VERSION 7.4

IMS Option
Getting Started Guide

December 2002

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About This Book

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

The IMS Option edits IMS databases in a DLI batch environment or in an online BMP environment.

Before You Begin

See the README for the latest updates and corrections for this manual.

A printed copy of the README is included in the StarTool FDM distribution box. The latest version of the README is available on the Serena eSupport self-service Web site at *http://support.serena.com*. After you logon, click FTP Downloads from the main portal, navigate to the Documentation folder, and then to the StarTool FDM folder.

Use this book to learn the functionality available in the IMS Option of StarTool FDM.

Manual Organization

This Chapter...	Explains...
"Introduction"	Introduces the StarTool FDM IMS Option and its features and benefits.
"Accessing the IMS Option"	Explains how to start and use the StarTool FDM IMS Option.
"Viewing Data"	Describes viewing data using the StarTool FDM IMS Option.
"Editing Data"	Describes retrieving data so you can edit.

This Chapter...	Explains...
“Extracting Data”	Explains how to extract segments from an IMS database, edit the segments file, and load it to another IMS database.
“Converting DBD Source to PSB Source”	Provides step-by-step instructions for converting a DBD (database description) source to PSB (program specification block) source.
“PEDIT”	Provides instructions for using the PEDIT option, the SUPEREDIT option for editing.
“Collecting Diagnostic Data”	A troubleshooting section about what to do when problems occur.

Documentation Conventions

Conventions used throughout this document are:

Category	Convention	Examples
Command Names	ALL CAPITAL LETTERS	CYCLE
variables	*italics*	*xxx* OPERAND invalid *somnode*.FBI.FBI.SFBIJCL
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.	*somnode*.FBI	*somnode*.FBI.SFBIJCL

Related Publications

Title	Description
Serena™ StarTool® FDM Installation Guide	Describes installation procedures for StarTool FDM.
Serena™ StarTool® FDM User Guide	For application programmers and operations analysts who develop and maintain MVS production systems, and describes concepts and facilities of StarTool FDM.
Serena™ StarTool® FDM Reference Guide	Contains extensive information about StarTool FDM functions and commands in alphabetic order.
Serena™ StarTool® FDM Messages	Describes information, error, warning, and action messages for StarTool FDM, the StarWarp Option, and the StarBat Option.

Title	Description
Serena™ StarTool® FDM DB2 Option Getting Started Guide	Explains features of DB2 including extract and load, SQL, granting and revoking privileges, and creating, changing and dropping tables, and viewing system tables.
Serena™ StarTool® FDM System Services	Contains information about using StarTool FDM in a systems programming environment.
Serena™ StarTool® FDM StarBat Option Getting Started Guide	Describes the batch program option used for repetitive bulk data processing tasks.
Serena™ StarTool® FDM Extended Compare Option	Explains the functionality of Serena™ Comparex® for simple compares while using StarTool FDM.
SER10TY Installation Guide	Describes how to install and implement SER10TY licensing software, for applying key SERtificates.

The Serena EPIC CD-ROM contains the StarTool FDM Getting Started Guide in Adobe® Acrobat® format. The files are password-protected (case sensitive). The CD-ROM also contains the Adobe Acrobat Reader for viewing, searching and printing the manual.

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.

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INTRODUCTION 1

The IMS Option of Serena™ StarTool® FDM edits IMS databases in a DLI batch environment, or in an online BMP environment. It supports the following features:

- All non-fast path database organizations (fast path is MSDB, DEDB) except GSAM, which is a sequential data set that can be edited by StarTool.
- Fast Path DEDB.
- Logical children (both uni-directional and bi-directional).
- Secondary indexes.
- Logical databases.

For editing, the IMS Option supports unique keyed segments and non-keyed segments; it does not support non-unique keys. You can only browse segments without unique keys.

Like an IMS application program, the StarTool FDM IMS Option uses the PSB/PCB (program specification block/program communication block) as its interface with IMS. You specify the IMS database to edit by selecting a PSB/PCB. Security is based on your authority to access the data as controlled by IMS through the PSB/PCB. Use an exit, available when you invoke the IMS option, to address additional security requirements.

NEW FEATURES

The IMS Option of StarTool FDM Version 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 *"Entering Complex Key Data using Simple Search Fields" on page 36*,

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 *"Using the Start Parameters Exit" on page 17*.

ACCESSING THE IMS OPTION

2

This chapter describes the steps for starting the StarTool FDM IMS Option with the modified LIBDEF member.

