the functions and commands of StarTool FDM.
Serena™ StarTool® FDM System Services	Guides systems programmers in administering StarTool FDM.
Serena™ StarTool® FDM Messages	Explains both online and batch messages for StarTool FDM, and how to deal with error situations.
Serena™ StarTool® FDM IMS Option Getting Started Guide	Describes how to edit IMS databases in a DLI batch environment or in an online BMP environment.
Serena™ StarTool® FDM DB2 Option Getting Started Guide	Describes how to create test data and design your application around your test data, modify existing tables and data, and perform SQL queries on existing tables.
SER10TY Installation Guide	Describes how to install and implement SER10TY licensing software, for applying key SERTificates.

SUPPORT

Serena Software provides technical support on the Internet through the Serena eSupport self-service Web site. To access the eSupport site, go to <http://support.serena.com> and login with your ID and password to see the eSupport Customer Portal. From there, you can:

- Report new issues.
- Search our problem-tracking system for information about existing problems.
- View a knowledge base of frequently asked questions and helpful product hints.
- Query the call tracking database to obtain the current status of an open issue.
- Access our FTP server to download product fixes and documentation in PDF format.
- Subscribe to one of our mailing list servers (LISTSERVE) to receive the latest product information by e-mail.

If you need a password or ID, please e-mail or call the appropriate support department for your country.

	United States, Canada	United Kingdom, Germany, Austria, France, Switzerland, BENELUX
Support Hours	Monday through Friday 5:00 A.M. to 5:00 P.M. (Pacific Time)	Monday through Friday 7:30 A.M. to 6:30 P.M. (United Kingdom Time)
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Phone	877.696.1850	44 1494 765888
Facsimile	650.522.6698	44 1494 766888
For support in all other countries, please contact your local distributor.		

For product questions or requests, you may need to first contact a designated representative within your company before calling Serena Customer Support.

DOCUMENTATION CONVENTIONS

The following typographical conventions are used throughout this document:

Category	Convention	Examples
Command Names	ALL CAPITAL LETTERS	CYCLE
variables	<i>italics</i>	xxx OPERAND invalid <i>somnode.FBI.JCLLIB</i>
JCL Code	monospace type in Courier font	//jobname JOB
Member Names	ALL CAPITAL LETTERS	FBIINST
JCL lines that need to be altered for your system	Bold	DSN=xxxxxx
High Level Qualifiers that you chose.	<i>somnode.FBI</i>	<i>somnode.FBI.JCLLIB</i>

References to data set names may include PDSE`vrn`, where `vrn` stands for the version, release, modification number of the product.

The version, release, modification number appears on the distribution media and in the README that pertains to your specific release.

For example, if your README says for Serena™ StarTool® FDM Version 7.4.1,

- the version number is 7,
- the release number is 4, and
- the modification number is 1.

INTRODUCTION



Serena™ StarTool® FDM, File and Data Manager, performs powerful utility functions to edit and manage many types of host files and data, for quick and cost-effective resolution of problems in both production and test data. As part of the Serena™ StarTool® family of products for improving application operations, it automates and replaces the functionality of many mainframe utility applications thereby simplifying the tasks associated with managing mainframe file structures.

NEW FEATURES

Serena™ StarTool® FDM 7.4 contains the following new features:

Entering IMS/DLI Key Data to Retrieve Data

You can now specify the search condition (LT, LE, EQ, GT, GE) for a DBD key field while entering its search argument in any combination of subfields that may be defined in the DBD for the key field. See the StarTool FDM *IMS Option Getting Started Guide*.

DB2 Confirmation Panel

StarTool FDM now provides a confirmation panel to verify that you want to update the output DB2 table when you copy rows from one table into another.

Defining IMS Start Parameters

A new user exit for installations to specify all but the first three parameters that FDM passes to IMS when it attaches DFSRRC00 to search a DLI database. See the StarTool FDM *IMS Option Getting Started Guide*.

SUMMARY OF PREVIOUS INSTALLATION CHANGES

You can access information on the current and previous StarTool FDM releases from the StarTool FDM main menu by requesting the NEW option.

PREREQUISITES

2

This chapter describes the requirements for StarTool FDM storage, both virtual and auxiliary, the software environment, and distributin tape contents, and other product prerequisites.

VIRTUAL STORAGE

StarTool FDM executes in a 3072K or larger region; however, you can use a smaller region.

The StarTool FDM load module requires a minimum of 900K virtual memory. At execution time, 124K of additional region storage is obtained for disk track buffers. In addition, several StarTool FDM subcommands obtain significant amounts of temporary region storage. In any case, 1100K of region storage should be sufficient for StarTool FDM; however, if you use StarTool FDM on both sides of an ISPF split, plan on providing about 1500K for StarTool FDM use. In addition to the above, you will require more storage for RETAIN track buffers (about 58K for each track buffer) and GO sessions (about 124K for each GO session).

StarTool FDM is written in reentrant assembler and is link-edited with the RENT attribute. Consider it for inclusion in the Link Pack Area (LPA) so that concurrent users can share the same copy in storage and reduce central storage requirements. StarTool FDM is assembled with attributes AMODE 24 and RMODE 24 (below the 16 Meg line), but it switches addressing mode dynamically when it needs to address storage above the line.

StarTool FDM interfaces with several provided modules of which several (PDSPEDIT and PDSPBROW) are assembled as RMODE ANY and AMODE ANY to reside above the 16 Meg line.

AUXILIARY STORAGE

StarTool FDM is a single 900K load module. There are also several support modules totaling about 100K below the line and 800K above the line. All of the StarTool FDM modules can be held on about 55 3390 tracks.

StarTool FDM has different data set requirements depending on mode of operation:

- In its normal execution mode as an ISPF dialog, StarTool FDM requires a panel and a message library.
- When StarTool FDM operates in batch mode, there is no need for special data sets.
- When StarTool FDM operates in line mode, provide a TSO HELP member be for user reference.

All of the StarTool FDM materials can be held on 50 cylinders of a 3390 disk volume for a non-SMP installation, or on 100 cylinders for an SMP/E installation. Allow at least 65% more space for applying maintenance and user modifications.

AUTHORIZING USE

StarTool FDM is linked as a problem program and does not require authorization. The COPY subcommand invokes PDSFAST or IEBCOPY and COMPRESS invokes FDRREORG, PDSFAST or IEBCOPY. FDRREORG and IEBCOPY require authorization. Several methods have been developed to deal with this requirement in a secure fashion. See [“#INITIAL – External TSO Command Defaults” on page 36](#) for more information.

Install the PDSEAUTH module in an APF authorized library and make supporting PARMLIB changes. See [“PDSEAUTH” on page 95](#) for more information.

In addition, IDCAMS needs to be authorized for some functions. See [“IDCAMS” on page 96](#) for more information.

SOFTWARE ENVIRONMENT

Product runs under the major IBM operating systems:

- MVS/ESA (*any release*)
- OS/390 (*any release*)
- z/OS (*any release*)

In addition, make the following environments available:

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

SYSTEM SOFTWARE

Several items in StarTool FDM installation are dependent on your software environment.

If you use an old version of PDSFAST from Software Engineering of America (SEA) as a replacement for IEBCOPY, customize PDS#OPT4 so that the default IKJEFTSR interface for the COPY and COMPRESS subcommands is not used. For more information, see “*#INITIAL – External TSO Command Defaults*” on page 36.

APPLYING KEY CERTIFICATES

You must apply key certificates, called CERTificates, to enable licensed Product and selectable options. You apply CERTificates through SER10TY, using either the online or batch facility. This process updates the object for program SERVERAO generating an executable version of the SERVERAO load module.

See the *SER10TY* Installation Guide for instructions. The load modules, ISPF panels and JCL for running SER10TY are found in libraries on the Product distribution tape.

After you receive the CERTificates from Serena Software support, refer to the member SER10JCL to create your licensed version of the SERVERAO load module. Detailed information is in the member.

DISTRIBUTION TAPE CONTENTS

The 3480 distribution tape cartridge uses standard labels. It contains the following data sets.

This data set...	Consists of...
PDSEvrm.JCL	(JCL) tape unload members. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
SMPMCS	(MCS) Function PDSE740 (full installs). DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.F1	(LOAD) StarTool FDM and its support modules. DCB=(RECFM=U,BLKSIZE=18432)
PDSEvrm.F2	(CNTL) install JCL. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.F3	(PANELS) ISPF panel library. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.F4	(MSG) ISPF message library. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.F5	(CLIST) CLIST library. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.F6	(ASSEMBLE) source library. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.F7	(HELP) TSO HELP members. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.F8	(SKELS) ISPF skeleton library. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.TSRC	(TEST) public domain help library. DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)
PDSEvrm.TLOD	(TESTLOAD) public domain load library. DCB=(RECFM=U,BLKSIZE=18432)
SERENA.SERCOMS. V2R4M4.CLIST	SERENA common CLISTs. DCB=(RECFM=FB,LRECL=80,BLKSIZE=6000)

This data set...	Consists of...
SERENA.SERCOMS. V2R4M4.CNTL	SERENA common jobs DCB=(RECFM=FB,LRECL=80,BLKSIZE=23440)
SERENA.SERCOMS. V2R4M4.LOAD	SERENA common programs DCB=(RECFN=U,BLKSIZE=6000)
SERENA.SERCOMS. V2R4M4.MESSAGES	SERENA common messages DCB=(RECFM=FB,LRECL=80,BLKSIZE=6000)
SERENA.SERCOMS. V2R4M4.OBJECT	SER10TY object DCB=(RECFM=FB,LRECL=80,BLKSIZE=80)
SERENA.SERCOMS. V2R4M4.PANELS	SERENA common panels DCB=(RECFM=FB,LRECL=80,BLKSIZE=6000)

Chapter 2: Prerequisites

INSTALLING STARTOOL FDM

3

This section describes the steps for unloading the StarTool FDM tape and for installing StarTool FDM.

UNLOADING THE TAPE

There are several steps for unloading the StarTool FDM tape.

- Selecting a DSNAME prefix
- Write-protecting the tape
- unloading PDSEvrm.JCL

Selecting a DSNAME Prefix

Determine the naming structure for the StarTool FDM product install libraries. For this installation replace *somnode* with the high level qualifier you choose, such as SYS2.SERENA.

Write-Protecting the Tape

Do not risk writing over the input volume; make the cartridge read-only and check it into your tape library, but note the volume name (VOL=SER=) on the external label.

Unloading PDSEvrm.JCL

PDSEvrm.JCL unloads the StarTool FDM data sets to disk. Prepare the JCL as described to unload PDSEvrm.JCL sample:

	Line Number
//COPY1 EXEC PGM=IEBCOPY	(01)
//SYSPRINT DD SYSOUT=*	(02)
//SYSUT1 DD DSN=PDSEvrm.JCL,DISP=(OLD,PASS),	(03)

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```
//          UNIT=3480,VOL=SER=SP????,          (04)
//          LABEL=(1,SL,EXPDT=98000)          (05)
//SYSUT2   DD DSN=somnode.PDSEvrm.JCL,UNIT=SYSDA,          (06)
//          DISP=(,CATLG,DELETE),          (07)
//          SPACE=(TRK,(15,5,19)),          (08)
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=9040)          (09)
//SYSIN    DD *          (10)
COPY I=SYSUT1,O=SYSUT2          (11)
```

- On line 04, correct the tape unit name (if required) and the tape volume name.
- If your installation cannot process standard labeled tapes created outside of your installation, invoke bypass label processing by replacing 1,SL in line 05 with 2,BLP.
- On line 06, substitute your prefix for *somnode* and the disk unit name (if required).
- To place the PDSEvrm.JCL data set on a specific disk volume, add ,VOL=SER=*volser* on line 07 where *volser* is the name of the target disk volume.
- To reblock the PDSEvrm.JCL data set during the reload operation, change line 09 to a blocksize such as 13680 for 3390 disk units.

Run the job stream as modified to load PDSEvrm.JCL. After the job successfully completes, continue to:

- [“Installing SMP/E”](#) or
- [“Installing Non-SMP” on page 24.](#)

INSTALLING SMP/E

If you are installing a full copy of StarTool FDM, follow the instructions under [“Installing Full SMP/E” on page 22.](#)

Installing Full SMP/E

These instructions guide you through a full SMP/E installation.

1. The SMP/E members reference a JCL procedure called SMPPROC. A sample member by this name is available in *somnode.PDSEvrm.JCL*. To use a different procedure name, change the SMP* members in *somnode.PDSEvrm.JCL* and *somnode.PDSEvrm.CNTL* (after you unload it). You also need to change PDSETGT to your target zone name and PDSEDLB to your DLIB zone name.

2. To define a new CSI and SMP/E data sets for your StarTool FDM installation, modify and submit member SMPCSI of *somnode*.PDSEvrn.JCL to define and initialize the VSAM CSI data set and define the SMPLOG, SMPMTS, SMPPTS, SMPSCDS, and SMPSTS data sets). Check for a zero return code.

Modify the member as follows:

- Change the disk unit name (if required).
 - Change the disk volume name. If you do not want a specific output volume, type DISKVOL=, to nullify this parameter.
 - Change your prefix for *somnode* (if required).
3. Modify member SMPDDDEF (define DDDEF) of *somnode*.PDSEvrn.JCL to define DDNAME and data set names for SMP/E dynamic allocation.
 - Change all occurrences of *somnode* to your chosen installation prefix.
 - Update the SYSLIB definition to include other DDNAMEs as required. This adds the DDDEF of PDSEASM to the SYSLIB concatenation so SMP/E uses the StarTool FDM macros in its assemblies.
 - Place PDSEASM last in the concatenation.
 4. Submit the modified SMPDDDEF and check the return code.
 - If you previously defined these data sets, you should get a return code of zero.
 - If these data sets are being defined for the first time, you should get a return code of four since a REP is being performed.
 5. Modify and submit member SMPALLOC of *somnode*.PDSEvrn.JCL to allocate SMP/E target and DLIB data sets.
 - Change the disk unit name (if required).
 - Change the disk volume name. If you do not want a specific output volume, type DISKVOL=, to nullify this parameter.
 - Change your prefix for *somnode* (if required).
 - Reblock the data sets (if required). The source data sets are blocked at 9040 bytes for loading to a 3380 disk volume. Use a blocksize of 13680 when loading to a 3390 disk volume. You may also want to reblock these data sets if they will be concatenated to existing data sets at your installation.
 6. Submit the modified SMPALLOC and check for a zero return code.
 7. Modify member SMPRECV (RECEIVE function PDSE740) of *somnode*.PDSEvrn.JCL.
 - Change the Global CSI name.
 - Correct the ???? parameters referenced in the JCL.

Chapter 3: Installing StarTool FDM

8. Submit the modified SMPRECV and check for a zero return code.
9. Change member SMPAPPLY (APPLY) of *somnode.PDSEvrm.JCL* and check that all parameters conform to your installation standards. Instructions are included in this job to perform an APPLY CHECK.
10. Submit the modified SMPAPPLY and check for a zero return code.

Your target libraries should be filled with the proper StarTool FDM software. If you do not want to execute StarTool FDM out of SMP-controlled libraries, create copies of PDSECTL, PDSEASM, PDSESKL, PDSELOD, PDSEPNL, PDSEMSG, PDSECLS and PDSEHLP. Although you no longer need data set *somnode.PDSEvrm.JCL*, copy the SMP* members into *somnode.PDSEvrm.CNTL* for future reference. Proceed to set up StarTool FDM as detailed in [“Tailoring an Installation” on page 27](#).

When StarTool FDM is working properly, edit member SMPACC (ACCEPT) from *somnode.PDSEvrm.CNTL* so that all parameters conform to your installation standards. Instructions are included in this job to perform an ACCEPT CHECK. Submit this job and check for a zero return code.

Several USERMODS customize StarTool FDM. These members are in *somnode.PDSEvrm.CNTL*, and they reference the following routines from *somnode.PDSEvrm.ASSEMBLE*:

```
SMP#DYNA - Link PDS#DYNA with StarTool FDM from SAMPDYNx (x is 1, 2 or 3)
SMP#OPTJ - Link PDS#OPT4 as a separate module from SAMPOPT4
SMP#OPT4 - Link PDS#OPT4 with StarTool FDM from SAMPOPT4
SMP#SECI - Link PDS#SECI with StarTool FDM from SAMPSECR or SAMPSECC
SMP#SECA - Link PDS#SECI with PDSEAUTH from SAMPSECR
```

INSTALLING NON-SMP

If you are installing a full copy of StarTool FDM, follow the instructions under [“Installing Full Non-SMP”](#).

Installing Full Non-SMP

First modify member PDSELOAD. Refer to the JCL in *somnode.PDSEvrm.JCL*(PDSELOAD).

1. Edit PDSELOAD to prepare JCL for loading the StarTool FDM installation data sets:
 - Line 01: insert your standard //jobname JOB statement.
 - Line 03: correct tape volume name.
 - Line 04: correct tape unit name (if required).

- Line 05: choose a disk volume name. If you do not want a specific output volume, type DISKVOL=, to nullify this parameter.
- Line 06: correct disk unit name (if required).
- Line 07: substitute your chosen prefix.
- Line 08: if desired, substitute a different middle qualifier.
- If desired, remove all occurrences of “,EXPDT=98000” .

If your installation cannot process standard labeled tapes created outside of your installation, invoke bypass label processing by replacing the following strings:

3,SL	with	8,BLP
4,SL	with	11,BLP
5,SL	with	14,BLP
6,SL	with	17,BLP
7,SL	with	20,BLP
8,SL	with	23,BLP
9,SL	with	26,BLP
10,SL	with	29,BLP
11,SL	with	32,BLP
12,SL	with	35,BLP
13,SL	with	38,BLP
14,SL	with	41,BLP
15,SL	with	44,BLP
16,SL	with	47,BLP
17,SL	with	50,BLP
18,SL	with	53,BLP

2. You can reblock the CNTL, PANELS, MSGS, CLISTS, ASM, HELP, SKELS and TSRC data sets during the load operation. These data sets are blocked at 9040 bytes for loading to a 3380 disk volume. Use a blocksize such as 13680 when loading to a 3390 disk volume. You may also want to reblock these data sets if they will be concatenated to existing data sets at your installation. To reblock these data sets, insert a JCL statement like