1. Type IM on the Option line on the StarTool Version 7.4.0 Primary Options panel.

```
-------------------- StarTool Version 7.4.0 Primary Options -------------------
OPTION  ===> IM_

Current data set ==> 'IMS.PSBLIB'
                                                                  More:     +
Basic Applications:
  0  Parameters  - Specify StarTool parameters            USERID   - USER88
  1  Browse      - Display source data or output listings PREFIX   - USER88
  2  Edit        - Create or change source data           TIME     - 14:50
  3  Utilities   - Perform utility functions              DATE     - 2000/12/13
  4  Pedit       - SuperEdit Option to edit in parallel   JUL DATE - 2000.348
  5  Batchjcl    - Create a background StarTool job       TERMINAL - 3278
  A  Advanced    - Menu of advanced applications          LOG PROC - SERENA
  S  Status      - Function status and selection menu     MVSID    - BHDS3A
 DB  DB2         - Menu of DB2 services                   APPLID   - ISR
 IM  IMS         - Menu of IMS services                   TRIAL    - 2 days
 DE  Demo        - Demonstrate StarTool facilities
 I#  ISPF        - Stack an ISPF session (like I3.4)
 IN  Index       - Display StarTool tutorial index
  N  New         - Summarize changes for this release
  X  Exit        - Terminate StarTool
```

The menu of IMS Services screen displays.

```
------------------------ StarTool Menu of IMS Services ------------------------
OPTION  ===>


  1  -  IMSALLOC - Prompt for IMS libraries and PSB Member List for DL1
  2  -  IMSBMP   - Prompt for IMS libraries and PSB Member List for BMP
  3  -  MEMLIST  - Display PSB MEMLIST if active               Inactive
  4  -  IMSPCB   - Display current PCB LIST if active          Inactive
  5  -  EDIT/VIEW    - Return to EDIT/VIEW if it is active     Inactive
  6  -  GO       - GO to the session with IMS if it is active  Inactive
  7  -  LOAD     - Build LOAD IMS job
  8  -  CONVERT  - Build job to Convert DBD source to PSB source


 Note:  The PCB LIST can only be selected from the PSB Member list
        If the MEMLIST is Current Then option 3 will prompt for more
        members.

        IMS is not active
        Options 3 to 6 are not available
```

2. Select from the available options (Inactive selections are unavailable):

Option	Description
IMSALLOC	Select the IMS libraries and PSB Member lists for DL1. See *“Allocating IMS Data Sets” on page 19*.
IMSBMP	Select the IMS libraries and PSB Member lists for BMP. See *“Using the BMP Option” on page 23*.
MEMLIST	Returns to the last MEMLIST output. Only active if labeled Current.
IMSPCB	Displays the current PCB LIST. Only active if says Active**.**
EDIT/VIEW	Returns to the EDIT/VIEW panel if it is active. Only active if says Active**.**

Option	Description
GO	If multiple GO sessions are active with IMS in one of them, go to this active session. Only active if says Active.
LOAD	Build the LOAD IMS job. See *“Loading Extracted Data” on page 87*.
CONVERT	Convert DBD source to PSB source. See *“Converting DBD Source to PSB Source” on page 93*.

Using the Start Parameters Exit

3

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 you can 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 the first three parameters.

Exit Parameters

On entry to the PDSIMSPX, register 1 points to a parameter list that consists of nine fullword parameters (the first eight of which are pointers; the last parameter is the length). The high order bit is turned on in the last address. The parameter list points to the following:

+0 @USERID	7-character userid of the caller
+4 @PSBNAME	8-character PSB= value (BATCH PSB NAME)
+8 @REGTYPE	3-character IMS region type (DLI or BMP)
+C @SSID	4-character SSID of IMS
+10 @AGNNAME	8-character AGN= value (RACF APPL GROUP NAME) previously entered by the user
+14 @NBAPARM	4-character NBA= value (FAST PATH BUFFERS)
+18 @OBAPARM	4-character OBA= value (FAST PATH OVERFLOW BUFFERS)
+1C @PARMBUF	200-byte area for the exit to return its parameter string

+20 FWLL	Fullword length set by the exit to indicate the length of the returned parameter string

The exit returns the following output:

- Return code 0 or 4 in register 15
- For return code 4, a string of IMS parameters 4 through *n* in the buffer pointed to by @PARMBUF and the length of the string in the word pointed to by FWLL

If the exit returns zero (0), FDM proceeds with its normal process, including any parameters specified on the screens used to build the parameters like the AGN parameter or the NBA parameter.

If the exit returns a return code of four (4), the exit provides an IMS start parameter string after the third positional IMS parameter. FDM appends this string to the type, ssid and PSB parameters to override the IMS defaults. The exit ensures that the parameter list is complete and accurate since FDM does no validation or checking. Account for omitted parameters with commas.

Start Parameters Execution Environment

The registers on entry to PDSIMSPX are:

R0:	Undefined
R1:	9-word parameter list described above
R2-R12:	Undefined
R13:	Standard 72-byte save area
R14:	Return address
R15:	Entry address

The registers on exit from PDSIMSPX must be:

R0:	Undefined
R1-R14:	Unchanged
R15:	Return code - 0 = Use FDM default IMS parameters 4 = Use the returned IMS parameter string

PDSIMSPX is called and must return in the following execution environment:

PSW Key:	8
State:	Problem
Locks:	None
Authorization:	Not APF
Cross Memory Mode:	PASN=HASN=SASN
AMODE:	31
ASC Mode:	Primary
Dispatchable Unit Mode:	Task

VIEWING DATA

4

This chapter describes how to view data using the StarTool FDM IMS Option.

ALLOCATING IMS DATA SETS

Allocate your IMS data set by:

- *"Using DLI Option"* or
- *"Using the BMP Option"*.

Using DLI Option

1. From the StarTool Menu of IMS Services panel, select Option 1, IMSALLOC, to display the IMS Dataset Allocation prompt panel:

```
PDSIMSPD ----------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

Desired Access      ===> READ     (READ or UPDATE)
Allocation CLIST    ===>          (Name of CLIST to allocate IMS data sets)
Log alloc CLIST     ===>          (Name of CLIST to allocate IMS Log data set)
Retain Data Bases   ===> NO       (Yes/No, Yes will cause preallocated data
                                   bases not to be freed at the end of each
                                   EDIT or VIEW session.  For dynamically
                                   allocated data bases use NO.

If not using an allocation CLIST, enter the required data set names:
   PSB library      ===>                                          IMS DD
   DBD library      ===>                                          IMS DD
   RES library      ===>                                          DFSRESLB
   STEPLIB lib      ===>                                          IMSTASK
   Parameter lib    ===>                                          DFSVSAMP
   DFSVSAMP Member  ===>          (Member in parameter library for vsam parms)

Note:  The Steplib is optional and usually contains "dyna-block" members but
                         may have other "override" load module members.
```

2. Desired Access determines the type of access allowed. Type READ or UPDATE in the Desired Access field.
   - To view data, type READ.
   - To edit data, type UPDATE. See *Chapter 5, "Editing Data," on page 61* for more information.
3. Allocate the IMS data sets in one of the following ways:
   - By using an allocation CLIST. See *"Using an Allocation CLIST" on page 21*.
   - By using a user exit.
   - Manually, by typing in the data set names. See *"Using Manual Allocation" on page 22*.
4. Type a Log alloc CLIST.

   This is the IMSLOGAL CLIST discussed in the Serena™ StarTool® FDM *Installation Guide* in *Chapter 5, Setting Up the Environmen*t, under IMS OPTION. If you omit this CLIST, the system prompts you for the parameter for the IMS log data set when allocating the IMS log.
5. Specify the Retain Data Bases option.

   The Retain Data Bases option indicates whether or not the allocated databases should be freed after the Edit/View session (NO) or remain allocated (YES). The default is NO. This assumes that you define the data sets in DYNABLOCKs. If you pre-allocate the data sets, then you can change this to YES. Setting this field to YES requires that you manually free these database files.
6. Press Enter to display the StarTool IMS member prompt screen allowing you to enter a mask for PSBs.
7. Go to *"Selecting PSBs and PCBs" on page 25*.