```
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=13680),
```

You can make the same changes for the DD statements named OSCERCL, OSERJCL, OSERMSG, OSEROBJ, and OSERP NL.

3. Run the job stream as modified to load the StarTool FDM installation data sets; check for a zero return code.

You no longer need data set *somnode.PDSEvrm.JCL*; however, copy member PDSELOAD into *somnode.PDSEvrm.CNTL* for future reference. Proceed to set up StarTool FDM as detailed in [“Tailoring an Installation” on page 27](#).

TAILORING AN INSTALLATION

4

After you load StarTool FDM on disk as described in [Chapter 3, “Installing StarTool FDM,” on page 21](#), you can execute it in batch or line mode.

If your installation uses PDSFAST 4.3 or earlier as a replacement for IEBCOPY, replace PDS#OPT4 with your own version. By default, invoke IEBCOPY with IKJEFTSR, which causes an ENQUEUE lockout for old levels of PDSFAST if you use DISP=SHR allocation for the COMPRESS or COPY subcommands.

If you are not tailoring your installation, you can still allow testing of StarTool FDM for restricted users. See [“PDS#OPTR Options Module”](#) below.

To use StarTool FDM now, proceed to [“Executing StarTool FDM” on page 90](#).

PDS#OPTR OPTIONS MODULE

To test StarTool FDM with restricted users, use the options member named PDS#OPTR in *somnode.PDSEvrn*.LOAD. If you copy this member to a user STEPLIB and rename it to PDS#OPT4, users who access StarTool FDM with that STEPLIB are restricted from using several high impact resources (FIXNAME, FIXANYD, FIXDSCB, FIXMAX, REPNOSTA, REPLCI, FIXRESET and COMPRSHR).

To tailor PDS#OPTR to restrict a different set of resources or change other options, see member SAMPOPTR in *somnode.PDSEvrn*.ASSEMBLE. SAMPOPTR has only a single restriction table and a PDS#SECI routine is not required. Use member PDS#OPTJ or SMP#OPTJ in *somnode.PDSEvrn*.CNTL with appropriate changes so that you can use SAMPOPTR instead of SAMPOPT4.

PDS#OPT4 OPTIONS MODULE

Your installation defaults are determined by the contents of a module named PDS#OPT4.

If PDS#OPT4 is not available at the initialization of StarTool FDM, the message CSV003I REQUESTED MODULE PDS#OPT4 NOT FOUND displays and an internal version of this module called PDS#DFLT is used instead.

PDS#OPT4 is pre-linked into *somnode.PDSEvrn.LOAD* with sample values; however, customize it as described in this section.

A SAMPOPT4 sample is available in *somnode.PDSEvrn.ASSEMBLE* as member SAMPOPT4. Use member PDS#OPTJ or SMP#OPTJ in *somnode.PDSEvrn.CNTL* to install PDS#OPT4 as a distinct load module.

First, establish PDS#OPT4 as a distinct load module; then, after some initial testing of StarTool FDM and the defaults, link PDS#OPT4 together with the StarTool FDM load module using member PDS#OPT4 or SMP#OPT4 from *somnode.PDSEvrn.CNTL*.

SAMPOPT4 is an assembler language source program made up of the following macros:

This macro...	Consists of...
#INITIAL	Installation default values. Enter #INITIAL only once, and enter it before any of the other macros.
#DYNCMDT	Optional. Dynamic ISPF command table entries to be added during StarTool FDM initialization.
#DYNLIBS	Optional. Names of cataloged data sets to be dynamically referenced as panel, message, and CLIST libraries.
#PASSNAM	Optional. Names that are controlled by StarTool FDM pass-through.
#VDEFINE	Optional. Names and initial values of dialog variable defaults for use by StarTool FDM.
#RESUSE	Names of restricted use subcommands (and subcommand--operand combinations) for security.
#GENER	Module generator. This macro is coded after all of the others. It checks that any required information has been entered before generating internal data for PDS#OPT4.

SAMPOPT4 contains:

- A single invocation of #INITIAL before any other macros.
- One or more of the optional macros: #DYNCMDT, #DYNLIBS, #PASSNAM and #VDEFINE.
- One or more #RESUSE macros (these are required if #INITIAL is not NONE).
- A final #GENER macro to generate the PDS#OPT4 module.

#INITIAL – Overview

#INITIAL specifies major installation defaults and environmental variables. #INITIAL keyword parameters are documented in alphabetical order according to their function as shown in the following table:

Keywords beginning with...	Serve this function...
\$	Global defaults
#	Subcommand defaults
@	External TSO command defaults
LF	SETPAN view defaults – LISTC/LISTF
LV	SETPAN view defaults – LISTV
ML	SETPAN view defaults – MEMLIST load
SL	S line command defaults
SPF	ISPF function defaults

#INITIAL -- Global Defaults

The #INITIAL keywords beginning with \$ specify StarTool FDM global defaults.

An important parameter in this set is \$TYPEACF that controls how StarTool FDM controls access to its subcommands. If you specify NONE, no subcommand controls are performed. In each case, you must establish one or more sets of restricted subcommand names using the #RESUSE macro.

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StarTool FDM supports internal or external security environments:

- Internal security (\$TYPEACF=CALL) requires that you assemble and link a module (see sample source member SAMPSECC in *somnode.PDSEvrm.ASSEMBLE*) that performs checking of tokens based on USERID tables or some other criteria within the module.
- External security (\$TYPEACF=LOGNO, RACF, TOP or ACF2) requires that you assemble and link a module (see sample source member SAMPSECR in *somnode.PDSEvrm.ASSEMBLE*) that communicates with your security system using the SAF security interface.

For internal or external security, the resultant checking module is named PDS#SECI. You can specify one option, \$TYPEACF=LOGNO, to drive PDS#SECI from the authorized PDSEAUTH routine. In this situation, the RACROUTE macro can specify LOG=NO to suppress SMF records for access denials that occur normally in classifying users.

During StarTool FDM initialization, the name (or token) for each restricted subcommand name list is passed to the PDS#SECI module for checking; the exit responds with a yes or no. When the first yes response is received, StarTool FDM uses the associated restricted subcommand list for internal authorization checks before executing a subcommand. The lowest level restricted subcommand table is assumed valid for all users. Thus, if you have four classes of StarTool FDM users, at most, three calls are made to PDS#SECI during StarTool FDM initialization.

\$TYPEACF=DYNAMIC supports internal security or external security in module PDS#SECI to determine a user's restricted subcommand list as described above. When a user enters one of the restricted subcommands, control is given to an exit called PDS#DYNA that is provided the name of the subcommand (or subcommand restriction name such as FIXDIR) and the current data set name.

StarTool FDM customizes security installation instructions based on the names of restricted user tables and the type of security system at your installation. If you are implementing security for the first time or changing the name or number of #RESUSE macros, select \$TYPEACF=NONE for now, then read [Chapter 5, "Security," on page 69](#) before implementing StarTool FDM security.

#INITIAL (\$ parameters)

Parameter	Description	Values	Default	Override
\$FIXANYD	Allows FIXPDS to update a DSCB for any data set through the PDSEAUTH support routine. This parameter is disabled by default. Enable it after your StarTool FDM security is in place and tested.	YES/NO	NO	No
\$FIXDSCB	Allows FIXPDS to update DSCB for the current data set through the PDSEAUTH support routine. This parameter is disabled by default. Enable it after your StarTool FDM security is in place and tested.	YES/NO	NO	No
\$FIXNAME	Allows FIXPDS to update DSCB to rename an uncataloged data set through the PDSEAUTH routine. This parameter is disabled by default. Enable it after your StarTool FDM security is in place and tested.	YES/NO	NO	No
\$INSTALL	Use this parameter only if your installation has customized code.	As defined	0	No
\$ISPF	ISPF availability for StarTool FDM dialogs.	YES/NO	YES	No
\$ISPMODE	Initial screen mode when initialized under ISPF. ISPMODE is the normal full screen initialization; XISPMODE requests a line-mode initialization.	ISPMODE/ XISPMODE	ISPMODE	Yes
\$LOGO	Displays StarTool FDM logo screen. This screen displays during ISPMODE initialization as an in-progress panel. NONDISP requests a CONTROL NONDISPL so variables are still processed. See <i>"SET Variables" on page 86</i> .	NONDISP/ LOGO/ SUPPRESS	SUPPRESS	No

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Parameter	Description	Values	Default	Override
\$PDSMANM	PDSMAN/MVS PDS management name. Use to specify an alternate name for the PDSMAN/MVS space management member name. This member is checked by FIXPDS before adjusting directory blocks.	Member name	\$\$\$SPACE	No
\$RETAIN	Number of CONTROL RETAIN buffers to allocate during initialization.	1 to 9	9	Yes
\$RMRETRY	Number of times to retry a READ MULTIPLE failure. See message PDS892E in the <i>StarTool Messages Guide</i> for more information.	1 to 20	1	No
\$TYPEACF	Type of security subcommand. Specify NONE if you want to coordinate this later.	NONE/ RACF/TOP/ ACF2/ LOGNO/ DYNAMIC/ CALL	NONE	No!
\$UPCASE	Display program output and messages in upper case for Tokyo users.	YES/NO	NO	No

#INITIAL – Subcommand Defaults

#INITIAL keywords beginning with # specify StarTool FDM subcommand defaults. These keywords only affect a single StarTool FDM command.

The #CONADEF parameter determines the type of display wanted for the DSNAME subcommand. You can choose a table-message format, a JCL format or a TSO allocation format. For examples, see the *StarTool FDM Reference Guide* for descriptions of messages PDS200I, PDS210I and PDS220I.

#CONGLBL turns off optional processing for individual subcommands. This parameter specifies the installation default. Each parameter can be overridden by the user on the CONTROL subcommand and in many cases, defaults can be overridden on a subcommand basis. The #CONGLBL parameter is unusual in that multiple parameters can be specified. If you want to turn off several types of processing with this parameter, type the string of operands separated by + symbols. Each defined parameter corresponds directly to an operand in the CONTROL subcommand as follows:

This parameter...	Corresponds to this operand...
ALIASINF	NOALIASINFO. Alias information is provided on ATTRIB subcommands only by explicit request. Also, no alias information is provided on MAP subcommands.
LKEDDATE	NOLKEDDATE. Linkage edit dates are provided on ATTRIB subcommands by explicit request only.
PROMPT	NOPROMPT. At a program decision point (such as when a group of members are to be deleted), do not provide a confirmation prompt.
RECOVER	NORECOVER. Do not attempt ESTAE recovery after an ABEND. This default is provided automatically when StarTool FDM executes in the background under the TSO TMP.
TRANSLAT	NOTRANSLATOR. Do not provide assembler or compiler TRANSLATOR information in HISTORY subcommands unless explicitly requested. TRANSLATOR should not be the default for PL/I modules since these modules contain numerous translator IDR records.

For example:

```
to get: CONTROL NORECOVER NOTRANSLATOR
code:  #CONGLBL=RECOVER+TRANSLAT
```

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#INITIAL (# parameters)

Parameter	Description	Values	Default	Override
#COMPLST	Level of detail for COMPRESS.	SUMMARY/ LIST	SUMMARY	Yes
#CONADEF	Default format for DSNAME.	MSG/ TSO/ JCL	MSG	Yes
#CONDRNG	Whether or not a range such as pds: actually means pds:pds. (Specify NO unless users are already familiar with this method.)	YES/NO	NO	No
#CONFIRM	ISPF 4.x CONFIRM verification. Type YES if you want ISPF edit confirmation prompting for CANCEL, MOVE or REPLACE.	YES/NO	YES	Yes
#CONGLBL	CONTROL subcommand optional processing to turn off. Note: Set this parameter to null to retain all optional processing.	TRANSLAT, ALIASINF, LKEDDATE, PROMPT, RECOVER	(null)	Yes
#COPYLST	Level of detail for COPY.	SUMMARY/ LIST	LIST	Yes
#COPYMOD	IEBCOPY or PDSFAST support load module reblocking. If YES, StarTool FDM converts COPY statements to COPYMOD if the input and output data set blocksizes differ.	YES/NO	YES	No

Parameter	Description	Values	Default	Override
#COPYSHR	Type of allocation default for COPY. StarTool FDM uses logic similar to logic used by ISPF for protecting data sets that are updated during shared allocation.	SHR/OLD	SHR	Yes
#INITARC	Volume name to check for archived volume in addition to MIGRAT.	volume name	ARCIVE	No
#INITLC	Number of data sets to add to a LISTC/LISTF table between in-progress messages.	number or 999999 to disable	250	Yes
#INITLV	Number of volumes to add to a LISTV table between in-progress messages.	number or 999999 to disable	50	Yes
#INITMAC	Initial edit macro name to use at your installation to provide a standard edit macro.	member name	none	Yes
#INITML	Number of members to add to a MEMLIST table between in-progress messages.	number or 999999 to disable	500	Yes
#INITVMAP	Number of data sets to add to a VMAP table between in-progress messages.	number or 999999 to disable	500	Yes
#PROFNAM	Default edit profile name.	member name	none	Yes
#PUNIT	Unit name for permanent data sets (such as IEBCOPY SYSUT2 data sets). Set this parameter to null to use the default unit name from SYS1.UADS.	SYSALLDA/ SYSDA	SYSALLDA	Yes

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Parameter	Description	Values	Default	Override
#TUNIT	Unit name for use by temporary data sets (such as IEBCOPY SYSUT4 data sets). Note: This unit name should not map to a VIO device.	SYSDA/ SYSALLDA/ PUBDA	SYSDA	No
#UCBFOUR	UCB names normally contain three or four characters. If this parameter is YES, UCB names are four characters long in the LISTV function.	YES/NO	NO	No

#INITIAL – External TSO Command Defaults

The #INITIAL keywords beginning with @ correlate StarTool FDM subcommands and their supporting TSO subcommands. A subcommand is disabled if its parameter is coded as a null string or if it is not coded and its default is (disabled). Disabled subcommands cannot be used by your users. If you enter a command name, be aware that several of these subcommands support an undocumented PGM(name) keyword to control the actual TSO command called.

Three very important parameters for #INITIAL are @COMPR (for COMPRESS), @COPYE (for COPY with program objects), and @COPY (for COPY in other cases) which determine the copy utility to use: IEBCOPY from IBM, PDSFAST from Software Engineering of America (SEA) or FDRREORG from Innovation (for COMPRESS only). IEBCOPY and FDRREORG must gain control in an authorized state. The IKJEFTSR interface is recommended.

Note Do not use the default IKJEFTSR interface if you have PDSFAST (level 4.3 or earlier). Specify IEBCOPY or PDSFAST instead. Current levels of PDSFAST have support for invocation by StarTool FDM using shared allocation. If you use the default IKJEFTSR interface for these subcommands, a shared allocation for the COPY and COMPRESS subcommands cause an ENQUEUE lockout when PDSFAST gets control.

If you specify IEBCOPY or PDSFAST for @COMPR, @COPY or @COPYE, the copy program is assumed to be PDSFAST and it invokes without authorization; otherwise, the IKJEFTSR interface is used.

The IKJEFTSR interface requires TSO/E release 1.2 or later.

Subcommands ABE, DCF, PRINT, REVIEW, SUBMIT, TSOLIST, USER1, USER2, USER3, and VPRINT use an internal service routine that formats the request as a fully qualified data set name and member name in quotes followed by any additional data you specify. Each invokes a CLIST instead of a TSO command. In this case, the CLIST name is limited to seven characters and the first parameter passed is the data set and member name. A CLIST option cannot be used under ISPMODE or MEMLIST.

You can get several of the optional programs invoked by StarTool FDM from the following public domain sources:

- ABE (A Better Editor) is on the NASPA VIP tape.
- BLK3350, BLK3380, BLK3390, BLK9345, COMPARE\$, DSAT and DVOL are on the CBT tape, file 296.
- HEL, REVIEW and ZAP are on the CBT tape, file 134 for source, file 135 for load.
- LIST is on the CBT tape, file 300.
- PRINTOFF is on the CBT tape, file 325.
- VTOC is on the CBT tape, file 112.

Most of the public domain programs invoked by StarTool FDM are available on the end of the distribution tape. Even though these programs are distributed with StarTool FDM, they are not officially supported (report any errors so they can be fixed).

HELP and load members are available for BLK3350, BLK3380, BLK3390, BLK9345, COMPARE\$, DSAT, DVOL, LIST, L, HEL, PRINTOFF, REVIEW, TAPEMAP, VTOC and ZAP. These members were loaded into *somnode.PDSEvrn.TSRC* and *somnode.PDSEvrn.TLOD*. Several other extra test members are also present in the load data set.

#INITIAL (@ parameters)

Parameter	Description	Values	Default
@ABE	ABE (A Better Editor) available from public domain sources.	ABE/ %clist	(disabled)
@ACFCOMP	ACFCOMP compiles source rules for CA-ACF2.	ACFCOMP/ %clist	(disabled)

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Parameter	Description	Values	Default
@BLK3350	BLK3350 is a blocksize optimization program for 3350 disks. StarTool FDM displays output from this program in the log.	BLK3350/ %clist	(disabled)
@BLK3380	BLK3380 is a blocksize optimization program for 3380 disks. StarTool FDM displays output from this program in the log.	BLK3380/ %clist	(disabled)
@BLK3390	BLK3390 is a blocksize optimization program for 3390 disks. StarTool FDM displays output from this program in the log.	BLK3390/ %clist	(disabled)
@BLK9345	BLK9345 is a blocksize optimization program for 9345 disks. StarTool FDM displays output from this program in the log.	BLK9345/ %clist	(disabled)
@BROWSE	BROWSE for a VSAM data set uses PBROWSE or it invokes the BRIF service. You can invoke other VSAM browse utilities (VSAMMBR is VSAM Utility and REVIEW is a non-ISPF full screen browse program).	PBROWSE/ BRIF/ REVIEW/ %VSAMFBR/ %VSAMMBR	PBROWSE
@COMPARE	COMPARE displays data set differences. <ul style="list-style-type: none"> • COMPAREC is a preprocessor for SuperC which is a part of ISPF/PDF. • COMPAREW is a preprocessor for COMPAREX from Serena. • COMPARE\$ is the Yale Compare Program. • COMPAREZ is the extended compare option from Serena. StarTool FDM displays output from these programs in the log.	COMPAREC/ COMPAREW/ COMPARE\$/ COMPAREZ/ %clist	COMPAREC

Parameter	Description	Values	Default
@COMPR	<p>COMPRESS removes deleted members from a PDS.</p> <ul style="list-style-type: none"> • IEBCOPY is part of DFP from IBM. • PDSFAST is an IEBCOPY replacement from Software Engineering of America. <p>StarTool FDM displays output from these programs in the log.</p>	IKJEFTSR/ IEBCOPY/ PDSFAST	IKJEFTSR -- see preceding caution for PDSFAST installations
@COPY	<p>COPY selectively copies members to another data set.</p> <ul style="list-style-type: none"> • IEBCOPY is part of DFP from IBM. • PDSFAST is an IEBCOPY replacement from Software Engineering of America. <p>StarTool FDM displays output from these programs in the log.</p>	IKJEFTSR/ IEBCOPY/ PDSFAST	IKJEFTSR -- see preceding caution for PDSFAST installations
@COPYE	<p>@COPYE is for program object support. If the input or output data set is a program object library, this parameter defines the copy utility instead of @COPY. StarTool FDM displays output from these programs in the log.</p>	IKJEFTSR/ IEBCOPY/ PDSFAST	IKJEFTSR -- see preceding caution for PDSFAST installations
@DCF	<p>DCF scripts data. SCRIPT is an IBM product.</p>	SCRIPT/ %clist	SCRIPT
@DSAT	<p>DSAT is a short form LISTD TSO command.</p> <p>StarTool FDM displays output from this program in the log.</p>	DSAT/%clist	(disabled)
@DVOL	<p>DVOL is a short form disk volume summary TSO command.</p> <p>StarTool FDM displays output from this program in the log.</p>	DVOL	(disabled)

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Parameter	Description	Values	Default
@EDIT	EDIT for a VSAM data set uses PEDIT or it invokes the EDIF service which displays the first 255 characters of any record. You can invoke another VSAM editor (VSAMMED is VSAM Utility).	PEDIT/ EDIF/ %VSAMMED	PEDIT
@EXEC or %	EXEC is the system CLIST processor; it is a part of TSO.	EXEC	EXEC
@FSE	FSE+ is a full screen edit program from Palm Beach Associates.	FSE	(disabled)
@HELP	HELP is a user assistance service based on a TSO HELP member (this is in addition to the normal ISPF dialog HELP). HELP is TSO HELP command from IBM. HEL is a full screen help command in seven colors.	HELP/ HEL	HEL
@PBROWSE	PBROWSE module name. Use this parameter to specify an alternate name for the StarTool FDM PBROWSE module.	member name	PDSPBROW
@PEDIT	PEDIT module name. Use this parameter to specify an alternate name for the StarTool FDM PEDIT module.	member name	PDSPEDIT
@PRINT	PRINT produces a hardcopy listing. PRINTOFF originated with the IBM IPO group; PRINTDS is a part of TSO/E. Note: PRINTDS does not support uncataloged data sets.	PRINTDS/ PRINTOFF/ %clist	PRINTDS
@REVIEW	REVIEW is a non-ISPF full screen browse program with VSAM support in seven colors.	REVIEW/ %clist	(disabled)
@SEQCOPY	Sequential copy program name. The COPY subcommand uses this name for copying sequential data sets.	member name	IEBGENER

Parameter	Description	Values	Default
@SUBMIT	SUBMIT sends data to the background for processing; it is a part of MVS and TSO.	SUBMIT/ %clist	SUBMIT
@TSO	TSO simulates the ISPF TSO command. TSOEXEC obtained the equivalent of "TSO TSOEXEC cmdnd"; NOAUTH is normal.	NOAUTH/ TSOEXEC	NOAUTH
@TSOEDIT	TSOEDIT is the TSO EDIT command.	EDIT	(disabled)
@TSOLIST	TSOLIST is a LIST command processor.	LIST/ %clist	(disabled)
@USER1	USER1 is for use at your installation.	ANYCMND/ %clist	SAMPCMD
@USER2	USER2 is for use at your installation.	ANYCMND/ %clist	%PCLIST1
@USER3	USER3 is for use at your installation.	ANYCMND/ %clist	(disabled)
@VPRINT	VPRINT (or VTAM print) prints a hardcopy with a VTAM printer. It is available from Levi, Ray and Shoup. DSPRINT is a VTAM print program from IBM.	VPSPRINT/ DSPRINT	VPSPRINT
@VTOC	VTOC is a volume data set search program. StarTool FDM displays output from this program in the log.	VTOC	(disabled)

COMPAREZ Extended Compare Option

If your site is licensed to use the extended compare option, do the following:

1. Make @COMPARE=COMPAREZ in PDS#OPT4, which is shipped as SAMPOPT4 in the PDSEvrn.ASSEMBLE library.
2. Copy the COMPAREX panels into PDSEvrn.PANELS library. These panels are in IEBUPDATE format.
3. Use the SEPARATE command against PDSEvrn.ASSEMBLE(COMPAREZ)

#INITIAL – SETPAN View Defaults

There are several SETPAN view defaults with #INITIAL keywords described in the paragraphs that follow.

#INITIAL keywords Beginning with LF

#INITIAL keywords beginning with LF specify which panels are enabled for the LISTC/LISTF function.

The LISTC/LISTF function displays data set information in any of 10 different formats. Select different data views with the RIGHT and LEFT commands. By default, only four of these formats are used (Attributes, Size, Extent and Double line). You may configure different displays with the following keywords. Your users select which panels they actually want to use with the SETPANEL command.

These keywords are in the order in which the panels display with the RIGHT command if all panels are turned on. Panels that are turned off with a NO value are not displayed. Following the table are examples of the panels.

#INITIAL (LF parameters)

Parameter	Description	ISPF Variable	Values	Default
LFATTRIB	Attributes (DSORG and DCB info)	PDSSWLC0	YES/NO	YES
LFDSNAME	Dsname (full data set name and DSORG)	PDSSWLC1	YES/NO	NO
LFCUSTOM	Custom (make customizations to panel PDSPN57)	PDSSWLC2	YES/NO	NO
LFSIZE	Size (size of data set and device)	PDSSWLC3	YES/NO	YES
LFEXTENT	Extent (extent information, KEYLEN and RKP)	PDSSWLC4	YES/NO	YES
LFUSER	User (make customizations to panel PDSPN60)	PDSSWLC5	YES/NO	NO
LFDOUBLE	Double line (two line panel with most data set information)	PDSSWLC6	YES/NO	YES
LFCREATE	Created/Referenced (access history information)	PDSSWLC7	YES/NO	NO

Parameter	Description	ISPF Variable	Values	Default
LFEXPIRE	Expiration (expiration and PDS info)	PDSSWLC8	YES/NO	NO
LFTOTAL	Total (three line panel with all data set info)	PDSSWLC9	YES/NO	NO

Attributes LISTC/LISTF Panel

```

----- List files TESTXX - (Attributes) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR969 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL BLKSI
  Y Y *CHANGE WSER07.LIB.CLIST_____ STR911 PO FB      80  9040
  Y Y *REFRESH WSER07.LIB.CLISTV_____ STR92P PO VB     255  9040
  - - *REFRESH WSER07.LIB.CLISTVV_____ MIGRAT
    
```

Dsname LISTC/LISTF Panel

```

----- List files TESTXX - (Dsname) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR969 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM
  Y Y *CHANGE WSER07.LIB.CLIST_____ STR911 PO FB
  Y Y *REFRESH WSER07.LIB.CLISTV_____ STR92P PO VB
  - - *REFRESH WSER07.LIB.CLISTVV_____ MIGRAT
    
```

Custom LISTC/LISTF Panel

You can customized this panel for your installation.