Using an Allocation CLIST

The following is an example of the IMS Dataset Allocation prompt panel:

```
-------------------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

Desired Access     ===> UPDATE   (READ or UPDATE)
Allocation CLIST   ===> IMSALLOC (Name of CLIST to allocate IMS data sets)
Log alloc CLIST    ===> IMSLOGAL (Name of CLIST to allocate IMS Log data set)
Retain Data Bases  ===> NO       (Yes/No, Yes will cause preallocated data
                                  bases not to be freed at the end of each
                                  EDIT or VIEW session.  For dynamically
                                  allocated data bases use NO.

If not using an allocation CLIST, enter the required data set names:
   PSB library     ===>                                          IMS DD
   DBD library     ===>                                          IMS DD
   RES library     ===>                                          DFSRESLB
   STEPLIB lib     ===>                                          IMSTASK
   Paramater lib   ===>                                          DFSVSAMP
   DFSVSAMP Member ===>           (Member in parameter library for vsam parms)

Note:  The Steplib is optional and usually contains "dyna-block" members but
                        may have other "override" load module members.
```

Using Manual Allocation

Manually allocate the IMS data sets by leaving the CLIST name blank in the Allocation CLIST field, and filling in the fields under Manual allocation of IMS data sets as shown in the following example:

```
-------------------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

Desired Access     ===> UPDATE   (READ or UPDATE)
Allocation CLIST   ===>          (Name of CLIST to allocate IMS data sets)
Log alloc CLIST    ===>          (Name of CLIST to allocate IMS Log data set)
Retain Data Bases  ===> NO       (Yes/No, Yes will cause preallocated data
                                  bases not to be freed at the end of each
                                  EDIT or VIEW session.  For dynamically
                                  allocated data bases use NO.

If not using an allocation CLIST, enter the required data set names:
   PSB library     ===>  'IMS.PSBLIB'                                IMS DD
   DBD library     ===>  'IMS.DBDLIB'                                IMS DD
   RES library     ===>  'IMS.RESLIB'                                DFSRESLB
   STEPLIB lib     ===>  'IMS.STEPLIB'                               IMSTASK
   Paramater lib   ===>  'IMS.PARMLIB'
   DFSVSAMP Member ===>   DFSVSMDB (Member in parameter library for vsam parms)

Note:  The Steplib is optional and usually contains "dyna-block" members but
                         may have other "override" load module members.
```

Using the BMP Option

Follow these steps to use the BMP (Batch Message Processing) Option.

1. From the StarTool Menu of IMS Services panel, select Option 2, IMSBMP. The IMS Dataset Allocation prompt screen displays:

```
-------------------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

IMS subsystem name ===>          (3-4 character IMS control region name)
Desired Access     ===> UPDATE   (READ or UPDATE)
Allocation CLIST   ===>          (Name of CLIST to allocate IMS data sets)

If not using an allocation CLIST, enter the required data set names:
   PSB library     ===>                                          IMS DD
   DBD library     ===>                                          IMS DD
   RES library     ===>                                          DFSRESLB
```

2. Specify the IMS subsystem name.

   The IMS subsystem name is the 1- to 4-character IMS control region name with which you want to establish a connection.

3. Select an option in the Desired Access field.
   - To view data, type READ in the Desire Access field.
   - To edit data, type UPDATE in the Desired Access field. See *Chapter 5, "Editing Data," on page 61* for more information.
4. Allocate the IMS data sets in one of the following ways:
   - By using an allocation CLIST. See *"Using the Allocation CLIST" on page 24*.
   - By using a user exit.
   - Manually, by typing in the data set names. See *"Using Manual Allocation" on page 22*.
5. Press Enter to display the StarTool IMS member prompt screen to enter a mask for PSBs.
6. Go to *"Selecting PSBs and PCBs" on page 25*.

Using the Allocation CLIST

The IMS Dataset Allocation prompt panel looks like this:

```
-------------------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

IMS subsystem name ===> IVP1     (3-4 character IMS control region name)
Desired Access     ===> UPDATE   (READ or UPDATE)
Allocation CLIST   ===> IMSBMPAL (Name of CLIST to allocate IMS data sets)


If not using an allocation CLIST, enter the required data set names:
   PSB library     ===>                                          IMS DD
   DBD library     ===>                                          IMS DD
   RES library     ===>                                          DFSRESLB
```

Using Manual Allocation

Manually allocate the IMS data sets by leaving the CLIST name blank in the Allocation CLIST field, and filling in the fields under Manual allocation of IMS data sets as shown in the following example:

```
-------------------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

IMS subsystem name ===> IVP1     (3-4 character IMS control region name)
Desired Access     ===> UPDATE   (READ or UPDATE)
Allocation CLIST   ===> IMSBMPAL (Name of CLIST to allocate IMS data sets)


If not using an allocation CLIST, enter the required data set names:
   PSB library     ===>  'IMS.PSBLIB'                              IMS DD
   DBD library     ===>  'IMS.DBDLIB'                              IMS DD
   RES library     ===>  'IMS.RESLIB'                              DFSRESLB
```

SELECTING PSBS AND PCBS

1. After completing the StarTool IMS Dataset Allocation prompt panel, press Enter to display the IMS PSB member prompt screen.