```

----- List files TESTXX - (Custom) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR969 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL BLKSI
  Y Y *CHANGE WSER07.LIB.CLIST_____ STR911 PO FB      80  9040
  Y Y *REFRESH WSER07.LIB.CLISTV_____ STR92P PO VB     255  9040
  - - *REFRESH WSER07.LIB.CLISTVV_____ MIGRAT
    
```

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Size LISTC/LISTF Panel

```
----- List files TESTXX - (Size) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR969 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- SIZE    FREE USED DEVICE
  Y Y *CHANGE  WSER07.LIB.CLIST_____ 100T     4T  96% 3380K
  Y Y *REFRESH WSER07.LIB.CLISTV_____  2T      0T 100% 3390M3
  - - *REFRESH WSER07.LIB.CLISTVV_____
```

Extent LISTC/LISTF Panel

```
----- List files TESTXX - (Extent) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR969 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- EXT    SEC ALLOC RND KEY RKP
  Y Y *CHANGE  WSER07.LIB.CLIST_____  3     33 TRK  NO   0  0
  Y Y *REFRESH WSER07.LIB.CLISTV_____  1     10 TRK  NO   0  0
  - - *REFRESH WSER07.LIB.CLISTVV_____
```

User LISTC/LISTF Panel

Your users can customize this panel.

```
----- List files TESTXX - (User) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR969 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- VOLUME DO RECFM LRECL BLKSI
  Y Y *CHANGE  WSER07.LIB.CLIST_____ STR911 PO FB      80 9040
  Y Y *REFRESH WSER07.LIB.CLISTV_____ STR92P PO VB     255 9040
  - - *REFRESH WSER07.LIB.CLISTVV_____ MIGRAT
```

Double Line LISTC/LISTF Panel

```

----- List files TESTXX - (Double line) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                     SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR972 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- VOLUME DEVICE DO
      RECFM LRECL BLKSI      SIZE      FREE USED CREATED      EXPIRATION REFERENCED
Y Y *CHANGE* WSER07.LIB.CLIST_____ STR911 3380K PO
      FB          80  9040   100T          4T  96% 1989/10/04 ** NONE ** 1995/06/28
Y Y *REFRESH WSER07.LIB.CLISTV_____ STR92P 3390M3 PO
      VB          255  9040     2T          0T 100% 1995/03/16 1995/12/31 1995/06/20
- - *REFRESH WSER07.LIB.CLISTVV_____ MIGRAT
    
```

Created/Referenced LISTC/LISTF Panel

```

----- List files TESTXX - (Created) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                     SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR969 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- CREATED      REFERENCED UPD
Y Y *CHANGE WSER07.LIB.CLIST_____ 1989/10/04 1995/06/28 U
Y Y *REFRESH WSER07.LIB.CLISTV_____ 1994/03/16 1995/06/20
- - *REFRESH WSER07.LIB.CLISTVV_____
    
```

Expiration LISTC/LISTF Panel

```

----- List files TESTXX - (Expiration) ----- ROW 1 TO 3 OF 3
COMMAND ==>                                     SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR972 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- EXPIRATION      DIR  USED RACF
Y Y *CHANGE* WSER07.LIB.CLIST_____ ** NONE **      73   64
Y Y *REFRESH WSER07.LIB.CLISTV_____ 1995/12/31
- - *REFRESH WSER07.LIB.CLISTVV_____
    
```

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Total LISTC/LISTF Panel

```

----- List files TESTXX - (Total) ----- ROW 1 TO 3 OF 3
COMMAND ==>                               SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=STR972 MEM=PDSPN49:PDSPN75 -----
CMD C V DATA/MSG -----DATA SET NAME ----- VOLUME DEVICE
      DO  LRECL  KEY  CREATED  EXPIRATION  --SIZE-  -DIR-  ALLOC  USED
      RECFM BLKSI RKP  REFERENCED  UPD  EXT  --FREE-  -USED  -SEC-  RND
Y Y *CHANGE  WSER07.LIB.CLIST          STR911 3380K
      PO      80    0 1989/10/04 ** NONE ** 100T          TRK 96%
      FB     9040   0 1995/06/28 U    3      4T          33 NO
Y Y *REFRESH WSER07.LIB.CLISTV          STR92P 3390M3
      PO     255   0 1994/03/16 1994/12/31 2T          TRK 100%
      FB     9040   0 1995/06/20      1      0T          10 NO
Y - *REFRESH WSER07.LIB.CLISTVV          MIGRAT
  
```

#INITIAL keywords Beginning with LV

#INITIAL keywords beginning with LV specify which panels are enabled for the LISTV function.

The LISTV function displays data set information in any of six different formats. Select different data views with the RIGHT and LEFT commands. By default, only four of these formats are used (Free, Used, VTOC and Dual), but you can set up different defaults with the following keywords. Your users can select which panels they want to use with the SETPANEL command.

These keywords are in the order in which these panels are displayed with the RIGHT command if all panels were turned on. Panels that are turned off with a NO value are not displayed.

Examples of the panels follow the table.

#INITIAL (LV parameters)

Parameter	Description of views	ISPF Variable	Values	Defaults
LVATTR	Attributes (Device type and mount attributes)	PDSSWLV1	YES/NO	NO
LVFREE	Free Space (Device type and free space in several formats)	PDSSWLV2	YES/NO	YES
LVUSED	Percent Used Space (Percent of space available)	PDSSWLV3	YES/NO	YES

Parameter	Description of views	ISPF Variable	Values	Defaults
LVVTOC	VTOC Size Information (VTOC information)	PDSSWL4	YES/NO	YES
LVCUST	Custom (see instructions in the panel to customize)	PDSSWL5	YES/NO	NO
LVDUAL	Dual Line (access history information)	PDSSWL6	YES/NO	YES

Attributes LISTV Panel

```

----- List Volumes - (Attributes) ----- Row 1 to 4 of 4
COMMAND ==>                                SCROLL ==> CS
- DSN=WSER07.LIB.CNTL,VOL=SER=SER001 MEM=MVS* -----
-----
CMD VOLUME DATA/MSG DEV  DEV MOUNT USE  ---- TOTAL FREE ----  LARGEST  STATUS
--  NAME  ----- ADDR TYPE ATTR CNT   CYLS TRKS  NUM DSCBS  CYLS TRKS  -INDC-
   OS39H2      124 3380  PR  10    73  13    2   726    73   9 A  CSIM
   OS39R2      A80 3390M3 PR  268   341  12    3  2451   341  10 A  SD
   SCPMV5      122 3380E ST  71    813 129   33   636   165   0 A  PCSI
   SER002      140 3380E PR   7   1441  17    4  1572  1438   0 A  SI
    
```

Free Space LISTV Panel

```

----- List Volumes - (Free Space) ----- Row 1 to 4 of 4
COMMAND ==>                                SCROLL ==> CS
- DSN=WSER07.LIB.CNTL,VOL=SER=SER001 MEM=MVS* -----
-----
CMD VOLUME DATA/MSG DEV  ----- TOTAL FREE -----  ----- LARGEST EXTENT -----
--  NAME  ----- TYPE  CYLS+TRKS=TRACKS->KBYTES  CYLS+TRKS=TRACKS->KBYTES
   OS39H2      3380    73  13  1108  52605    73  9  1104  52415
   OS39R2      3390M3  341  12  5127  290516   341 10  5125  290403
   SCPMV5      3380E   813 129 12324  585118   165 0  2475  117508
   SER002      3380E  1441 17 21632 1027044  1438 0 21570 1024100
    
```

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Percent LISTV Panel

```

----- List Volumes - (Percent) ----- Row 1 to 4 of 4
COMMAND ==>                               SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=SER001 MEM=MVS* -----
-----
CMD VOLUME DATA/MSG DEV  DEV MOUNT USE  SPACE VTOC FREE FREE  LARGEST STATUS--
   NAME ----- ADDR TYPE ATTR CNT  USED  USED VIRS DSCBS  CYLS TRKS -INDC-
OS39H2          124 3380  PR  10  84%  2%  14  726  73  9  A CSIM
OS39R2          A80 3390M3 PR 268  89% 18%  0 2451  341 10  A SD
SCPMV5          122 3380E ST  71  53% 20% 261  636  165  0  APCS I
SER002          140 3380E PR   7  18%  1% 265 1572 1438  0  ASI
  
```

VTOC Size LISTV Panel

```

----- List Volumes - (VTOC Size) ----- Row 1 to 4 of 4
COMMAND ==>                               SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=SER001 MEM=MVS* -----
-----
CMD VOLUME DATA/MSG DEV  DEV -MOUNT-  STORAGE USE -----VTOC----- FREE FREE
   NAME ----- ADDR TYPE ATTR STAT  CLASS CNT --CCHH-- SIZE DSCBS VIRS
OS39H2          124 3380  PR  PRES  DEFAULT 10  0000000114  726  14
OS39R2          A80 3390M3 PR  SYSR           268 0376000060  2451  0
SCPMV5          122 338E  ST  PRES           71 022E000015  636  261
SER002          140 3380E PR  PRES           7 000A000030  1572 265
  
```

Custom LISTV Panel

```

----- List Volumes - (Custom) ----- Row 1 to 4 of 4
COMMAND ==>                               SCROLL ==> CSR
- DSN=WSER07.LIB.CNTL,VOL=SER=SER001 MEM=MVS* -----
-----
CMD VOLUME DATA/MSG DEV  DEV MOUNT USE  --TOTAL FREE--  LARGEST  STATUS
   NAME ----- ADDR TYPE ATTR CNT  CYLS TRKS NUM  CYLS TRKS -INDC-
                STORAGE STATUS SPACE  ----- VTOC -----
                CLASS  ---- USED  DSCBS VIRS  SIZE USED --CCHH--
OS39H2          124 3380  PR  10  73 13  2  73 9  A CSIM
                DEFAULT PRES 84%  726 14  14 2% 00000001
OS39R2          A80 3390M3 PR 268  341 12  3  341 10  A SD
                SYSR 89%  2451  0  60 18% 03760000
SCPMV5          122 3380E ST  71  813 129 33  165 0  APCS I
                PRES 53%  636 261  15 20% 022E0000
  
```

Dual Line LISTV Panel

```

----- List Volumes - (Double) ----- Row 1 to 4 of 4
COMMAND ==>                                SCROLL ==> CSR
- DSN=WSER07.LIB.CN1L,VOL=SER=SER001 MEM=MVS* -----
-----
CMD  VOLUME DATA/MSG DEV  DEV MOUNT USE  --TOTAL FREE--  LARGEST  STATUS
---- NAME  ----- ADDR TYPE ATTR CNT  CYLS TRKS  NUM  CYLS TRKS  -INDC-
      STORAGE STATUS SPACE  ----- VIOC -----
      CLASS  ---- USED  DSCBS VIRS  SIZE USED  --CCHH--
OS39H2      124 3380  PR  10   73  13  2    73  9  A CSIM
      DEFAULT PRES  84%   726  14    14  2% 00000001
OS39R2      A80 3390M3 PR 268   341  12  3    341 10  A SD
      SYSR  89%   2451  0    60 18% 03760000
SCPMV5      122 3380E ST  71   813 129 33   165  0  APCSI
      PRES  53%   636  261   15 20% 022E0000
    
```

#INITIAL keywords Beginning with ML

The #INITIAL keywords beginning with ML specify which panels are enabled for the MEMLIST load function.

The MEMLIST load function can display data set information in any of four different formats. Select different data views with the RIGHT and LEFT commands. By default, only three of these formats are used (Attributes, Size and Dual Line), but you can set up different defaults with the following keywords. Your users can select which panels they want to use with the SETPANEL command.

These keywords are in the order in which these panels are displayed with the RIGHT command if all panels are turned on. Panels that are turned off with a NO value are not displayed.

Examples of the panels follow the table.

#INITIAL (ML parameters)

Parameter	Description of views	ISPF Variable	Values	Default
MLLATTR	Attributes (load member attributes)	PDSSWML1	YES/NO	YES
MLLSIZE	Member Size (TTR location and module size)	PDSSWML2	YES/NO	YES

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Parameter	Description of views	ISPF Variable	Values	Default
MLLDUAL	Dual Line (combined information)	PDSSWML3	YES/NO	YES
MLLCMN	ChangeMan (ChangeMan date; may be customized)	PDSSWML4	YES/NO	NO

Attributes Memlist Load Panel

```

----- Load MEMLIST (Attributes), Session# 1 --- Row 1 to 5 of 5
COMMAND ==>
- DSN=WSER07.LINK.LOAD,VOL=SER=SER002 MEM=CMN/ -----
-----
CMD  NAME      DATA/MSG ALIASOF  LEN/LKED  --  ATTRIBUTES  --  APF MODE  MAIN
-----
CMNAPSPL                1994/06/02  RENT REUS                RANY
DSAT                    1995/12/19  REFR RENT                AC
DSATA                   DSAT        1995/12/19  REFR RENT                AC      DSAT
PDSE531                1997/03/13  REFR RENT
VTOC                   1995/06/14  REFR RENT

```

Size Memlist Load Panel

```

----- Load MEMLIST (TTR/Size), Session# 1 ---- Row 1 to 5 of 5
COMMAND ==>
- DSN=WSER07.LINK.LOAD,VOL=SER=SER002 MEM=CMN/ -----
-----
CMD  NAME      DATA/MSG ALIASOF  TTR      MAIN      MATCH      LENGTH      LEN-KB      ENTRY
-----
CMNAPSPL                027F08
DSAT                    048005
DSATA                   DSAT      048005  DSAT      DSAT      002558      10K      000000
PDSE531                048C08
VTOC                   034506

```

Dual Line Memlist Load Panel

```

----- Load MEMLIST (Double), Session# 1 ----- Row 1 to 5 of 5
COMMAND ==>                                     SCROLL ==> CSR
- DSN=WSER07.LINK.LOAD,VOL=SER=SER002 MEM=CMN/ -----
CMD NAME      DATA/MSG ALIASOF  LEN/LKED  -- ATTRIBUTES  -- APF MODE  MAIN
              MATCH     LENGTH  LEN-KB    TTR          ENTRY     SSI
-----
CMNAPSPL                1994/06/02 RENT REUS                RANY
                   006140 25K    027F08   000000    40BE1799
-----
DSAT                1995/12/19 REFR RENT                AC
                   002558    10K    048005   000000
-----
DSATA              DSAT    1995/12/19 REFR RENT                AC    DSAT
                   DSAT    002558    10K    048005   000000
-----
PDSE531                1997/03/13 REFR RENT
                   OAE020    697K    048C08    0A4198
-----
VTOC                1995/06/14 REFR RENT
                   004790    18K    034506   000000    ABACADAE

```

ChangeMan Memlist Load Panel

```

----- Load MEMLIST (Change Man), Session# 1 --- Row 1 to 5 of 5
COMMAND ==>                                     SCROLL ==> CSR
- DSN=WSER07.LINK.LOAD,VOL=SER=SER002 MEM=CMN/ -----
CMD NAME      DATA/MSG ALIASOF  LEN/LKED  -- ATTRIBUTES  - CMN date time
CMNAPSPL                1994/06/02 RENT REUS                1994/06/02 18:08
DSAT                1995/12/19 REFR RENT
DSATA              DSAT    1995/12/19 REFR RENT
PDSE531                1997/03/13 REFR RENT
VTOC                1995/06/14 REFR RENT

```

#INITIAL – S Line Command Defaults

#INITIAL keywords beginning with SL specify default values for an S line command in various StarTool FDM tables. The value assigned to this variable is substituted for an S line command. The user can override these keywords in the SET panels indicated in parentheses in the ISPF Variable column.

#INITIAL (SL parameters)

Parameter	Description	ISPF Variable	Values	Defaults
SLASEL	Sets the S line command in a LISTA table.	PDSLASEL (SETSEL)	CHANGE/ DSAT/ USAGE	CHANGE
SLCSEL	Sets the S line command in a LISTC/LISTF table.	PDSLASEL (SETSEL)	CHANGE/ INFO/ USAGE	CHANGE
SLDSEL	Sets the S line command in a MEMLIST load table.	PDSLASEL (SETSEL)	VIEW/ BROWSE/ ATTRIB	BROWSE
SLISEL	Sets the S line command in a CMDTBL table.	PDSCSEL (SETSEL)	TEST	TEST
SLOSEL	Sets the S line command in a MEMLIST source table.	PDSCSEL (SETSEL)	VIEW/ EDIT/ BROWSE	EDIT
SLSSEL	Sets the S line command in a CSECTS table.	PDSCSEL (SETSEL)	LIST/ HISTORY	LIST
SLTSEL	Sets the S line command in a WORKPAD table.	PDSTTSEL (SETSEL)	E	E
SLVSEL	Sets the S line command in a LISTV table.	PDSLASEL (SETSEL)	SP/ DVOL	SP
SLXSEL	Sets the S line command in a CAX table.	PDSCXSEL (SETSEL)	UT/LISTC	UT

#INITIAL – ISPF Function Defaults

#INITIAL keywords beginning with SPF provide defaults for ISPF global defaults. Users can override these keywords in the SET panels indicated in parentheses in the ISPF Variable column.

#INITIAL (SPF parameters)

Parameter	Description of views	ISPF Variable	Values	Defaults
SPFCBYOP	Whether or not StarTool FDM accesses VTOC on optical (3395 M151) volumes.	PDSCBYOP (SETLF)	YES/NO	YES
SPFCKPT	ISPMODE checkpoint size. Specifies the number of lines to be produced by a subcommand before StarTool FDM prompts for a decision to continue or terminate the subcommand.	PDSCCKPT (SETLOG)	100 - 999999	5000
SPFCONVE	Whether or not StarTool FDM converts edit to PEDIT for data sets that are not supported by edit.	PDSCONVE (SETX)	YES/NO	YES
SPFEDUPD	Whether or not StarTool FDM rescans the directory after an EDIT subcommand. The rescan adds to the member list any members that were updated by EDIT REPLACE or added by CREATE since the ISPF EDIT command began.	PDSEDUP (SETX)	YES/NO	NO
SPFLFDEL	Whether or not the deleted data sets are dropped from a LISTFILE display. This parameter compatible with ISPF; however, most users prefer to drop deleted data sets from the list.	PDSLFDEL (SETLF)	YES/NO	YES

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Parameter	Description of views	ISPF Variable	Values	Defaults
SPFLFOLD	Whether or not the original name of renamed data sets be dropped from a LISTFILE display. This parameter is compatible with ISPF. Most users prefer to drop renamed data sets from the list.	PDSL FOLD (SETLF)	YES/NO	YES
SPFLKED	Whether or not MEMLIST provides linkage edit dates by default. The IDR data from the load module must be read to determine this date.	PDSL KDT (SETML)	YES/NO	YES
SPFMAX	Maximum number of lines for a single subcommand. Use this parameter to keep any one subcommand from flooding the ISPMODE table. After the subcommand is complete, the log table is trimmed to SPFSIZE.	PDSCMAX (SETLOG)	100 - 999999	20000
SPFPERMT	Permanent table library DDNAME. Tables saved by WORKPAD and LISTC/LISTF are directed to this DDNAME.	PDSTLIB (SETX)	Any DDNAME	ISPPROF
SPFPRIM	ISPF primary panel name. This parameter is used by the ISPF subcommand and on recursive entry to StarTool FDM as a dialog.	PDSPRIM (SETX)	Member Name	ISR@PRIM
SPFSIZE	Maximum ISPMODE log table size. This quantity is given in lines. After the limit is reached, lines drop off the top of the log table.	PDSCSIZE (SETLOG)	100 - 999999	10000

Parameter	Description of views	ISPF Variable	Values	Defaults
SPFTDEL	Whether or not deleted members are dropped from a MEMLIST display. This parameter is compatible with ISPF. Most users prefer to drop deleted members from the list.	PDSTDEL (SETML)	YES/NO	YES
SPFTOLD	Whether or not the original name of renamed members is dropped from a MEMLIST display. This parameter is compatible with ISPF. Most users prefer to drop renamed members from the list.	PDSTOLD (SETML)	YES/NO	YES
SPFTRAP	Whether or not output from other TSO commands be TRAPPED. StarTool FDM captures the output from other TSO commands for inclusion in the ISPMODE log data if the TSO command uses PUTLINE output.	PDSTPSET (SETTRAP)	YES/NO	YES
SPFTSIZE	Maximum number of lines to TRAP. StarTool FDM captures the output from other TSO commands for inclusion in the ISPMODE log if the TSO command uses PUTLINE output. When this limit is exceeded, additional output lines from the TSO command are discarded.	PDSTLIM (SETTRAP)	100 - 999999	3000

#DYNCMDT – Dynamic Command Table

#DYNCMDT specifies ISPF command table entries that are to be added dynamically at StarTool FDM initialization. These command table entries are added only if StarTool FDM entries are not already present. They remain in effect while ISPF is active.

Enter multiple #DYNCMDT entries in the order in which they are to be added to the ISPF command table. These entries are added to the ISPF command table just after the other entries added by StarTool FDM for RCHANGE, RFIND, LEFT, RIGHT, UP, DOWN, LIST and the entries added by the #PASSNAM macro.

Note These added entries can mask command table entries below them in the command table.

Each #DYNCMDT macro must contain the following four operands to describe a command table entry:

name	One- to eight-character ISPF command name. The first character must be alphabetic or national and the other characters must be alphanumeric or national.
abbrev	One numeric digit to specify the minimum number of characters that can be entered (0 means no abbreviation and 1 is not allowed). For example, 3 means that three or more characters specify a command.
action	A quoted string of characters that specifies the action ISPF is to take when the associated command name is entered as a primary command.
doc	A quoted string of characters that documents the associated command. This string can have upper and lower case characters.

As an example, the following #DYNCMDT macros describe a PLIST and a COLOR ISPF command table entry:

```
#DYNCMDT (PLIST,2,'SELECT CMD(STARTOOL FILE(ISPPLIB) ISPXESX  
LISTC 20 PROMPT','PLIST Command')  
#DYNCMDT (COLOR,0,'SELECT PGM(ISPOPT) PARM(ISPOPT10)','InvokX  
e global color change utility')
```

#DYNLIBS – Dynamic Libraries

#DYNLIBS specifies names of cataloged data sets that are to be dynamically referenced. Specify CLIB for CLIST libraries, PLIB for panel libraries, SLIB for skeletons and MLIB for message libraries. The CLIB reference is activated by a TSO/E ALTLIB command and the others are activated with ISPF LIBDEF calls.

Use #DYNLIBS even if you invoke StarTool FDM with a CLIST so that StarTool FDM can recover from dynamic allocation errors that can occur during StarTool FDM execution.

To assist managing multiple copies of StarTool FDM with a single configuration member (PDS#OPT4), StarTool FDM initialization substitutes the SMFID for the letters &SYS if they appear in the PLIB, SLIB, MLIB or CLIB data set names as shown in the example below for MLIB.

StarTool FDM tests for the availability of a release specific panel called PDSVR740 to determine if a LIBDEF for ISPPLIB or ISPMLIB is required. The following example specifies a CLIST library, a panel library, a skeleton library and two message libraries:

```
#DYNLIBS CLIB=SYS2.SERENA.PDSEvrm.CLIST,           X
          PLIB=SYS2.SERENA.PDSEvrm.PANELS,         X
          SLIB=SYS2.SERENA.PDSEvrm.SKELS,          X
          MLIB=('SYS2.SERENA.PDSEvrm.MSGS','SYS2.MSGS.&&SYS')
```

Restrictions and notes:

1. All parameters - to specify more than one library, use the list form as shown in the example for MLIB above.
2. PLIB parameter - panel member PDS@PRIM (StarTool FDM primary) must be copied to a generally accessible ISPPLIB data set if you want to invoke StarTool FDM with this panel.
3. MLIB parameter - message member PDS#10 contains messages required by panel PDS@PRIM and must be copied to a generally accessible ISPMLIB data set if PDS@PRIM is to be used to invoke StarTool FDM.
4. PLIB parameter - after encountering a panel or message display problem, StarTool FDM tests for the availability of a release specific panel called PDSVR740. If this panel is not available, PLIB and MLIB data sets are reactivated and a recovery message is issued.
5. SLIB parameter - if PDSVR740 is available, a release specific skeleton called PDS\$K740 is checked for availability. If this skeleton is not available, the SLIB data set is reactivated.

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6. MLIB parameter - if PDSVR740 is available, a release specific message called PDS#740A is checked for availability. If this message is not available, the MLIB data set is reactivated.
7. CLIB parameter - if you use another application from StarTool FDM that also uses an ALTLIB data set, the StarTool FDM ALTLIB is stacked and that CLIST data set is not referenced until the ALTLIB is deactivated. Thus, if you have CLIST members that reference other CLIST members in the StarTool FDM CLIST library (such as member VSAMMBR and VSAMMED), they are not able to find the referenced CLIST (VSAMMINV in this case). To circumvent this problem, copy VSAMMINV into a library in the SYSPROC concatenation.
8. CLIB parameter - several CLISTS are edit macros of general applicability for use when StarTool FDM is not already active in a session. Copy these members and convert (if necessary) to a library in the SYSPROC concatenation. See member PDSECLST in *somnode.PDSEvrm.CNTL* for a sample copy JOB that uses the StarTool FDM DUP subcommand to copy these members.
9. CLIB parameter - a FREE ALL command frees the ALTLIB library, which is only open during CLIST read processing.

#PASSNAM – Pass-through Names

#PASSNAM determines which names are controlled by a pass-through mechanism. For example, if you want ZAP to refer to the StarTool FDM version of ZAP when StarTool FDM is active and something else at other times, code ZAP as a #PASSNAM operand.

Code #PASSNAM values as operand pairs. The first operand is the name of the variable and the second operand is an abbreviation length with 0 meaning no abbreviation. The following example codes ZA, ZAP, LISTA and LISTC as pass-through controlled:

```
#PASSNAM (ZAP,2,LISTA,0,LISTC,0)
```

As another example, the following items are coded at one site with many ISPF command conflicts:

#PASSNAM (ALTERNAT, 3,	<- TSO/E ALTLIB	X
CONTROL, 3,	<- RACF CONNECT	X
COMPARE, 2,	<- RACF CONNECT	X
DDNAME, 2,	<- DDNAME COMMAND	X
DUP, 2,	<- DUP COMMAND	X
HMIG, 2,	<- HSM HMIGRATE	X
HREC, 0,	<- HSM HRECALL	X
LC, 0,	<- TSO LC	X
LISTA, 0,	<- TSO/E LISTA	X
LISTC, 0,	<- TSO/E LISTCAT	X
LISTV, 0,	<- LOCAL LISTVTOC	X
LV, 0,	<- LOCAL LISTVTOC	X
OUTPUT, 3,	<- TSO/E OUTPUT	X
PANEL, 3,	<- PANVALET	X
PEDIT, 2,	<- RACF PERMIT	X
RACF, 0,	<- ISPF RACF PANELS	X
REC, 2,	<- TSO/E RECEIVE/REMOVE	X
SMPGEN, 2,	<- LOCAL SMP CLIST	X
SPF, 2,	<- ISPF AND LISTSPACE	X
STATUS, 2,	<- TSO/E STATUS	X
VTOC, 2,	<- LOCAL VTOC CLIST	X
WHOHAS, 2)	<- LOCAL WHOHAS	X

#VDEFINE – Dialog Variable Defaults

#VDEFINE specifies names and initial values of dialog variables for use by StarTool FDM. Dialog variables defined and used by StarTool FDM but not otherwise available for customization with the other macros are given default values. If a variable already exists, #VDEFINE does not modify it. The following example changes the default color of input fields from RED to GREEN and adds a variable for dialog use:

```
#VDEFINE (PDSCLIN,CL8'GREEN',
          PDSADDED,CL3'NO')
                                     X
```

If you specify any of the following StarTool FDM variable overrides, be sure to use the associated length as shown in the DEFAULT column and use valid values. Otherwise, dialog errors can result because of variable truncation errors and invalid variables. Valid colors are BLUE, GREEN, PINK, RED, TURQ, WHITE, YELLOW.

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StarTool FDM Dialog Variables

Variable Name	Set Option	Default	Description
PDSALUP	SETALL	CL3'NO'	Automatic alias resynchronization in EDIT
PDSCAUTO	SETALL	CL3'NO'	Automatic table save in LISTC/LISTF
PDSCLAC	SETCOLOR	CL8'YELLOW'	Color of action bar (non-CUA)
PDSCLIN	SETCOLOR	CL8'RED'	Color of input fields
PDSCLHI	SETCOLOR	CL8'WHITE'	Color of hilite fields
PDSLOW	SETCOLOR	CL8'TURQ'	Color of normal text
PDSCLTL	SETCOLOR	CL8'YELLOW'	Color of titles
PDSCLT1	SETCOLOR	CL8'TURQ'	Color of table keys
PDSCLT2	SETCOLOR	CL8'BLUE'	Color of table text
PDSCLWN	SETCOLOR	CL8'BLUE'	Color of the window (non-CUA)
PDSCUA	SETALL	CL3'YES'	CUA processing desired if ISPF 3.3 or above
PDSOVER	SETALL	CL3'YES'	Confirm data set delete in LISTC/LISTF
PDEDLG	SETALL	CL3'YES'	Automatic EDITLOG for line commands
PDSENDX	SETALL	CL3'YES'	Prompt at termination of StarTool FDM
PDSGLBP	SETALL	CL3'YES'	Prompt before any global command except GLOBAL itself
PDSHIAC	SETCOLOR	CL8'REVERSE'	Action bar hilite (non-CUA); REVERSE or USCORE
PDSLFRF	SETALL	CL3'NO'	Automatic REFRESH for LISTC (not LISTF)
PDSJUMP	SETALL	CL3'YES'	Interpret jump commands (=3.4) as StarTool FDM commands.
PDSMEMP	SETALL	CL3'NO'	Prompt after a MEMLIST subcommand
PDSMENU	SETALL	CL3'STA'	Default interface: STANDARD, ADVANCED or POWER

Variable Name	Set Option	Default	Description
PDSMVER	SETALL	CL3'NO'	Confirm member delete in MEMLIST
PDSSEPCH	SETALL	CL1';'	Separator character for commands
PDSSPAC	SETALL	CL3'YES'	Read VTOC for volume space in LISTV
PDSSPWA	SETALL	CL3'NO'	Wait to read VTOC if reserved in LISTV
PDSTAB	SETALL	CL6'OUTPUT'	Tab to SORT header fields
PDSWAUTO	SETALL	CL3'YES'	Automatic table save in WORKPAD
PDSWMODE	SETALL	CL3'NO'	Automatic execute if modified in WORKPAD

#RESUSE – Restricted Resources

#RESUSE specifies the names of restricted use subcommands. Code the macro once for each different classification of users that you want to support. The last (and lowest) level subcommand table is assumed to apply for any users who cannot use a higher level table.

The security environment is selected in the #INITIAL macro. PDS#SECI interfaces with your system's security package. For more information, see [“PDS#SECI Security Exit” on page 74](#).

During StarTool FDM initialization, the name (token) for each restricted subcommand name list is passed in entry order to module PDS#SECI for checking. The exit responds with a yes or no. When the first yes response is received, StarTool FDM uses the associated restricted subcommand list for internal authorization checks before executing a subcommand. The lowest level restricted subcommand table is assumed to apply for all unmatched users. Its associated token is not passed to module PDS#SECI.

Note If only a single #RESUSE macro is coded with any interface (\$TYPEACF=CALL, LOGNO, RACF, TOP, ACF2 or DYNAMIC), the associated subcommands are assumed restricted for all users who have access to this version of the command. In this case, PDS#SECI is not required and you can have a different PDS#OPT4 for each class of users.

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If \$TYPEACF=DYNAMIC is coded, the restricted subcommands may still be used if permission is granted by an additional exit. When a user enters one of the restricted subcommands, control is given to an exit called PDS#DYNA which is provided the name of the subcommand (or subcommand restriction name such as FIXDIR) and the current data set name.

If you selected \$TYPEACF=NONE, you can change this after reviewing the customized security instructions described in the [“This section explains the process of StarTool FDM security.” on page 69.](#)

Multiple #RESUSE macros are coded in order of decreasing authority for authority level determination. In addition to StarTool FDM subcommand names, several additional names are available for those situations where an operand or library type changes the potential restriction level of a subcommand. These added names are ATTRMODL, ATTRMODS, CMDTBLUP, COMPRSHR, CONTROLR, FIXALLOC, FIXADD, FIXANYD, FIXDCB, FIXDIR, FIXDSCB, FIXEXPDT, FIXMAX, FIXNAME, FIXREL, FIXRESET, MAPMOD, REPLACEL, REPLCI, REPNOSTA, REPROL and RESTOREL.

Note The FIXxxx operands are assigned in the order shown in [“Subcommand Ranking \(decreasing restrictions order\)” on page 63.](#) You can mask the use of one operand by the use of a higher priority operand. For example, if you want to prevent a user from using FIXPDS EXPANDDIR or FREEDIR (this is parameter FIXDIR) and you do not care about FIXPDS RECFM, LRECL or BLKSIZE (parameter FIXDCB), the parameter used for security checking is FIXDCB if you specify both BLKSIZE and EXPANDDIR.

To use the Subcommand Ranking Table:

1. First, determine if the ranking suggested agrees with the standards of your installation. For example, the element with the highest restriction level, CONTROLR, corresponds to a CONTROL subcommand with RESTRICTED as an operand. This allows users to display their own table of restricted subcommands. If this is not a problem at your installation, CONTROLR can be dropped from the table or moved down in the table.
2. Next, determine cutoff points for each of your different types of users. Two possible cutoff points are: allow level FIXDIR and lower for application programmers, and FIXDCB and lower for experienced applications programmers.

Consider how you can configure StarTool FDM to support four classes of users: experienced systems programmers, novice systems programmers, experienced applications programmers and everyone else. For these classes of users, assign token names and associated restricted resource names as coded in SAMPOPT4:

```

SYSTEMSE #RESUSE , -- NO RESTRICTIONS FOR EXPERIENCED SYSTEMS USERS
SYSTEMSN #RESUSE (FIXRESET, COMPRSHR)
APPLEXP #RESUSE (CONTROLR, FIXNAME, FIXANYD, FIXDSCB, FIXMAX, X
              REPNOSTA, REPLCI, FIXRESET, COMPRSHR)
OTHERS #RESUSE (CONTROLR, FIXNAME, FIXANYD, FIXDSCB, FIXMAX, X
              REPNOSTA, REPLCI, FIXRESET, COMPRSHR, FIXDCB, FIXALLOC, X
              FIXEXPDT, REPLACEL, MAPMOD, ZAP, SAVELOAD, SVCMAP, FINDMOD, X
              ATTRMODL, ALIAS, RESTOREL, REPROL, LLA)
    
```

Subcommand Ranking (decreasing restrictions order)

Parameter	Description
CONTROLR	CONTROL subcommand with RESTRICTED. This displays the user's table of restricted subcommands.
FIXNAME	FIXPDS subcommand with NEWDSNAME. This changes the name of a data set by rewriting the Format 1 DSCB DS1DSNAM field using PDSEAUTH. The data set must be uncataloged, it must reside on a non-indexed volume and ALTER authority for the data set is required.
FIXANYD	FIXPDS subcommand with MODDSNAME. This changes any Format 1 DSCB field except for the DSNAME for any data set using PDSEAUTH. UPDATE authority for the data set is required.
FIXDSCB	FIXPDS subcommand with DSCB. This changes the active data set's Format 1 DSCB using PDSEAUTH. Any Format 1 DSCB field other than DSNAME can be changed. UPDATE authority for the data set is required.
FIXMAX	FIXPDS subcommand with MAXSPACE or LSTAR. This changes the data set end pointer or DS1LSTAR.
REPNOSTA	REPLACE for load modules with NOSTATS. This allows a module change without updating the IDR data.

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Parameter	Description
REPLCI	REPLACE for a VSAM DATA or INDEX component using BLOCK or DATA format. This accesses the component using control intervals instead of records.
FIXRESET	FIXPDS subcommand with RESET or INITDIR. This reinitializes the directory.
COMPRSHR	COMPRESS subcommand with SHR. This operand is not documented in the StarTool FDM Reference Guide. StarTool FDM uses logic similar to that used by ISPF for protecting data sets that are updated during a shared allocation.
For experienced programmers	
FIXDCB	FIXPDS subcommand with OPTCD, RECFM, LRECL or BLKSIZE change. This changes the DCB of a data set.
FIXALLOC	FIXPDS subcommand with BLK (with or without ROUND), TRK, CYL or SPACE(size). This changes the data set's secondary allocation type and amounts and involves updating the Format 1 DSCB through PDSEAUTH.
FIXEXPDT	FIXPDS subcommand with EXPDT(yyyyddd). This assigns a new expiration date to the data set and involves updating the Format 1 DSCB.
REPLACEL	REPLACE subcommand with load modules and WRITE. This updates the contents of load members. REPLACE also updates AMASPZAP IDR records for historical tracking unless NOSTATS is specified. Also, see REPNOSTA above.
MAPMOD	MAP with AMODExx or RMODExx operands to change CSECT linkage modes.
ZAP	The ZAP function updates load modules. ZAP also updates AMASPZAP IDR records for historical tracking.
SAVELOAD	The PEDIT function updates a load module directly. PEDIT also updates AMASPZAP information using the first CSECT in the module.

Parameter	Description
SVCMAP	The SVCMAP subcommand displays the active system SVCs. The display includes a dump and disassembly of an individual SVC.
FINDMOD	The FINDMOD subcommand locates system modules in the nucleus, LPA, MLPA, TASKLIB, linklist concatenation or LPALIB concatenation.
ATTRMODL	ATTRIB subcommand with a load module attribute change. This updates linkage editor attributes of a module.
ALIAS	ALIAS subcommand. This adds an alternate name for a member to the directory.
RESTOREL	RESTORE subcommand with load modules. This resurrects deleted members.
REPROL	REPRO subcommand with load modules. This creates or moves load members.
LLA	LLA subcommand. This selectively refreshes or removes LLA directory entries in LLA-managed libraries via a LLACOPY macro in PDSEAUTH.
For any programmer	
FIXDIR	FIXPDS subcommand with EXPANDDIR, FREEDIR or ADJUSTFREE. This adjusts the number of directory blocks in the data set. Note: Use caution with these operands. If you use PDSMAN/MVS, see message PDS452W.
FIXADD	FIXPDS subcommand with ADDTRK, ADDCYL or ADDFREE. This adds a data set extent.
FIXREL	FIXPDS subcommand with RELEASE, RELEXTENT, RELSAVE or RELFREE. This releases disk space from the data set.
COMPRESS	COMPRESS subcommand. This removes unused space from a PDS.
ATTRMODS	ATTRIB subcommand with a source member attribute change. This updates ISPF statistics or SSI information for a member.

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Parameter	Description
RESTORE	RESTORE subcommand. This resurrects deleted source members.
CMDTBLUP	CMDTBL function with the SAVE command to update the ISPF command table.
OUTCOPY	OUTCOPY subcommand. This outputs utility control statements.
ENCODE	ENCODE subcommand. This outputs encrypted members.
DECODE	DECODE subcommand. This outputs decrypted members.
ABE	ABE subcommand. This edits a source member with ABE.
EDIT	EDIT subcommand. This edits a source member with ISPF edit.
FSE	FSE subcommand. This edits a source member with FSE.
TSOEDIT	TSOEDIT subcommand. This edits a source member with TSO edit.
REPLACE	REPLACE subcommand. This updates a source member.
COPY	COPY subcommand. This copies or moves members to another data set.
DUP	DUP subcommand. This copies or moves members to another data set.
REPRO	REPRO subcommand. This creates or moves source members.
RENAME	RENAME subcommand. This changes a member's name.
DELETE	DELETE subcommand. This deletes a member.
CMDTBL	CMDTBL function. This views the ISPF command table.

#GENER – Check and Generate Module

Code #GENER after entering all other macros. Be sure to check your assembly listing for errors produced by #GENER as it is building the PDS#OPT4 module.

Use member PDS#OPTJ or SMP#OPTJ from *somnode.PDSEvrm.CNTL* to install PDS#OPT4 as a distinct module or member PDS#OPT4 or SMP#OPT4 to link PDS#OPT4 with StarTool FDM.

As an additional check, after PDS#OPT4 is built and you reenter StarTool FDM, type the subcommand CONTROL DEFAULTS to see a list of installation defaults similar to the following:

```

PDS100I STARTOOL/SuperEdit -- Version 7.3.0 2002.001
PDS030I Global operands: NOPROMPT, NOTRANSLATOR, ALIASINFO, LKEDDATE, RECOVER
PDS030I Global operands: NODSNAME, NOSYSOUT, NOFORM, NODEST
PDS031I Input buffering: RETAIN(9)
PDS036I Largest free storage area is 1964K
PDS046I Largest area above the line is 2010M

PDS037I Installation defaults from PDS#OPT4 2002/04/14 08.31:
Access control method          NONE
Security tables                 SYSTEMSE SYSTEMSN APPLEXP OTHERS
DSN default format             MSG
COMPRESS SUMMARY/LIST         SUMMARY
COPY SUMMARY/LIST             LIST
COPY SHR/OLD allocation        SHR
COPY temporary unit           SYSDA
COPY permanent unit           SYSALLDA
CONTROL "NO" defaults         TRANSLAT+PROMPT
ISPMODE maximum table size     10000
ISPMODE lines per subcommand   20000
ISPMODE checkpoint size       5000
ISPMODE trap size              3000
Dynamic PLIB dataset          SYS2.SERENA.PDSEvrm.PANELS
MEMLIST LKEDDATE              Y
MEMLIST drop deleted members   Y
MEMLIST drop renamed members   Y
LISTF drop deleted data sets    Y
LISTF drop renamed data sets    Y
S line command - MEMLIST source EDIT
S line command - MEMLIST load   B
S line command - LISTA          C
S line command - LISTV          SP
S line command - LISTC          C
S line command - WORKPAD        E
S line command - CAX            UT
    
```

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S line command - CSECTS	LIST
BLK3380 calls	BLK3380
BLK3390 calls	BLK3390
COMPARE calls	COMPAREW
COMPR calls	IKJEFTSR
COPY calls	IKJEFTSR
DCF calls	SCRIPT
DSAT calls	DSAT
DVOL calls	DVOL
EXEC calls	EXEC
HELP calls	HEL
PRINT calls	PRINTOFF
REVIEW calls	REVIEW
SUBMIT calls	SUBMIT
TSO calls	TSOEXEC
VPRINT calls	VPSPRINT
VTOC calls	VTOC

INSTALLING THE IMS START PARAMETERS EXIT

StarTool FDM provides a sample source code exit named PDSIMSPX in the *somnode.midlvl.ASSEMBLE* library. If you are providing your own exit, back up the default exit PDSIMSPX that is shipped in *somnode.midlvl.LOAD*, then extend the sample source code, and assemble and link edit it into one of the ISPLLIB libraries that you use to execute FDM.

PDSIMSPX specifies all but the first three parameters that FDM passes to IMS when FDM attaches DFSRRC00 to search a DLI database. When FDM calls DFSRRC00 it provides the first three parameters, program name, and PSB name, and then appends any parameter string provided by the exit. The exit cannot change any of the first three parameters.

For specific information about the IMS Start Parameters Exit, see the StarTool FDM *IMS Option Getting Started Guide*.

This section explains the process of StarTool FDM security.

Load member called PDS#OPT4 defines StarTool FDM installation defaults. You need not change these defaults for initial StarTool FDM testing. However, to change installation options, change source member SAMPOPT4 (from the StarTool FDM ASSEMBLE library) and link it as PDS#OPT4 to test StarTool FDM for unrestricted users.

If StarTool FDM is installed with security activated, reinstall SAMPOPT4 and SAMPSECC into a new StarTool FDM load library for the same level of security as previously installed.

There are several ways to implement security for StarTool FDM.

- Control access to data sets and system resources externally; no StarTool FDM security is necessary.
- Restrict access to certain subcommands for separate groups of users by tailoring SAMPOPTR. StarTool FDM is controlled by the PDS#OPT4 member in the STEPLIB used at initialization.
- Restrict access to groups of subcommands for separate groups of users by tailoring SAMPOPT4. StarTool FDM determines the user group by communicating with the security system.
- Restrict access to groups of subcommands dynamically. StarTool FDM determines the user group as above and communicates with the security system with each use of a restricted subcommand.

RESTRICTING BY STEPLIB

If you want to test StarTool FDM with restricted users, use member SAMPOPTR (instead of SAMPOPT4). Define these restricted resources and link this module as PDS#OPT4 in a STEPLIB used only by those users. This permits restricted user testing without involving your security system and is the simplest way to implement StarTool FDM security.

RESTRICTING BY USER GROUP

After performing initial testing with StarTool FDM, customers decide they want to restrict StarTool FDM resources by user category. In source member SAMPOPT4, macro #INITIAL keyword \$TYPEACF determines the type of security implementation to use at your installation. Leave this parameter at NONE until everything is prepared.

Macro #RESUSE lists restricted use subcommands and resources according to classification of users. The macro is coded once for each level of user classification that you want to support. The name field for each #RESUSE macro is used as a token name for its associated list of restricted resources. The last or lowest level subcommand and its resource list applies for any users who cannot use a higher level list. Resources listed at any level are independent of those listed at other levels.

For example, configure StarTool FDM to support four classes of users: experienced systems programmers, novice systems programmers, experienced applications programmers and everyone else. Assign token names and associated restricted resource names as coded in SAMPOPT4:

```
SYSTEMSE #RESUSE , -- NO RESTRICTIONS FOR EXPERIENCED SYSTEMS USERS
SYSTEMSN #RESUSE (FIXRESET,COMPRSHR)
APPLEXP #RESUSE (CONTROLR, FIXNAME, FIXANYD, FIXDSCB, FIXMAX, X
            REPNOSTA, REPLCI, FIXRESET, COMPRSHR)
OTHERS #RESUSE (CONTROLR, FIXNAME, FIXANYD, FIXDSCB, FIXMAX, X
            REPNOSTA, REPLCI, FIXRESET, COMPRSHR, FIXDCB, FIXALLOC, X
            FIXEXPDT, REPLACEL, ZAP, SAVELOAD, SVCMAP, FINDMOD, X
            ATTRMODL, ALIAS, RESTOREL, REPROL, LLA)
```

Interpreted this as experienced systems programmers (SYSTEMSE) have no restrictions, novice systems programmers (SYSTEMSN) cannot use resources called FIXRESET or COMPRSHR, experienced applications programmers (APPLEXP) cannot use nine resources and everyone else (OTHERS) cannot use 22 resources. You can modify the list of resource names in any way you want. For the full list of names and their potential impact, see *“Subcommand Ranking (decreasing restrictions order)” on page 63.*

Classifying Users into Groups

During StarTool FDM initialization, the token name for each restricted subcommand name list is passed in entry order to module PDS#SECI for checking. The exit responds with yes or no. When the first yes response is received, StarTool FDM uses the associated restricted subcommand list for internal authorization checks before executing a subcommand. The lowest level restricted subcommand table applies for all unmatched users and its associated token is not passed to module PDS#SECI.

If you are not planning to keep #INITIAL \$TYPEACF=NONE and you have more than one #RESUSE security table, you must supply an exit routine called PDS#SECI that can be built from source code member SAMPSECC or SAMPSECR in the ASSEMBLE library.

Security Exit Routines

SAMPSECC supports internal security where resource security is based on checking token names against USERID tables or some other criteria internal to the module.

SAMPSECR supports external security environments where PDS#SECI communicates with your security system through the SAF security interface. Before assembling the SAMPSECR routine to build the PDS#SECI module, check the comments in SAMPSECR to determine if source changes are required for your security system.

For either SAMPSECC or SAMPSECR you should also modify the PDS#NAME macro to specify all token names used for #RESUSE macros in SAMPOPT4. At this point, assemble and link the member to produce PDS#SECI.

Check resource name coordination between PDS#OPT4 and PDS#SECI as shown in the following example:

```
>----->control security

PDS570W PDS#SECI and PDS#OPT4 are not coordinated; PDS#OPT4 data:
  Security tables                ALLCMNDS SYSTEMSN APPLEXP  OTHERS

PDS194I Security instructions from PDS#SECI 2001/02/16 12.15:
  Access control method          RACF
  Security tables                SYSTEMSE SYSTEMSN APPLEXP  OTHERS
  . . .
```

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If you get a PDS570W warning message as shown above, adjust SAMPSECR or SAMPOPT4 to coordinate the resource names. In this example, the first #RESUSE macro in SAMPOPT4 had token name ALLCMNDS but in SAMPSECR, the first name in the PDS#NAME macro was SYSTEMSE.

Once the resource names are coordinated, note the tailored security instructions. These instructions can be captured with the StarTool FDM EDITLOG facility for guidance in implementing StarTool FDM security.

```
>----->control security
```

```
PDS194I Security instructions from PDS#SECI 2001/02/17 10.12:
  Access control method          RACF FACIL
  Security tables                 SYSTEMSE SYSTEMSN APPLEXP OTHERS
```

For PDS#SECI installation, refer to topic "RACF and PDS#SECI" in the Installation Guide. Following is a summary of installation steps for using the FACILITY general resource class:

1. It is recommended that you SETROPTS RACLIST processing for the FACILITY general resource class to reduce I/O to the RACF data base:
SETROPTS RACLIST(FACILITY)
 2. Define profile names for the FACILITY class with RDEFINE commands:
RDEFINE FACILITY (STARTOOL.SYSTEMSE) OWNER(LOCALID) UACC(NONE) APPL('comment')
RDEFINE FACILITY (STARTOOL.SYSTEMSN) OWNER(LOCALID) UACC(NONE) APPL('comment')
RDEFINE FACILITY (STARTOOL.APPLEXP) OWNER(LOCALID) UACC(NONE) APPL('comment')
RDEFINE FACILITY (STARTOOL.OTHERS) OWNER(LOCALID) UACC(NONE) APPL('comment')
 3. Refresh the RACF SETROPTS options for the FACILITY class:
SETROPTS RACLIST(FACILITY) REFRESH
 4. Permit appropriate personnel with RACF PERMIT commands like the following:
PERMIT STARTOOL.SYSTEMSE CLASS(FACILITY) ACCESS(READ) ID(USER1)
PERMIT STARTOOL.SYSTEMSN CLASS(FACILITY) ACCESS(READ) ID(USER2)
 5. Refresh the RACF SETROPTS options for the FACILITY class again:
SETROPTS RACLIST(FACILITY) REFRESH
-

Turning on StarTool FDM Security

After you follow the tailored security instructions, you (or a security system representative) need to inform your security system of StarTool FDM resources, define profile names and permit appropriate personnel to StarTool FDM resources.

After you make the security system changes, change #INITIAL \$TYPEACF to any other supported value to enable StarTool FDM security checking. Assemble and link SAMPSECR (or SAMPSECC) and SAMPOPT4 with StarTool FDM rather than as stand-alone modules to simplify module management. Exit StarTool FDM and restart it to obtain current versions of PDS#OPT4 and PDS#SECI.

After StarTool FDM initializes properly, verify that users are being placed into the correct class. To check this, log on as a user in each of the different restriction classes, enter StarTool FDM normally and check for any messages.

Unless the RESTRICT resource itself is restricted, verify the list of restricted resources for an individual user as shown in the following example:

```
>----->control restrict  
  
PDS038I Use of FIXNAME is restricted  
PDS038I Use of FIXANYD is restricted  
PDS038I Use of FIXDSCB is restricted  
PDS038I Use of REPLCI is restricted  
PDS038I Use of COMPRSHR is restricted
```

Perform a restricted function to verify that restricted subcommands and resources are properly protected. You should get an error message similar to the following for each use of a protected resource:

```
>----->compress shr  
PDS920E Use of COMPRSHR is restricted
```

DYNAMIC CHECKING

Normally, perform security checking in StarTool FDM only on initialization to classify users into the proper group. However, if #INITIAL \$TYPEACF=DYNAMIC is requested in SAMPOPT4, an additional exit named PDS#DYNA is invoked on each use of any restricted subcommand.

Three sample exits are available depending on the type of checking you want. SAMPDYN1 is the simplest. It verifies that the programmer has ALTER authority for the current data set through RACROUTE calls. SAMPDYN2 offers more control; it allows the security system to dynamically check if a user can utilize a StarTool FDM command, and it can also dynamically check for ALTER authority for the data set in combination with a given command. SAMPDYN3 is similar to SAMPDYN2 but it is only for CA-ACF2 environments.

DETAILED SECURITY REQUIREMENTS

This section describes specifics that depend on your installation site.

PDS#SECI Security Exit

If you did not code #INITIAL \$TYPEACF=NONE and you have more than one #RESUSE security table, you must supply an exit routine called PDS#SECI.

StarTool FDM supports internal or external security environments. Internal security (\$TYPEACF=CALL) requires you to assemble and link a module (see sample source member SAMPSECC in *somnode.PDSEvrm.ASSEMBLE*) which performs checking of tokens based on USERID tables or some other criteria within the module.

External security (\$TYPEACF=LOGNO, RACF, TOP or ACF2) requires you to assemble and link a module (see sample source member SAMPSECR in *somnode.PDSEvrm.ASSEMBLE*) which communicates with your security system through the SAF security interface. StarTool FDM also needs to communicate with your security system. See the specific requirements for each security environment on the following pages. Before assembling the SAMPSECR routine to build the PDS#SECI module, be sure to modify options as required for your installation.

For either internal or external security, the resultant checking module is named PDS#SECI. Use member PDS#SECI or SMP#SECI in *somnode.PDSEvrm.CNTL* for installation of PDS#SECI with StarTool FDM and for \$TYPEACF=LOGNO, use member PDS#SECA or SMP#SECA in *somnode.PDSEvrm.CNTL* for installation of PDS#SECI with PDSEAUTH.

During StarTool FDM initialization, the name (or token) for each restricted subcommand name list is passed to the PDS#SECI module for checking. The exit responds with a yes or no. When the first yes response is received, StarTool FDM uses the associated restricted subcommand list for internal authorization checks before executing a subcommand. The lowest level restricted subcommand table is valid for all users. This means that if you have four classes of StarTool FDM users, at most three calls are made to PDS#SECI during StarTool FDM initialization.

PDS#DYNA Dynamic Security Exit

If you code #INITIAL \$TYPEACF=DYNAMIC, you need an additional exit called PDS#DYNA to dynamically authorize each restricted subcommand (as determined by PDS#SECI) a user invokes. Use PDS#DYNA or SMP#DYNA in *somnode.PDSEvrm.CNTL* for installation. For example, if DELETE is in a user's restricted subcommand list, each of the following subcommands cause control to be passed to PDS#DYNA once:

```
DELETE abc:xyz ALIAS
      IF abc:xyz NORENT THEN(DELETE)
      FIND abc:xyz 'string' ELSE(DELETE)
```

There are three sample exits available to generate PDS#DYNA in *somnode.PDSEvrm.ASSEMBLE*:

```
SAMPDYN1 - Checks for 'ALTER' authority for the current data set via RACROUTE
SAMPDYN2 - Checks for restricted subcommands in class #PDSAUTH via RACROUTE
SAMPDYN3 - Checks for restricted subcommands using native CA-ACF2
            interfaces
```

Of these exits, SAMPDYN1 has the simplest requirements. Your normal data set protection guards system or group data sets from subcommands considered dangerous and your users are not restricted from using their own data sets.

SAMPDYN2 offers better control over individual users and subcommands by using a restricted subcommand if there is UPDATE authority to STARTOOL.subcommand in class #PDSAUTH, or if there is READ authority to the same symbol, and there is ALTER authority for the data set. See implementation instructions for each type of security system on the following pages.

SAMPDYN3 is similar to SAMPDYN2 in function but it uses native CA-ACF2 interfaces. While SAMPDYN1 and SAMPDYN2 can be used in any security environment, in a CA-ACF2 environment each attempted use of a restricted subcommand increments a violation count. This causes a user's session to be canceled if the maximum violation threshold is exceeded. SAMPDYN3 can be used instead as it does not cause the violation count to be incremented.

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A user can use a restricted subcommand if there is UPDATE authority to a CA-ACF2 generalized resource rule of type CMD for STARTOOL.subcommand, or if there is READ authority to the same symbol, and there is ALLOCATE authority for the data set.

See *“CA-ACF2 and PDS#DYNA” on page 83* for implementation instructions.

RACF and PDS#SECI

For new installations of StarTool FDM with RACF, use the FACILITY class to install StarTool FDM security. As another option and for replacement installations of StarTool FDM with RACF, see *“Adding a \$PDSE Resource Class” on page 77*.

Use the FACILITY general resource class for a wide variety of purposes at an installation. This page describes how to use the FACILITY class to control the use of StarTool FDM.

First, define resources in PDS#OPT4 (assume resources SYSTEMSE, SYSTEMSN, APPLEXP and OTHERS), define profile names associated with the FACILITY class and permit appropriate personnel to the resources.

Detailed installation steps include:

1. Define resources. See *“#RESUSE – Restricted Resources” on page 61*.
2. SETROPTS RACLIST processing for the FACILITY general resource class to reduce I/O to the RACF data base:

```
SETROPTS RACLIST(FACILITY)
```

3. Define profile names associated with class FACILITY. Enter RACF commands from TSO similar to the following (SYSTEMSE, SYSTEMSN, APPLEXP and OTHERS are names as assigned with #RESUSE macros in PDS#OPT4):

```
RDEFINE FACILITY (STARTOOL.SYSTEMSE) OWNER(localid) UACC(NONE) -  
  APPL('SYS EXP.')
```

```
RDEFINE FACILITY (STARTOOL.SYSTEMSN) OWNER(localid) UACC(NONE) -  
  APPL('SYS NOV.')
```

```
RDEFINE FACILITY (STARTOOL.APPLEXP) OWNER(localid) UACC(NONE) -  
  APPL('APPL EXP.')
```

```
RDEFINE FACILITY (STARTOOL.OTHERS) OWNER(localid) UACC(NONE)  
  APPL('OTHERS')
```

- *localid* is the administrator for the FACILITY class.
- The last RDEFINE command is not necessary; OTHERS is the assumed authority level.

4. Refresh the RACF SETROPTS option for the FACILITY class:

```
SETROPTS RACLIST(FACILITY) REFRESH
```

5. Permit appropriate personnel. The following example RACF command permits USR1 to the SYSTEMSE resource:

```
PERMIT STARTOOL.SYSTEMSE CLASS(FACILITY) ACCESS(READ) ID(USR1)
```

6. Refresh the RACF SETROPTS option for the FACILITY class again:

```
SETROPTS RACLIST(FACILITY) REFRESH1)
```

Adding a \$PDSE Resource Class

Use the FACILITY class for RACF systems as described in [“RACF and PDS#SECI” on page 76](#).

For RACF systems, define resources in PDS#OPT4 (assume resources SYSTEMSE, SYSTEMSN, APPLEXP and OTHERS), add a class to the Resource Class Descriptor table (assume class name \$PDS), add an entry to the Router table, define profile names associated with class \$PDS and permit appropriate personnel to the resources.

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Detailed installation steps are:

1. Define resources. See “#RESUSE – Restricted Resources” on page 61.
2. Add a class to the Resource Class Descriptor table. Add an assembler statement similar to the following to your source code for ICHRRCDE:

```
$PDSCLAS ICHERCDE CLASS=$PDS, X
      ID=129, /* Note: 128 through 255 could be used */ X
      POSIT=25, /* Note: 19 through 56 could be used */ X
      MAXLNTH=8, FIRST=ALPHA, OTHER
```

- ID and POSIT must be selected as appropriate for your installation.
- ICHRRCDE must be assembled and linked into SYS1.LINKLIB. Use your installation's procedure for RCD table changes.
- This module is copied to SQA during RACF initialization.

3. Add an entry to the Router table. Add an assembler statement similar to the following to your source code for ICHRFR01:

```
$PDSCLAS ICHRFR01 CLASS=$PDS, ACTION=RACF
```

- ICHRFR01 must also be assembled and linked into SYS1.LINKLIB. Use your installation's procedure for Router table changes.
- This module is copied to SQA during RACF initialization.

4. Define profile names associated with class \$PDS. Enter RACF commands from TSO similar to the following (SYSTEMSE, SYSTEMSN, APPLXP and OTHERS are names as assigned with #RESUSE macros in PDS#OPT4):

```
RDEFINE $PDS (SYSTEMSE) OWNER(localid) UACC(NONE) APPL('SYS EXP.')
RDEFINE $PDS (SYSTEMSN) OWNER(localid) UACC(NONE) APPL('SYS NOV.')
RDEFINE $PDS (APPLXP) OWNER(localid) UACC(NONE) APPL('APPL EXP.')
RDEFINE $PDS (OTHERS) OWNER(localid) UACC(NONE) APPL('OTHERS')
```

- *localid* is the administrator for the \$PDS class.
- The last RDEFINE command is not necessary since OTHERS is the assumed level of authority.

5. Reset the SETROPTS option for class \$PDS. Enter the following example RACF command:

```
SETROPTS CLASSACT($PDS)
```

6. Permit appropriate personnel. The following example RACF command permits USR1 to the SYSTEMSE resource:

```
PERMIT SYSTEMSE CLASS($PDS) ACCESS(READ) ID(USR1)
```

RACF and PDS#DYNA

If you implement dynamic security, inform SERENA of the security environment you are using; the SAMPDYNx member used and any changes required to the routine or these procedures.

If you use SAMPDYN1 to install PDS#DYNA, you need not take any further action for RACF systems.

For SAMPDYN2, perform the following:

1. Add a class to the Resource Class Descriptor table. Add an assembler statement similar to the following to your source code for ICHRRCDE:

```
PDSAUTH  ICHERCDE CLASS=#PDSAUTH,                                X
          ID=130,    /* Note: 128 through 255 could be used */    X
          POSIT=27,  /* Note: 19 through 56 could be used   */    X
          MAXLNTH=17,FIRST=ALPHA,OTHER=ANY
```

- ID and POSIT must be selected as appropriate for your installation.
- ICHRRCDE must be assembled and linked into 'SYS1.LINKLIB'. Use your installation's procedure for RCD table changes.
- This module is copied to SQA during RACF initialization.

2. Add an entry to the Router table. Add an assembler statement similar to the following to your source code for ICHRFR01:

```
PDSAUTH  ICHRFR01 CLASS=#PDSAUTH,ACTION=RACF
```

- ICHRFR01 must be assembled and linked into 'SYS1.LINKLIB'. Use your installation's procedure for Router table changes.
- This module is copied to SQA during RACF initialization.

3. Define profile names associated with class #PDSAUTH. Enter RACF commands from TSO similar to the following where FIXDIR is the subcommand to be restricted:

```
RDEFINE #PDSAUTH (STARTOOL.FIXDIR) OWNER(localid) UACC(NONE)
```

- *localid* above is the administrator for the \$PDS class.

4. Permit appropriate personnel. For example, assuming FIXDIR is in the restricted command list for USR1 and USR2, to allow USR1 unrestricted access to FIXDIR and USR2 access to FIXDIR only if USR2 has ALTER authority to a data set:

```
PERMIT STARTOOL.FIXDIR CLASS(#PDSAUTH) ACCESS(UPDATE) ID(USR1)
PERMIT STARTOOL.FIXDIR CLASS(#PDSAUTH) ACCESS(READ) ID(USR2)
```

CA-Top Secret and PDS#SECI

For CA-Top Secret systems, define resources in PDS#OPT4 (assume resources SYSTEMSE, SYSTEMSN, APPLEXP and OTHERS), define a new resource class (assume class name APDS), define resources to CA-Top Secret and permit appropriate personnel to the resources.

Detailed installation steps are:

1. Define resources. See “#RESUSE – Restricted Resources” on page 61.
2. Define resource class of APDS. Enter the following CA-Top Secret command:

```
TSS ADD(RDT) RESCLASS(APDS) RESCODE(nn)
```

- The RESCODE *nn* value can range from 01 to 3F. For values that are in use type the command TSS LIST(RDT) DATA(ALL).
- For more information on the RDT, see “CA-Top Secret IMPLEMENTATION: GENERAL GUIDE.”

3. Define resources to CA-Top Secret. Type the following CA-Top Secret commands (SYSTEMSE, SYSTEMSN, APPLEXP and OTHERS are names assigned with #RESUSE macros in PDS#OPT4 and *resowner* is a local name for the owner of the resource):

```
TSS ADDTO(resowner) APDS(SYSTEMSE)
TSS ADDTO(resowner) APDS(SYSTEMSN)
TSS ADDTO(resowner) APDS(APPLEXP)
TSS ADDTO(resowner) APDS(OTHERS)
```

The last ADDTO command is not necessary since OTHERS is the assumed level of authority.

4. Permit appropriate personnel. The following example CA-Top Secret command permits USR1 to the SYSTEMSE resource:

```
TSS PERMIT(USR1) APDS(SYSTEMSE)
```

CA-Top Secret and PDS#DYNA

If you implement dynamic security, inform SERENA of the security environment you are using, the SAMPDYNx member used and any changes required to the routine or to these procedures.

If you use SAMPDYN1 to install PDS#DYNA, you need not take any further action for CA-Top Secret systems.

For SAMPDYN2, you need to perform the following:

1. Define resource class of #PDSAUTH. Enter the following CA-Top Secret command:

```
TSS ADD(RDT) RESCLASS(#PDSAUTH) RESCODE(nn)
```

The RESCODE *nn* value can range from 01 to 3F. You can see which values are in use with the following command: TSS LIST(RDT) DATA(ALL).

2. Define resources to CA-Top Secret. Enter CA-Top Secret commands similar to the following where FIXDIR is a subcommand to be restricted, and *resowner* is a local name for the owner of the resource:

```
TSS ADDTO(resowner) #PDSAUTH(STARTOOL.FIXDIR)
```

3. Permit appropriate personnel. For example, assuming FIXDIR is in the restricted command list for USR1 and USR2, to allow USR1 unrestricted access to FIXDIR and USR2 access to FIXDIR only if USR2 has ALTER authority to a data set:

```
TSS PERMIT(USR1) #PDSAUTH(STARTOOL.FIXDIR) UPDATE
TSS PERMIT(USR2) #PDSAUTH(STARTOOL.FIXDIR) READ
```

CA-ACF2 and PDS#SECI

For CA-ACF2 systems, define resources in PDS#OPT4 (assume resources SYSTEMSE, SYSTEMSN, APPLEXP and OTHERS), identify to CA-ACF2 what SAF calls to process and how to map SAF resource classes into resource types, update the RESDIR GSO record (if the rules are resident) and create the resource rules.

Following are detailed installation steps.

1. Define resources. This is covered under “#RESUSE – Restricted Resources” on page 61.
2. Identify SAF calls to be processed depending on your level of CA-ACF2.
 - For levels of CA-ACF2 before 6.0, identify SAF calls to be processed with SAFPROT and how to map SAF resource classes into resource types with SAFMAPS, review the GSO Records section of the “ACF2 Systems Administrator Guide”, then add to the SAFPROT GSO record from ACF2:

```
SET CONTROL(GSO)
INSERT SYSID(sysidx) SAFPROT.PDSE CLASSES(-) CNTLPTS(-) SUBSYS(PDS-)
CHANGE SYSID(sysidx) SAFMAPS MAPS(PDS/$PDS)
```

- For levels of CA-ACF2 at 6.0 or above, map SAF resource classes into resource types with CLASMAP. If SAFDEF SAFALL is overridden in your implementation of CA-ACF2, you need to identify SAF calls to be processed with a SAFDEF statement as shown in the following example.

Review the GSO Records section of the “ACF2 Systems Administrator Guide”, then add to the SAFDEF and CLASMAP GSO records from ACF2:

```
SET CONTROL(GSO)
SET SYSID(sysidx)
INSERT SAFDEF.PDSE MODE(GLOBAL) RACROUTE(SUBSYS=PDS-) REP ID(PDSE)
INSERT CLASMAP.PDS RESOURCE($PDS) RSRCTYPE(PDS)
```

3. If resource rules are resident, update the RESDIR GSO record.
4. Create the resource rules. From ACF2, enter commands similar to (SYSTEMSE and other names are assigned with #RESUSE macros in PDS#OPT4):

```
SET RESOURCE(PDS)
COMPILE * STORE
$KEY(SYSTEMSE) TYPE(PDS)
ALLOW UID(SYSADMIN)
END
COMPILE * STORE
...
```

5. IPL, REFRESH or REBUILD to enable the changes.

CA-ACF2 and PDS#DYNA

If you implement dynamic security, inform SERENA to the security environment you are using, the SAMPDYNx member used and any changes required to the routine or these procedures.

If you use SAMPDYN1 to install PDS#DYNA, you need not take any further action for CA-ACF2 systems.

For SAMPDYN2, you need to perform the following:

1. Identify SAF calls to be processed depending on your level of CA-ACF2.
 - For levels of CA-ACF2 before 6.0, insert a SAFPROT GSO record to activate #PDSAUTH and DATASET classes and add the PDS generalized resource to the SAFMAPS GSO record:

```
SET CONTROL(GSO)
INSERT SAFPROT.PDS#DYNA CLASSES(#PDSAUTH,DATASET)
CNTLPTS(PDSE,PDSTOOLS,STARTOOL) SUBSYS(PDS-)
CHANGE SAFMAPS MAPS(PDS/#PDSAUTH) ADD
```

- For levels of CA-ACF2 at 6.0 or above, map SAF resource classes into resource types with CLASMAP. If SAFDEF SAFALL is overridden in your implementation of CA-ACF2, you need to identify SAF calls to be processed with SAFDEF statements as shown in the following example; however, in many CA-ACF2 installations, the SAFDEF statements are not required.
2. Review the GSO Records section of the “*ACF2 Systems Administrator Guide*”, then add to the SAFDEF and CLASMAP GSO records from ACF2:

```
SET CONTROL(GSO)
SET SYSID(sysidx)
INSERT SAFDEF.PDSE1 MODE(GLOBAL) RB(PDS-) ID(PDSE1) REP -
  RACROUTE(SUBSYS=PDS- CLASS=DATASET)
INSERT SAFDEF.PDSE2 MODE(GLOBAL) RB(PDS-) ID(PDSE2) REP -
  RACROUTE(SUBSYS=PDS- CLASS=#PDSAUTH)
INSERT CLASMAP.PDS RESOURCE(#PDSAUTH) RSRCTYPE(PDS)
```

3. Permit appropriate personnel. For example, assuming FIXDIR is in the restricted command list for USR1 and USR2, to allow USR1 unrestricted access to FIXDIR and USR2 access to FIXDIR only if USR2 has ALTER authority to a data set:

```
$KEY(STARTOOL.FIXDIR) TYPE(PDS)
UID(USR1's UID string) SERVICE(UPDATE) ALLOW
UID(USR2's UID string) SERVICE(READ) ALLOW
```

4. Refresh the SAFPROT and SAFMAPS GSO records.

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5. For SAMPDYN3, write generalized resource rules of type CMD as needed. For example, assuming FIXDIR is in the restricted command list for USR1 and USR2, to allow USR1 unrestricted access to FIXDIR and USR2 access to FIXDIR only if USR2 has ALLOCate authority to a data set:

```
$KEY (STARTOOL.FIXDIR) TYPE (CMD)
UID (USR1's UID string) SERVICE (UPDATE) ALLOW
UID (USR2's UID string) SERVICE (READ) ALLOW
```

SETTING UP THE ENVIRONMENT

6

See the following sections for special considerations depending on your environment.

DB2 OPTION

If you have the StarTool FDM DB2 option, perform some customization of your DB2 environment.

1. Execute a version of BINDJCL from data set *somnode.PDSEvrm.CNTL* for each DB2 system that uses StarTool FDM DB2.

Note Do not change the name of the PDSSQL member in this library because the member name must match the internal id, and it must match the CSECT name using this plan:

BINDJCL JCL Member

```
//JOBNAME JOB ...
//*****
//* MEMBER: SOMNODE.PDSEvrm.CNTL (BINDJCL)
//* BIND THE APPLICATION PLANS
//* THIS USES DBRM MEMBER PDSSQL IN THIS LIBRARY
//*****
//BIND EXEC PGM=IKJEFT01,REGION=1000K
//DBRMLIB DD DSN=SOMENODE.PDSEvrm.CNTL,DISP=SHR
//SYSTSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSTSIN DD *
PROFILE MSGID
DSN SYSTEM(DB2A)
    BIND PLAN (PDSPLAN1) +
    MEMBER (PDSSQL) +
        ACTION (ADD) ISOLATION (CS)
    BIND PLAN (PDSPLAN2) +
    MEMBER (PDSSQL) +
        ACTION (ADD) ISOLATION (RR)
```

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END
/*

2. Next, issue a SQL statement similar to the following on each DB2 system using PUBLIC privilege:

```
GRANT EXECUTE ON PLAN PDSPLAN1, PDSPLAN2 TO PUBLIC
```

The use of PUBLIC permits anyone to use the plan for the DB2 option of StarTool FDM. However, you can limit access by specifying a list of other authorization names instead of PUBLIC if you require different plan controls.

IMS OPTION

Allocate IMS system libraries using CLIST or REXX, or by using an installation EXIT. You can find a sample installation exit in the ASSEMBLE library as member SAMPIMSE. Sample allocation CLISTs are in CLIST library as members IMSALLOC, IMSLOGAL, and IMSBMPAL.

For DL/I processing, the IMSALLOC CLIST in the CLIST library allocates required IMS data sets; the IMSLOGAL CLIST allocates an IMS Log data set. The IMSALLOC CLIST has to be modified for your installation using the IMSLOGAL CLIST as distributed if its data set naming conventions meet your installation standards.

For BMP processing, IMSBMPAL in the CLIST library allocates required IMS data sets, and has to be modified for your installation.

For information about the IMS start parameters exit, see *“Installing the IMS Start Parameters Exit” on page 68* and the StarTool FDM *IMS Option Getting Started Guide*.

SET VARIABLES

If you select #INITIAL \$LOGO=LOGO or NONDISP, you can modify panel PDSZINST to provide installation defaults for all variables available in the SET panels. This overrides values chosen during StarTool FDM installation or for parameters that are not available for customization with the PDS#OPT4 member.

Instead of modifying panel PDSZINST, define the installation default variables through the #VDEFINE macro.

APPLID ISR

When you invoke StarTool FDM in an ISPF environment, StarTool FDM forces an APPLID of ISR. You can change this to force a different APPLID; however, the use of ISR is recommended for several reasons.

StarTool FDM is a common server and shares more ISPF ISR variables as time goes on. Also, if another APPLID is used, this APPLID is in effect for ISPF supported subcommands invoked by StarTool FDM such as EDIT, EDREC, ISPF and BROWSE.

This is a problem for edit recovery. If you use an APPLID other than ISR for StarTool FDM, edits that fail under EDIT invoked by StarTool FDM cannot be recovered by ISPF EDIT; likewise, edits that fail under ISPF EDIT cannot be recovered by EDIT processing under StarTool FDM.

PF keys are another problem associated with an APPLID other than ISR. Any key defined under the APPLID used by StarTool FDM remain as defined for the EDIT, ISPF and BROWSE subcommands.

To inspect or manipulate dialog variables in the ISR application from StarTool FDM with ISPF Dialog Test option 3, invoke the VARIABLE CLIST with TSO% VARIABLE.

PROFILE MSGID

StarTool FDM honors PROFILE NOMSGID by displaying program messages without the message identifiers. If StarTool FDM users operate with message identifiers enabled, they can reference messages using their identifiers in the StarTool FDM Messages Guide and in the MSG section of the HELP member.

When StarTool FDM initializes, it checks for MSGID in the profile. If it is set to NOMSGID, StarTool FDM issues a PDS531W warning message that suggests that you type TSO PROFILE MSGID.

Educate your users on PROFILE MSGID. In addition, they should use PROFILE WTPMSG so that they get proper diagnostic information for any problems they encounter.

ALTERNATE ENTRY NAMES

StarTool FDM recognizes short and long entry names.

- Short entry names perform the indicated service and terminate. The names supported are CAX, DDN, LA, LC, LF, LV and WO. StarTool FDM terminates when all pending commands have been processed and it would normally go to the log display.
- Long entry names also perform the indicated service but StarTool FDM continues processing until termination is requested. The names supported are CAXWA, DDNAME, LISTALL, LISTCA, LISTF, LISTV and WORKPAD.

For either type of entry name, your ISPF profile data set is used as the current data set. If the indicated service supports operands, they can also be entered.

As an example of invoking a short alias name of StarTool FDM under ISPF, type:

```
TSO LV IMS
```

To invoke the same service as a long entry name from ISPF, type:

```
TSO LISTV IMS
```

Decide which StarTool FDM aliases to install and document at your installation.

There are two installation methods: using the linkage editor or StarTool FDM itself. For example, to assign the alias names LC and LISTF to StarTool FDM, perform one of the following:

1. Relink StarTool FDM using JCL and controls based on member PDS#OPT4 linkage edit step. Insert the following control statement just before the NAME statement:

```
ALIAS LC,LISTF
```

2. From StarTool FDM in the installation load library, type the following subcommands:

```
ALIAS STARTOOL LC
```

```
ALIAS STARTOOL LISTF
```

ARCHIVED DATA SETS

StarTool FDM has several internal checks for archived data sets. Archived data sets normally use a volume name of MIGRAT (DFHSM, FDR/ABR and CA-1 or ADAM). If you use ARCIVE (DMS/OS) or any other single volume name to indicate an archived data set, specify parameter #INITARC to inform StarTool FDM. FDR/ABR installations can use MIGRAT or the original volume name for an archived data set. For StarTool FDM use, use the MIGRAT option.

If you delete a data set cataloged to MIGRAT with a DEL line command in the LISTC/LISTF function, StarTool FDM processes this data set through the PDSLCD4 panel. If you have FDR/ABR or CA-1 installed, change this panel to invoke DEL instead of HDEL and remove the NOWAIT option.

PLIST FACILITY

The PLIST facility manages a personal data set list. PLIST is shorthand for invoking StarTool FDM with LISTC table 20; however, PLIST has several unique characteristics. You can enter PLIST from any ISPF panel by typing PL, PLI, PLIS or PLIST from the 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 command to process the data set list. At the first END command with no pending functions to perform, StarTool FDM terminates. You can then continue from where PLIST was entered.

Any additions (with LISTC, LISTF or LOAD commands) or deletions (with EXCLUDE commands, the DEL line command or the X line command) to LISTC table 20 during PLIST processing are saved at StarTool FDM termination.

When you retrieve the PLIST data set table, entries do not have data set statistics (such as number of tracks allocated and used, creation and reference dates). The REFRESH command updates these statistics. The RIGHT command shows different views of data set attributes.

Use the PLIST facility to refer to a user's active set of data sets; usually, these are the data sets saved under the userid.

Chapter 6: Setting up the Environment

When StarTool FDM initializes, it dynamically adds several items to the ISPF command table. One of these items is an entry to activate PLIST, which is normally defined in SAMPOPT4:

```
MODIFY ROW  TABLE ISPCMDS  ROW 11 -----  ROW 1 TO 23 OF 23
COMMAND ==>                                SCROLL ==> PAGE

MODIFY VARIABLE VALUES AND SAVENAMES.  UNDERSCORES NEED NOT BE BLANKED.
ENTER END COMMAND TO FINALIZE CHANGES.

      VARIABLE  T A VALUE

**** ZCTVERB_  N   PLIST
**** ZCTRUNC  N   2
**** ZCTACT__ N   SELECT CMD (STARTOOL F (ISPPROF) ISPXEQS LISTC 20 PROMPT)
**** ZCTDESC_ N   STARTOOL PLIST FACILITY
**** _____ S
**** _____ S
```

Since the PLIST command table entry is added only after StarTool FDM is first initialized, PLIST is not available until StarTool FDM is activated. To make PLIST available as shown above, make a permanent addition to your ISPF command table using the CMDTBL command or your installation's procedures for changing the ISPF command table.

EXECUTING STARTOOL FDM

At this point, StarTool FDM installation tailoring is complete. You can test StarTool FDM using member LIBDEF, LIBDEF2 or LIBDEF3 of *somnode.PDSEvm.CLIST* or wait until the members are moved into production libraries.

The LIBDEF CLISTS invoke StarTool FDM from the distribution libraries (including the load library). Copy one of the LIBDEF CLISTS to a common CLIST library, rename it to STARTOOL, PDSTOOLS, or PDSE and change data set names as required.

- LIBDEF invokes StarTool FDM using the last data set referenced by StarTool FDM as the active data set. Invoke the CLIST as follows:

```
TSO %STARTOOL
```

- LIBDEF2 invokes StarTool FDM through the PDS@PRIM panel which makes it easy to execute a test version of StarTool FDM by specifying an alternate name for the STARTOOL load module. Do not use this clist in production. Invoke the CLIST as follows:

```
TSO %LIBDEF2
```

- LIBDEF3 prompts for a data set name if necessary and invokes StarTool FDM. Invoke the CLIST as follows:

```
TSO %STARTOOL your.data.set.name
```

LOAD MEMBERS

Copy *somnode.PDSEvrn.LOAD* into a system link library (or several reentrant members into SYS1.LPALIB) or into a STEPLIB to avoid problems with ISPF ISPLLIB.

If you move STARTOOL and its aliases into the LPALIB, you should also move PDS#OPT4, PDSEAUTH, PDSPBROW, PDSPEDIT and PDSRX with them. You need to create ISPTCM entries (*See the IBM ISPF Installation and Customization manual for more information*) as follows:

```
ISPTCM ENTRY,ENTNAME=STARTOOL,FLAG=42
```

In addition, if you assign any of the alternate entry point names to STARTOOL, you need a similar ISPTCM entry for each added name.

If your site has CA-ACF2, add entries for STARTOOL, PDSE, PDS and any alternative entry points to the command limiting list so that ACF2 recognizes these as valid command processor names.

Use the StarTool FDM COPY subcommand to copy these members. StarTool FDM requests a COPYMOD operation if needed.

PANELS AND MESSAGES

After you copy the load members into an execution library, use the ISPF LIBDEF service to reference StarTool FDM panel members (with ISPPLIB) and message members (with ISPMLIB). Do this with a CLIST such as LIBDEF or LIBDEF2 in *somnode.PDSEvrn.CLIST* or dynamically using the PLIB and MLIB operands of the #DYNLIBS macro.

Alternatively, change your LOGON procedure allocation for ISPPLIB and ISPMLIB through a CLIST or by LOGON procedure changes. You may want to split ISPF panels into a tutorial set and a set of more active panels. For StarTool FDM, you need only copy panels PDS@:PDSZ into the standard set of panels and PDS0:PDS9 into the tutorial set. Do this with the COPY subcommand of StarTool FDM.

Copy the panel and messages members into your system ISPF libraries or reallocate your ISPF libraries to include StarTool FDM panels and messages with a CLIST similar to the following:

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```
PROC 0
/***** Always concatenate the higher block size first! *****/
FREE FI(ISPPLIB,ISPMLIB)
ALLOC FI(ISPPLIB) DA('somnode.PDSEvrm.PANELS'      +
  'SYS2.ISPF.PLIB') SHR REUSE /* MODIFY TO ADD ALL LIBRARIES */
ALLOC FI(ISPMLIB) DA('somnode.PDSEvrm.MSGS',      +
  'SYS2.ISPF.MLIB') SHR REUSE /* MODIFY TO ADD ALL LIBRARIES */
PROFILE MSGID /* SO StarTool WILL DISPLAY MSGID'S */
```

Exit from ISPF into native TSO (*READY mode*) and execute the CLIST created above. Reenter ISPF. Invoke StarTool FDM with ISPF option 6, the ISPF TSO command or as a line command from ISPF option 3.4.

Another possibility is the compilation of the delivered panel library into another library where other vendor products have compiled panels. To do this, allocate another panel library with similar size and DCB attributes but at least 500 directory blocks (ISPF statistics are added to each member), go into ISPF option 7.1 (dialog function test) and enter `ISP@PRIM` as the panel to test. Then enter 2 as the option.

Panel ISPPREPA displays and requests that you:

```
SPECIFY "FROM" AND "TO" DATA SET NAMES BELOW:
```

Fill the panel in accordingly (specify * under the FROM data set name as the member name specification) and wait for the panels to convert. ISPF applications perform better with compiled panels because panels do not need to be reinterpreted at each display.

At least fifty panels will not convert successfully because they use extendible areas or specify a panel width as a dialog variable. After conversion is complete, type the COPY subcommand to copy the panels that did not convert from the original panel library. Type the following subcommand:

```
COPY PDS@:PDS target.data.set NOEXIST
```

HELP MEMBERS

Copy the HELP members from `somnode.PDSEvrm.HELP` into your SYSHELP concatenation or change your SYSHELP concatenation to include this library. Use ENCODE and DECODE independently of StarTool FDM for HELP members are available for these commands. Make the ENCODE and DECODE aliases of PDSDECRY available for use from TSO.

CONNECTING THE ISPF PANELS

One method of connecting StarTool FDM is by using the following VENDOR panel. Attach it to your ISR@PRIM through option V in the translate section V,'PANEL(VENDOR)'. Users type V on the main menu (ISR@PRIM) and go to the VENDOR panel which is already set to invoke StarTool FDM.

Expand the ISPF Panel VENDOR to include other software in the future.

ISPF Panel VENDOR

```
)BODY EXPAND(!!)
%!-! Vendor Supplied Software !-!
%Option ==>_ZCMD ! !+
%
% 1 +StarTool - Invoke StarTool as a command
% 2 +StarTool - Invoke StarTool with a panel
% 3 +Other - Invoke other vendor software (not supplied)
% X +Exit - Return to primary option menu
+
+Press%ENTER+to continue; Enter%END Command+to exit.
)PROC
  &ZSEL = TRANS( TRUNC (&ZCMD, '.')
                1, 'CMD (STARTOOL *) NEWAPPL (ISR) '
                2, 'PANEL (PDS@PRIM) NEWAPPL (ISR) '
                ' ', ' ', ' '
                X, 'EXIT'
                *, '?' )
  &ZTRAIL = .TRAIL
)END
```

Alternatively, you can modify one of your existing selection menus to invoke StarTool FDM by including s,'PANEL(PDS@PRIM)' or 's,CMD(STARTOOL)' in the translate section of the panel (where s is the StarTool FDM option).

CLIST MEMBERS

Access the CLIST library dynamically through the #DYNLIBS CLIB parameter or copy the CLISTS provided into a general CLIST library. If you use VB CLIST libraries, copy them with ISPF option 3.3 correctly or converted with the DUP subcommand of StarTool FDM.

If you are using dynamic CLIST activation for StarTool FDM, copy (and convert) several edit macros and general purpose CLISTS into a general CLIST library.

See member PDSECLST in somname.PDSEvrm.CNTL for a sample JOB that copies these members using the DUP subcommand of StarTool FDM.

COMPAREX CLIST MEMBERS

If Serena™ Comparex® is installed at your site and you want to invoke it from StarTool FDM, use a CLIST provided in the CLIST library.

There are two Comparex CLIST members. Use member STRCPXIF if the Comparex dialog data sets are in the ISPF library concatenations. Otherwise, modify and rename member STRCPX12 to STRCPXIF (STRCPX12 contains the necessary LIBDEF statements).

SKELETON MEMBERS

For the following skeleton members, update the STEPLIBs for `SYS1.STARTOOL.LOAD` to point to your StarTool FDM load library.

- PDS\$CBAT
- PDS\$DYNO
- PDS\$DYON
- PDS\$ID2P
- PDS\$NDNO
- PDS\$NDON
- PDS\$STBJ
- PDS\$WBAT

INSTALLATION COMMANDS

You can also add commands to StarTool FDM for your installation through the StarTool FDM User Command panels. StarTool FDM extends its normal subcommand parse to include elements on the PDS*UX panels. If you program commands of general interest, forward them to SERENA for inclusion in a future StarTool FDM release.

PDSEAUTH

Invoke PDSEAUTH through IKJEFTSR in the following situations:

- FIXPDS subcommand with operands DSCB, DSORG, NEWDSNAME, MODDSNAME, BLK (with or without ROUND), TRK, CYL or SPACE(size). PDSEAUTH updates the Format 1 DSCB of the active data set under ENQUEUE protection.
- FIXPDS subcommand with RELEASE for a PDSE data set. It performs a PARTREL macro.
- LLA subcommand. It performs a LLACOPY macro to update directory entries in LLA managed libraries.
- \$TYPEACF=LOGNO and more than one #RESUSE macro. StarTool FDM invokes PDS#SECI using RACROUTE LOG=NO from an authorized environment.

If you do not have TSO/E Release 1.2 or above, you cannot use IKJEFTSR to interface with PDSEAUTH. Contact Serena for help.

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Move this module to an APF link list library and add PDSEAUTH in 'SYS1.PARMLIB(IKJTSO00)' in category AUTHTSF. Category AUTHTSF controls which programs are authorized when invoked by IKJEFTSR. After copying PDSEAUTH, delete it from the distribution library since it must be loaded from an authorized library.

Note PDSEAUTH need not be in the link list to be APF-authorized. However, if it is not, a problem exists if StarTool FDM is being used from ISPF. (ISPF cannot be authorized, so you may have problems locating PDSEAUTH.) You cannot use a STEPLIB because the ISPF libraries cannot be authorized.

You can wait for an IPL for this PARMLIB change to take effect or you can dynamically update TSO/E values with the TSO PARMLIB command.

Note You must be authorized for PARMLIB use and there must also be an entry for PARMLIB in IKJTSO00 in category AUTHCMD. To update the TSO/E values from TSO, type PARMLIB UPDATE(00).

If your site has CA-ACF2, add PDSEAUTH to the command limiting list so that ACF2 recognizes PDSEAUTH as a load module (and not a CLIST).

IDCAMS

IDCAMS is invoked through IKJEFTSR to invoke most IDCAMS subcommands. The following IDCAMS functions require APF authorization:

- DEFINE with RECATALOG
- DELETE with RECOVERY
- EXPORT (for a BCS)
- IMPORT (for a BCS)
- PRINT (of a ICF catalog)
- REPRO (for a BCS copy or merge)
- VERIFY (for a BCS)
- All CACHE manipulation commands

If you use any of these functions in StarTool FDM, you must authorize IDCAMS by adding IDCAMS in 'SYS1.PARMLIB(IKJTSO00)' in category AUTHTSF. Category AUTHTSF controls which programs are authorized when invoked by IKJEFTSR.

Wait for an IPL for this PARMLIB change to take effect or dynamically update TSO/E values with the TSO PARMLIB command.

Note You must be authorized for PARMLIB use and there must also be an entry for PARMLIB in IKJTSO00 in category AUTHCMD. To update the TSO/E values from TSO, type PARMLIB UPDATE(00).

If your site has CA-ACF2, add IDCAMS to the command limiting list so that ACF2 recognizes IDCAMS as a load module (and not a CLIST).

INSTALLATION VERIFICATION

Use this section to verify your StarTool FDM installation, to resolve installation problems, or to check your security implementation. Review this section before calling SERENA about installation problems.

Before proceeding, insure that you have message prefixes enabled and that you are receiving proper diagnostic information by typing the following command:

```
TSO PROFILE MSGID WTPMSG
```

Linklist Considerations

1. If you placed StarTool FDM members into a linklist library, be careful that you do not cause a new library extent to be taken. If modules are placed into a new extent in a linklist library, they cannot be used until you perform an IPL. An LLA refresh is not sufficient since the linklist data sets are opened during the IPL process. The linklist DEB (Data Extent Block) cannot be extended through conventional methods). S106-0E ABENDs occur if you attempt to use a module from a new linklist extent.
2. You can refresh linklist entries selectively with the LLA subcommand. Type the following:

```
STARTOOL 'linklist.library.with.startool'  
LLA (STARTOOL,PDS#OPT4,PDSEAUTH,PDSPBROW,PDSPEDIT)
```

3. After refreshing the linklist entries, invoke StarTool FDM without a STEPLIB or ISPLLIB allocation. Type the following command from READY mode:

```
STARTOOL any.data.set.name
```

4. If you receive any of the following messages, StarTool FDM is not installed properly:

```
CSV003I REQUESTED MODULE PDS#OPT4 NOT FOUND  
CSV003I REQUESTED MODULE PDS#SECI NOT FOUND  
CSV003I REQUESTED MODULE PDS#DYNA NOT FOUND
```

These modules have the following uses:

Chapter 6: Setting up the Environment

- PDS#OPT4 contains your customized installation defaults.
 - PDS#SECI classifies users if your #INITIAL macro is coded with \$TYPEACF=LOGNO, RACF, TOP, ACF2, DYNA or CALL and more than one #RESUSE macro is coded.
 - PDS#DYNA dynamically security checks restricted subcommands as they are entered.
5. If PDS#OPT4 is not available, an internal version called PDS#DFLT is used instead so that the StarTool FDM session can proceed. The installation jobs provided link PDS#SECI and PDS#DYNA with StarTool FDM. For testing, they can be linked as independent modules as can PDS#OPT4. Internally, in StarTool FDM, when any of these modules is required, an internal address pointer is referenced. If this pointer is zero, a LOAD macro obtains the external address for the module. The operating system issues a CSV003I message if it is not available as an independent module.
 6. Verify that you are using the correct version of StarTool FDM and PDS#OPT4. Examine the version number from the PDS100I message and note the identification data in the PDS037I message from a CONTROL DEFAULTS output:

```
PDS100I STARTOOL/SuperEdit -- Version 6.2.0 2000.001
PDS030I Global operands: NOPROMPT, NOTRANSLATOR, ALIASINFO, LKEDDATE, RECOVER
PDS030I Global operands: NODSNAME, NOSYSOUT, NOFORM, NODEST
PDS031I Input buffering: RETAIN(9)
PDS036I Largest free storage area is 3164K
PDS046I Largest area above the line is 1950M
PDS037I Installation defaults from PDS#OPT4 2001/04/01 09.31:
Access control method          RACF
Security tables                 SYSTEMSE SYSTEMSN APPLEXP OTHERS
DSN default format             MSG
. . .
```

The assembly time and date should match the assembly of SAMPOPT4 for the installation of StarTool FDM. If it does not match, type the following subcommand to find the first occurrence of PDS#OPT4:

```
FINDMOD PDS#OPT4 NOSEARCH
```

Verify the origin of STARTOOL, PDS#SECI (if linked independently) and PDS#DYNA (if linked independently) in a similar fashion. To find all occurrences of these modules in linklist or LPA libraries, use the FINDMOD subcommand without the NOSEARCH keyword.

Security Considerations

The installation jobs provided link PDS#SECI and PDS#DYNA with StarTool FDM. They can be linked as independent modules like PDS#OPT4 can. Internally in StarTool FDM, when any of these modules are required, an internal address pointer is referenced. If this pointer is zero, a LOAD macro is issued to obtain the external address for the module. The operating system issues a CSV003I message if it is not available as an independent module.

1. If you coded #INITIAL with \$TYPEACF=RACF, TOP, CA-ACF2, DYNA or CALL and you also coded more than one #RESUSE macro, StarTool FDM requires a module called PDS#SECI. If StarTool FDM issues a CSV003I message during initialization for PDS#SECI, the module was not linked with StarTool FDM properly. StarTool FDM converts the \$TYPEACF parameter to NONE to allow debugging of this problem with StarTool FDM itself (security is disabled).
2. If you coded #INITIAL with \$TYPEACF=LOGNO and you also coded more than one #RESUSE macro, StarTool FDM requires a module called PDS#SECI to be linked with PDSEAUTH. If StarTool FDM issues error messages during initialization for PDSEAUTH or PDS#SECI, either PDSEAUTH is not authorized or the module was not linked with PDSEAUTH properly. StarTool FDM assumes access to the subcommand table was denied on each call but the user eventually is given access using the lowest security table. Before assembling the SAMPSECR routine to build the PDS#SECI module, be sure to follow instructions in the program comments for setting LOG=NO in a RACF or CA-ACF2 environment.
3. Before assembling the SAMPSECR routine to build the PDS#SECI module, be sure to modify the &ACCTYP parameter if your security system is CA-Top Secret or CA-ACF2.
4. If you coded at least one #RESUSE macro and #INITIAL with \$TYPEACF=DYNA, StarTool FDM requires a module called PDS#DYNA when a restricted subcommand is entered by the user. If StarTool FDM issues a CSV003I message during initialization for PDS#DYNA, the module was not linked with StarTool FDM properly and StarTool FDM only uses the PDS#SECI module to determine restricted subcommands (dynamic security is disabled).

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5. If you use PDS#SECI to determine restricted subcommands for multiple classes of StarTool FDM users, insure that the resource (or token) names coded on the #RESUSE macro statements correspond to the names expected in the PDS#SECI exit and by RACF, CA-Top Secret or CA-ACF2.

If an unexpected resource name is passed to PDS#SECI, one of the following messages is issued and the user is considered not eligible for that group (if this happens with all tokens passed, the user is still allowed access in the lowest defined group):

```
STARTOOL TOKEN NAME NOT MATCHED
STARTOOL TOKEN token-name NOT KNOWN
```

The first message above is issued for \$TYPEACF=CALL from sample routine SAMPSECC and the second message is issued for the other \$TYPEACF values (LOGNO, RACF, TOP, ACF2 or DYNA) from SAMPSECR.

6. After StarTool FDM initializes properly, verify that users are placed into the correct class. To check this, log on as a user in each of the different restriction classes. After LOGON, enter StarTool FDM normally (with WTPMSG and MSGID enabled) and check for any error messages. Perform a restricted function to verify that restricted subcommands and resources are properly protected. You should get an error message similar to the following for each attempted use of a protected resource (if \$TYPEACF=DYNA, your security system also is involved in this as an attempted security violation):

```
PDS920E Use of COMPRSHR is restricted
```

Verify the list of restricted resources for the user by entering the following (unless RESTRICT is also restricted):

```
CONTROL RESTRICTED
```

If a user has any restricted subcommands, messages similar to the following appear after the normal CONTROL subcommand informational messages (PDS100I, PDS030I, PDS031I, PDS036I and PDS046I):

```
PDS038I Use of COMPRSHR is restricted
```

PDSE STARTED TASK

7

The PDSE started task accesses and alters data sets and members without VTAM, TSO or JES. Using the MVS subsystem interface, PDSE communicates through the system console to perform line mode commands. The PDSE started task communicates with an established subsystem using a special command character, identified when the started task is initiated. During its operation, TSO TMP activates dynamically to provide TSO line mode command execution at the console.

This facility reduces the length of an outage because of several common problems: the mis-typing of startup parameters, accidental deleting of modules or the altering of data set attributes. Operating in line mode, StarTool FDM commands alter data sets and their members like FIXPDS, RESTORE, FIND, REPLACE and ATTRIB. This facility allows you to avoid full disk volume stand-alone restores or the need to perform several IPLs to return to the normal working production environment.

The started task is an optional step in the installation of StarTool FDM. If you use it, install the started task and test it before you need it to verify that it is available when needed.

Install the name in SYS1.PARMLIB(IEFSSN00). Make an addition of PDSE as a name in this member. IPL to refresh this table. You can use a different name for this started task; however, you must select a name with no more than four characters because of subsystem name length restrictions.

Install the procedure in SYS1.PROCLIB(PDSE). Member PDSEPDSE of *somnode*.PDSEvrm.CNTL is the base for this. Edit the member to add in the appropriate STEPLIB.

Note This member must be present in SYS1.PROCLIB and not some other JES2 procedure library.

Chapter 7: PDSE Started Task

The STEPLIB noted above must be an authorized library. Member PDSEPRIM needs authorization. Other required members could come out of the same library. Place the modules in SYS1.LINKLIB so the availability of the IEAAPFnn list is not a requirement for the activation of PDSE from the console. If SYS1.LINKLIB or a concatenated APF authorized library is to be used, remove the STEPLIB DD statement from the PDSE JCL, copy in subsystem modules PDSEPRIM, PDSEWTO and PDSESSSM. For access to StarTool FDM, copy it and its alias, PDSE, and PDS#OPT4, PDSEAUTH and PDSRX.

The PDSE started task needs high level access to enable it to fix different system problems. Protect your system so that the PDSE started task cannot be misused. For example, use the Logon to Console facility of MVS 3.3 or above to protect your system consoles. Alternatively, use the PDSE started task only in emergencies and ensure that it is stopped after each use.

For systems with RACF, add the name of your started task in the ICHRIN03 table of authorized started tasks. Give PDSE high authority to update SYS1 or system data sets.

As an example entry for PDSE in the ICHRIN03 table, code:

DC	CL8'PDSE'	STARTED TASK NAME
DC	CL8'SYSPDSE'	RACF IDENTIFIER
DC	CL8'SYS1'	RACF GROUP
DC	XL8'8000000000000000'	OPTIONAL, PRIVILEGED USER

Note Define SYSPDSE to RACF and SYS1.UADS as a TSO user. This suppresses error messages and assigns a default userid (SYSPDSE in this case). If you make PDSE a privileged user as shown above, RACF permits it to access any data set.

Prepare to start PDSE. If & is not a good choice for a command character at your site, change it by coding CC=HY for hyphen or -, CC=AT for at sign or @, CC=PO for pound sign or #, CC=PE for period or ".", and CC=SL for slash or /. Additional choices are documented in the start procedure. In the following, & is used.

Start PDSE. If you want to use the at sign (@) for the command character, issue a command like:

```
S PDSE,CC=AT
```

Otherwise, your start command is:

```
S PDSE
```

An & CONNECTED message displays from the PDSE started task as shown below:

```
08.47.00      s pdse
08.47.04      & CONNECTED
```

Begin entering commands. Enter commands in a single subcommand mode as in the following example for &startool 'SYS1.PROCLIB' attrib pdse:

```
08.50.42    &startool 'sys1.proclib attrib pdse
08.50.42    & OK
08.50.46    IKJ56644I NO VALID TSO USERID, DEFAULT USER ATTRIBUTES USED
08.50.46    PDS230I MEMBER      VER.MOD   CREATED   LAST MODIFIED SIZE  INIT   MOD
08.50.46    PDS230I PDSE        01.11  1991/06/18 2001/06/28  8:38 88      6     88
08.52.36    READY
08.52.36    END
```

The data set name is followed by one subcommand that executes immediately. No ISPMODE commands can be used.

Other TSO commands that use PUTLINE and PUTGET (such as LISTD, DELETE, and RENAME) work using this interface too. For example, the following command can be entered:

```
&listd 'sys1.proclib'
```

Full-screen applications like ISPF do not work with this interface. The TSO EDIT program does not work directly because it requires terminal interactions; however, EDIT can be used if multiple subcommands are made available.