   This screen allows you to enter a mask for PSBs. The format for this mask is the same as for MEMLST.

   In this example, the request is for all PSBs that start with AGE:

```
------------------------ StarTool IMS PSB member prompt -----------------------
OPTION ===>

 Enter member name or group for PSB list
   MEMBERS ===> AGE*             (set to * or a member group for MEMLIST

Alternate selections for creating a MEMLIST:
Member selection  ===>    (choose any of the following member filters)
           1 - All members updated today
           2 - All members updated since yesterday
           3 - All members updated in the last week
           4 - All members updated in the last month
           5 - All members updated in the last year

 If a member group is specified, a general purpose MEMLIST will be built.
 The member list S line command will be set to  PSB
```

   See *"Allocating IMS Data Sets" on page 19* for the steps to complete the StarTool IMS Dataset Allocation prompt panel.

2. Press Enter to display a list of PSBs members that meet the selection requirements.

```
 ----------------- PSB MEMLIST (Attributes), Session#  1  --- Row 1 to 16 of 16
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an ISPF command, a StarTool subcommand or a special control code:
 - DSN=IMS.PSBLIB,VOL=SER=OS3P9B  MEM=AGE*  ------------------------------------
 CMD  NAME     DATA/MSG ALIASOF  LEN/LKED   --  ATTRIBUTES   - APF MODE  MAIN
      AGEMASF                   2000/10/26
      AGEMHEF                   2000/10/26
      AGEMMJS                   2000/10/17
      AGEMMPO                   2000/10/05
      AGEMPID                   2001/04/27
      AGEMSDB                   2002/04/15
      AGEMSDBG                  2001/04/05
      AGEMSDBO                  2001/04/05
      AGEMSDBP                  2001/04/05
      AGEMSDBT                  2001/01/18
      AGEMSDS                   2000/10/05
      AGEMTEST                  2002/06/13
      AGEMTNM                   2002/07/03
      AGEMTNM1                  2002/03/13
-------------------             2001/09/24
| TOTAL=       16 |             2002/02/06
| ADDS =       16 | ************ Bottom of data ******************************
-------------------
```

3. Type S in the CMD column next to one of the PSB names to display a panel with a list of the PCBs.

```
----------------- PSB MEMLIST (Attributes), Session#  1  --- Row 1 to 16 of 16
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an ISPF command, a StarTool subcommand or a special control code:
 - DSN=IMS.PSBLIB,VOL=SER=OS3P9B  MEM=AGE*  ------------------------------------
 CMD  NAME     DATA/MSG ALIASOF  LEN/LKED   --  ATTRIBUTES   - APF MODE  MAIN
      AGEMASF                   2000/10/26
      AGEMHEF                   2000/10/26
      AGEMMJS                   2000/10/17
      AGEMMPO                   2000/10/05
      AGEMPID                   2001/04/27
 S    AGEMSDB                   2002/04/15
      AGEMSDBG                  2001/04/05
      AGEMSDBO                  2001/04/05
      AGEMSDBP                  2001/04/05
      AGEMSDBT                  2001/01/18
      AGEMSDS                   2000/10/05
      AGEMTEST                  2002/06/13
      AGEMTNM                   2002/07/03
      AGEMTNM1                  2002/03/13
-------------------             2001/09/24
| TOTAL=       16 |             2002/02/06
| ADDS =       16 | ************ Bottom of data ******************************
-------------------
```

4. After selecting the PSB name, press Enter to display the IMS PCB List panel. In this example, there are 3 PCBs.

```
------------------------- IMS PCB List for AGEMSDB   - ------- Row 1 to 3 of 3
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB     GEMSDB   AP   100       --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
 ****************************** Bottom of data ******************************
```

5. Go to *"Working with PCBs" on page 28*.

WORKING WITH PCBS

The IMS PCB List panel displays information about PCBs and related segments and fields.

For access to the IMS PCB List panel, see *"Selecting PSBs and PCBs" on page 25*.

```
------------------------- IMS PCB List for AGEMSDB   - ------- Row 1 to 3 of 3
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB     GEMSDB   AP   100       --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
 ****************************** Bottom of data ******************************
```

On this panel, type:

- M in the OPT column for a list of available line commands.
- S to select a PCB or segment.
- DES to deselect a PCB or segment.
- + in the OPT column to expand related segments or fields.
- **-** in the OPT column to collapse related segments or fields.
- ++ or **--** to expand or collapse blocks of segments.