Several TSO commands are available in entering multiple subcommands. Use these to stack subcommands for StarTool FDM:

Command	Description
EF	Stacks an edit command for the data set allocated to FILE(EDITFILE) and stacks edit subcommands.
STACK	Executes a command that takes subcommands (like EDIT or STARTOOL).
STACKL	Alias of STACK, this also lists each subcommand as it executes.

Chapter 7: PDSE Started Task

For example, the following STACKL command issues a StarTool command followed by a FIND subcommand.

```
09.02.56      &stackl startool 'sys1.proclib'; find pd* / any /
09.02.56      & OK
09.02.59      IKJ56644I NO VALID TSO USERID, DEFAULT USER ATTRIBUTE USED
09.02.59      STARTOOL 'sys1.proclib'
09.02.59      PDS100I STARTOOL/Both -- Version 7.3.0 1998.289
09.02.59      Proprietary software product of SERENA Software
09.02.59      Support (877)696-1850 support@serena.com
09.02.59      LICENSED TO: StarTool FDM will not work after Dec 30, 2002
09.02.59      To extend, contact SERENA support at (877)696-1850
09.02.59      All other rights reserved - use of this software
09.02.59      product by unauthorized persons is strictly prohibited.
09.02.59      PDS200I      DISP      UNIT      RECFM LRECL BLKSIZE  ALLOCTRK FREETRK SECONDARY F
09.02.59      PDS200I      SHR        3380      FB          80   23440    1X    30
09.02.59
09.03.00      PDS200I      DISP      UNIT      RECFM LRECL BLKSIZE  ALLOCTRK FREETRK SECONDARY F
09.03.00      PDS200I      SHR        3380      FB          80   23440    1X    30    22    1    CYL
09.03.00
09.03.00      PDS298I There are 2 users allocated to this data set
09.03.00
09.03.00
09.03.00      FIND PD* / ANY /
09.03.00
09.03.00      ** FIND      PDSE
09.03.00      004100 /**          A CPU LOOP IN ANY OF THE COMMANDS ISSUED BY THE PDSE
09.03.00      PDS142I 88 lines in this member
09.03.00      PDS146I 1 strings found
09.03.00
09.03.00      PDS300A ENTER OPTION -- DSN=SYS1.PROCLIB, VOL=SER=SCPMV5 MEM=PDSE*
09.03.00      END
```

Following is an example command stream using these commands:

```
&ALLOC file(editfile) da(userid.mid.clist(mytask))
&EF verify; bottom; insert lastline; save
&FREE file(editfile)
&STACK pdse userid.ispf.text; find pdse* 'any data' then(sublist); attrib *
& STACKL edit 'sys1.data(anymember)'cntl;verify;find /abc/;find /xyz/; down 1
```

An END subcommand is not required because it is automatically added as the last subcommand.

To use a different delimiter than a semicolon for EF, STACK or STACKL, type a special character (not alphanumeric, national or %) before any other data. It is used as the delimiter.

For example, type the following for STACK:

```
STACK -pdse userid.ispf.text-find pdse* 'any;data' then(sublist)- attrib *
```

To avoid swamping a terminal with replies, only the first 30 messages are returned to a terminal. The other messages are available. To see them, issue the L (list) command with a plus sign to tell it where to start. For example, to display (or redisplay) lines 51 through 80 from the last subcommand, type &L+50. Then, to display the next 30 lines, type &L+80. Next, type &L+110.

To terminate PDSE, type &logoff.

The & DISCONNECTED message displays from the PDSE started task as shown in the example below. You can also cancel PDSE. It cleans up and terminates without problems.

```
09.11.27  &logoff
09.11.27  & OK
09.11.27  & DISCONNECTED
```


CUSTOMIZED SAMPOPT4



SAMPOPT4 MEMBER

```
PDS#OPT4 TITLE 'StarTool INITIALIZATION DEFAULTS CSECT'
PDS#OPT4 CSECT ,
START   DC   CL8'PDS#OPT4'
        DC   CL16' &SYSDATE &SYSTIME '
*NOTE:  THE FIRST MACRO INVOKED IS #INITIAL; IT SPECIFIES THE "CALL"
*       SECURITY INTERFACE AND TWO #CONGLBL PARAMETERS. NOTE THE
*       CONTINUATION MARK IN COLUMN 72 AND CONTINUATIONS IN COLUMN 16.
*-----1-----2-----3-----4-----5-----6-----7-
#INITIAL $TYPEACF=CALL,
        #CONGLBL=TRANSLAT+ALIASINF,
        @DSAT=DSAT,
        @DVOL=DVOL,
        @HELP=HEL,
        @EDIT=%VSAMFED,
        SLCSEL=EDIT
*
#DYNCMDT (PLIST,2,'SELECT CMD (STARTOOL FILE (ISPPLIB) ISPXEQS LX
        ISTD 20 PROMPT','PLIST Command')
#DYNLIBS PLIB=SYS2.SERENA.PDSEvrm.PANELS,
        MLIB=SYS2.SERENA.PDSEvrm.MSGS,
        CLIB=('SYS2.SERENA.PDSEvrm.CLIST','SYS2.CLISTS')
#VDEFINE (PDSCLIN,CL8'GREEN',
        PDSADDED,CL3'NO')
#PASSNAM (ZAP,2,LISTA,0,LISTC,0)
*
*NOTE:  SYSTEMSE IS THE FIRST TOKEN NAME; IT HAS NO RESTRICTIONS
SYSTEMSE #RESUSE ,
*
*NOTE:  SYSTEMSN MAY NOT USE FIXRESET OR COMPRSHR
SYSTEMSN #RESUSE (FIXRESET,COMPRSHR)
*
*NOTE:  APPLXP RESTRICTIONS:
APPLXP  #RESUSE (CONTROLR, FIXNAME, FIXANYD, FIXDCSB, FIXMAX,
        REPNOSTA, REPLCI, FIXRESET, COMPRSHR)
*
*NOTE:  RESTRICTIONS FOR EVERYONE ELSE:
OTHERS  #RESUSE (CONTROLR, FIXNAME, FIXANYD, FIXDCSB, FIXMAX,
        REPNOSTA, REPLCI, FIXRESET, COMPRSHR, FIXDCB, FIXALLOC,
        FIXEXPDT, REPLACEL, MAPMOD, ZAP, SAVELOAD, SVCMAP, FINDMOD, X
        ATTRMODL, ALIAS, RESTOREL, REPROL, LLA)
*NOTE:  #GENER IS SPECIFIED LAST TO GENERATE THE PDS#OPT4 CSECT
#GENER  ,
END
```

EXAMPLE SAMPSECR SEGMENT

```
SAMPSECR TITLE 'StarTool SECURITY INTERFACE -- SAMPLE SAF EXIT'
***
*** NOTE: PLEASE CHANGE THE VALUES OF THE FOLLOWING VARIABLES ACCORDING
*** TO THE INSTRUCTIONS BELOW TO MATCH YOUR OPERATING ENVIRONMENT.
*** &ACCTYP - CORRESPONDS TO YOUR SECURITY SYSTEM TYPE AND LEVEL
*** PDS#NAME - CONTAINS YOUR #RESUSE RESOURCE CLASS NAMES
*** &CLS - INDICATES YOUR RESOURCE CLASS DESCRIPTOR NAME
*** &OWNER - A SECURITY SYSTEM DEPENDENT NAME FOR CUSTOMIZATION
*** &USER1 - A SAMPLE USERID FOR YOUR INSTALLATION
*** &USER2 - A SAMPLE USERID FOR YOUR INSTALLATION
*** &LOGOPT - INDICATES YOUR CHOICE ON COMMAND LOGGING
***
          GBLA &ACFNCNT, &CTR
          GBLC &ACCTYP, &LOGOPT, &CLS, &ACFNELE, &ACFNAME(10)
          GBLD &OWNER, &USER1, &USER2
***
*** NOTE: THIS EXIT IS SET UP FOR USE IN A RACF 1.8 (OR LATER) SYSTEM.
*** IF YOUR INSTALLATION HAS A DIFFERENT SECURITY SYSTEM, COMMENT THE
*** &ACCTYP STATEMENT FOR RACF18 AND UNCOMMENT THE &ACCTYP STATEMENT
*** WHICH CORRESPONDS TO YOUR SYSTEM.
*ACCTYP SETC 'RACF'      *** FOR RACF BEFORE RELEASE 1.8
*ACCTYP SETC 'RACF 1.8' *** FOR RACF RELEASE 1.8 OR LATER
*ACCTYP SETC 'RACF FACIL' *** FOR RACF WITH THE FACILITY CLASS
&ACCTYP SETC 'TOP SECRET' *** FOR CA-TOP SECRET
*ACCTYP SETC 'ACF2'      *** FOR CA-ACF2
*ACCTYP SETC 'ACF2 6.0' *** FOR CA-ACF2 6.0 OR LATER
***
*** NOTE: CHANGE THE RESOURCE NAMES BELOW TO THE NAMES USED FOR THE
*** #RESUSE MACROS IN YOUR SAMPOPT4 SOURCE MEMBER FOR NAME VALIDATION.
*** THESE NAMES MUST BE IN THE SAME ORDER AS IN SAMPOPT4:
          PDS#NAME (SYSTEMSE, SYSTEMSN, APPLXP, OTHERS)
***
*** NOTE: SET THE CLASS NAME FOR THE RACROUTE MACRO. NORMALLY, A
*** CA-TOP SECRET SHOP SHOULD USE 'APDS'; OTHERS SHOULD USE '$PDS'.
&CLS SETC '$PDS'      *** CLASS NAME FOR RACF OR CA-ACF2
*CLS SETC 'APDS'      *** CLASS NAME FOR CA-TOP SECRET
***
*** NOTE: SET AN OWNER NAME FOR MESSAGE CUSTOMIZATION
&OWNER SETC 'LOCALID' *** FOR RACF, USED FOR RDEFINE OWNER()
*OWNER SETC 'RESOWNER' *** FOR TOP SECRET, USED FOR TSS ADDTO()
*OWNER SETC 'SYSIDX'   *** FOR ACF2, FOR INSERT/CHANGE SYSID()
***
*** NOTE: SET THE NAME OF TYPICAL USERID'S AT YOUR INSTALLATION
&USER1 SETC 'USER1'   *** CHANGE TO A TYPICAL USERID
&USER2 SETC 'USER2'   *** CHANGE TO A TYPICAL USERID
***
```

ADDING FUNCTIONS TO STAR TOOL FDM



This appendix describes how to use the ISPF facilities built into StarTool FDM to add functions in the utility or user command panels.

USER COMMANDS

The panel processing facilities of ISPF provide an interpretive language for selecting and formatting commands that add new functions to StarTool FDM. Add user commands for your installation by changing the proper panels. Your users add their own dynamic commands in these same panels by overtyping panel fields. If a dynamic command is of general interest, consider adding it as a user command in the panel.

The user panels are part of the option selection displays of StarTool FDM. This provides documentation of added functions. Through this facility, you can define a new StarTool FDM command that translates into a complex request made up of a standard StarTool FDM command with several operands. You can add additional commands to format a TSO command or pass StarTool FDM data to a given process such as a CLIST or user dialog program.

Activate user command processing when StarTool FDM determines that a command is not one of its standard commands. The command is passed to the appropriate user panel in the dialog variable ZCMD commonly used within ISPF as the command input variable. The panel is then invoked with the non-display feature allowing the INIT and PROC sections to process the command. These sections then format a request to be processed by StarTool FDM as a STARTOOL command or as an external process using the ISPF SELECT service. The request is returned to StarTool FDM by placing the request string in the variable PDSSEL.

To get to the user command panels type UT as a primary command or line command, or by using the O option. Select any of the user commands; the panel processing section builds an appropriate request string. The request string is constructed using literals and StarTool FDM, ISPF, and user supplied variables.

Appendix B: Adding Functions to StarTool FDM

Sample related pairs of commands and actions are imbedded in the TRANS parameter list of the supplied user command panels. Add your own pairs using EDIT. Experienced ISPF panel programmers can take advantage of the several processing statements for more complex request formatting. Some of the designated panels process commands entered on the command line; others process commands entered in the option field for line commands.

The following are panel names for primary options. Get to these panels by typing a UT primary command:

- PDSCXUX for CAX
- PDSAAUX for LISTA/DDNAME
- PDSLFUX for LISTC/LISTF
- PDSVVUX for LISTV
- PDSOPUX for Log and MEMLIST for source libraries
- PDSOSUX for Log for sequential or VSAM data sets
- PDSOUUX for Log, MEMLIST and CSECTS for load libraries
- PDSWOUX for WORKPAD

The following are panel names for line commands. Get to these panels by entering UT as a line command:

- PDSLXUX for CAX function
- PDSLSUX for CSECTS function
- PDSLAXUX for LISTA/DDNAME function
- PDSLXUX for LISTC/LISTF function
- PDSLVUX for LISTV function
- PDSLOUX for source member lists
- PDSLLUX for load member lists
- PDSWOUX for WORKPAD

These examples for the TRANS section of different panels:

1. ACTIVE,'MEMLIST: LAST(8) ID(&ZUSERID)'

ACTIVE is a primary command to request a MEMLIST of source members that were updated by the user recently. This example is used in panel PDSOPUX to create a new command entered on the command line. &ZUSERID in the ID filter option is used to request members created or updated by the current user.

2. NONE,'ATTRIBUTE &PDSMEM NOREF NORENT NOREUS'

NONE is a line command for a LOADLIB member list. This example is used in panel PDSLLUX to create a new line command to remove attributes from a load module. &PDSMEM indicates the current member.

3. ASM,'CMD(%ASMCL &PDSMEM &PDSDSN)'

ASM is a line command for a source member list. This example is used in panel PDSLOUX to create a new line command to assemble the member using a user CLIST. The member and fully qualified data set name without quotes are passed to the CLIST as separate parameters to simplify CLIST processing. The ISPF SELECT service is requested by providing the format 'CMD(...)'.

4. SUM,'PGM(LOADSUM) PARM(&PDSDSN) NEWAPPL(ANY) PASSLIB'

SUM is a primary command for a load library. This is used in panel PDSOUUX to create a new command to call a user program to summarize attributes of the library. The fully qualified data set name without quotes is passed to the program as a parm.

5. ALC,'PANEL(PDSALCMN)'

Formatting a TSO command requires additional input from the user to include TSO command operands. Do this by adding a user command that displays a new panel. After the data are supplied and the user presses the Enter key the processing section of the panel then formats the request. Likewise, the panel to be displayed can be a standard StarTool FDM entry panel to which the user wants a direct path.

ALC is a line command for either source or load members that can be added to panels PDSLOUX and PDSLLUX to create a line command for allocating the library and member to a given DDNAME. Panel PDSALCMN has entry lines for DDNAME and allocation type (SHR/OLD). The processing section looks like the following:

```
VER (&DDNAME, NB, NAME)
  VER (&STAT, LIST, OLD, SHR)
  IF (&PDSVOL EQ &Z) &CVOL=&Z
  IF (&PDSVOL NE &Z) &CVOL=' VOL(&PDSVOL) UNIT(SYSALLDA) '
  &AL='ALLOCATE '
  &PDSSEL='CMD (&AL DD (&DDNAME) DA (' '&PDSDSN (&PDSMEM) ' ') &CVOL &STAT) '
```

6. PT,'PANEL(PDSLOPR)'

PT is a line command for a source member list. This example is used in panel PDSLOUX to create a new line command to go directly to the PRINT option entry panel.

Appendix B: Adding Functions to StarTool FDM

7. MONTH,'MEMLIST : MONTH &OPERAND'

User commands can optionally use operands. MONTH is a line command for a source member list in panel PDSLOUX. If you type MONTH a MEMLIST is built for all members updated in the last 30 days. If you type MONTH ID(XYZ), a MEMLIST is built for all members updated in the last 30 days by userid XYZ*.

DIALOG VARIABLES

There is a standard set of dialog variables and variables for line commands, list below.

Standard Set

```
ZCMD      - panel command line
PDSSEL    - request to be returned to StarTool
PDSTNAME  - name of the current active table
PDSDSN    - name of the current data set
PDSVOL    - volume name if VOLUME key was used in allocation;
            otherwise, blank
PDSVOLAL  - volume name of allocated dataset
PDSVOLK   - volume keyword of the form VOL(&PDSVOL) or
            blank if PDSVOL is blank
PDSUNIT   - unit keyword of the form UNIT(SYSALLDA) or
            blank if PDSVOL is blank
PDSDSORG  - data set organization (PO or PS)
PDSTYPE   - type of file (U for load lib, blank otherwise)
OPERAND   - the operand entered on a user command
```

Variables for Line Commands

1. Variables for CAX line command (panel PDSLXUX):

```
PDSXDSN   - dataset name of catalog line entry
PDSXVOL    - volume name of catalog
PDSXTYPE  - catalog type (ICF VSAM RECV MSTR)
PDSXSTAT  - catalog status
PDSXADDR  - hexadecimal address
PDSXNUM   - sequential number
```

2. Variables for CSECTS line command (panel PDSLXUX):

```
PDSSTYPE  - SECTION TYPE (CSECT, ENTRY, COMMON, ...)
PDSSCSEC  - CSECT name
PDSSENTR  - ENTRY name
PDSSHADR  - hexadecimal address
PDSSHLEN  - hexadecimal length
```

PDSSSEG - Rmode/Amode
PDSSIN - Segment

3. Variables for LISTA line command (panel PDSLAX):

PDSADDN - DDNAME of LISTA line
PDSADSN - dataset name on LISTA line
PDSAALLC - allocation type (OLD SHR NEW MOD)
PDSADISP - disposition (PASS KEEP DLET CTLG UNCT)
PDSACDSP - conditional disposition (KEEP DLET CTLG UNCT)
PDSAOCNT - count of opens for the dataset; 0-9, or * if more

4. Variables for LISTC line command (panel PDSLXC):

PDSCCAT - cataloged indicator (-/Y/N)
PDSCVTOC - in the VTOC indicator (-/M/Y/N)
PDSCDSOR - DSORG
PDSCRF - RECFM
PDSCVOL - VOLUME
PDSCDSN - Data set name
PDSCLREC - LRECL
PDSKEYL - KEYLEN
PDSCCDAT - Created date
PDSCEDAT - Expiration date
PDSCTOT - Total tracks
PDSCDIR - Total directory blocks
PDS CATYP - Allocation type
PDSCBLKS - Blksize
PDSCRKP - Relative key position
PDSCRDAT - Referenced date
PDSCUPD - Updated flag
PDSCEXT - Extents
PDSCFREE - Free tracks
PDSCDIRU - Directory blocks used
PDSCSEC - Secondary units

5. Variables for LISTV line command (panel PDSLXV):

PDSVOL - volume name of LISTV line
PDSVADDR - unit address
PDSVTYPE - unit type (3380, 3390 etc.)
PDSVATTR - Mount attributes
PDSVCNT - Use count
PDSVTCYL - Total free cylinders
PDSVTRK - Total free tracks
PDSVXNUM - Total free number
PDSVDSCB - Total free DSCB's
PDSVLCYL - Largest free cylinders
PDSVLRK - Largest free tracks
PDSVINDC - status indicator
PDSVSTAT - mount status
PDSVVTOC - VTOC cchh address in displayable hex

Appendix B: Adding Functions to StarTool FDM

PDSVVSIZ - VTOC size in tracks
PDSVVIRS - Total free VIR's

6. Variables for MEMLIST line commands for source (panel PDSL0UX)

PDSMEM - member name of current entry
PDSDATA - any date entered in data field on MEMLIST line
MEMLVMOD - version and mod (or the word ALIAS)
MEMLCDAT - creation date
MEMLMDAT - last modification date
MEMLMTIM - last modification time
MEMLMID - last user id to modify the member
MEMLISIZ - initial size
MEMLCSIZ - current size
MEMLTTR - TTR in displayable hex
MEMLALIS - Alias of field

7. Variables for MEMLIST line commands for load (panel PDSLLUX)

PDSMEM - member name of current entry
PDSDATA - any date entered in data field on MEMLIST line
MEMLTTR - TTR in displayable hex
MEMLLENG - length in displayable hex
MEMLLKB - length in K (1024 byte) units
MEMLENTY - entry point in displayable hex
MEMLMNAM - main name
MEMLMTTR - match name
MEMLATT1 - module attribute
MEMLATT2 - module attribute
MEMLDC - module attribute (DC or blank)
MEMLTEST - module attribute (TEST or blank)
MEMLAPF - module attribute (AC=1, NOVS or blank)
MEMLMODE - module attribute (A31, RANY, or blank)
MEMLSSI - SSI data in displayable hex or blank
MEMLALIS - Alias of field
MEMLLDAT - LEN/LKED field

8. Variables for WORKPAD line command (panel PDSLTX)

PDSTTYPE - command type (-, blank, P, D or T)
PDSTCMD - command data
PDSTMEMB - member group
PDSTVOL - volume serial

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