The column headings have different meanings depending on the display. The following column descriptions are for a PCB.

Column	Description
NAME	If the PCB has a name, it displays under the heading NAME; otherwise, the name is generated as PCB#*nnn*, where *nnn* is the next sequential number.
TYP	Type of PCB: • DB = database. • TP = teleprocessing PCBs. StarTool for IMS works only with DB PCBs.
Location	DBD name associated with this PCB.

Column	Description
ATTR	Processing options for this PCB.
Kyl	Maximum concatenated key length for this PCB as defined in the PCB.
Search Argument	For PCBs with a secondary index, the name of the index DBD displays; otherwise, the column is blank.

Once the PCBs display, select a PCB for processing by typing an S in the OPT column.

```
------------------------- IMS PCB List for AGEMSDB   - ------- Row 1 to 3 of 3
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
 S    PCB#001             DB     GEMSDB   AP   100       --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
 ****************************** Bottom of data ******************************
```

If more than one PCB displays, view more information about a PCB without selecting it by typing a + in the OPT column. This displays all segments in this PCB.

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 15 of 15
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
 +    PCB#001            DB     GEMSDB   AP   100       --
       GEM               SEG    LEV#  1  AP             --
       COLOUR            SEG    LEV#  2  AP             --
       STONE             SEG    LEV#  3  AP             --
       JEWELRY           SEG    LEV#  3  AP             --
       ITEM              SEG    LEV#  4  AP             --
       PARTS             SEG    LEV#  5  AP             --
       GENINFO           SEG    LEV#  2  AP             --
       SOURCES           SEG    LEV#  3  AP             --
       COLRINFO          SEG    LEV#  3  AP             --
       ALIASES           SEG    LEV#  3  AP             --
       TRADITON          SEG    LEV#  2  AP             --
       STORIES           SEG    LEV#  2  AP             --
      PCB#002            DB     IVPDB1   A     10       --
      PCB#003            DB     HIDAMI01 G     20       --
****************************** Bottom of data ******************************
```

Note The + is in the preceding screenshot to show the PCB selected. It disappears after pressing Enter.

The TYP column for the new data indicates that these are segments. Location shows the level number of the segments.

The key length (Kyl) and the segment length (Leng) are not filled in for each segment. This information, along with other information, does not display until you select the PCB.

If you typed an S instead of the + in the OPT column, or if you type S in the OPT column next to the PCB name, the display looks like:

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 15 of 15
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
  S    PCB#001             DB  S  GEMSDB   AP   100       --
       GEM               SEG    LEV#  1  AP    20   120 --
       COLOUR            SEG    LEV#  2  AP    10    40 --
       STONE             SEG    LEV#  3  AP     3    80 --
       JEWELRY           SEG    LEV#  3  AP    10    20 --
       ITEM              SEG    LEV#  4  AP    10    70 --
       PARTS             SEG    LEV#  5  AP    10    35 --
       GENINFO           SEG    LEV#  2  AP     2    64 --
       SOURCES           SEG    LEV#  3  AP    20    20 --
       COLRINFO          SEG    LEV#  3  AP     2    50 --
       ALIASES           SEG    LEV#  3  AP    20    20 --
       TRADITON          SEG    LEV#  2  AP    20    60 --
       STORIES           SEG    LEV#  2  AP     2    60 --
      PCB#002            DB     IVPDB1   A     10       --
      PCB#003            DB     HIDAMI01 G     20       --
 ****************************** Bottom of data ********************************
```

Note The S is in the preceding screenshot to show which PCB was selected. It disappears after pressing Enter.

Displaying Fields

On the IMS PCB List panel, type a + in the OPT column next to a segment to display the fields under the segment.

If there are no fields for the segment, or if you did not select the PCB by typing an S, *NOFLDS displays in the Data/MSG column.

Once you select a PCB, type a + next to the level 1 segment (GEM in this panel) to expand the display to show the fields under this segment**:**

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 20 of 26
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB  S  GEMSDB   AP   100       --
 +     GEM                SEG    LEV#  1  AP    20   120 --
        NAME              FLD           1 CHAR K,U    20 --
        GEM01             FLD           1 CHAR         1 --
        GEM02             FLD           1 CHAR         2 --
        GEM03             FLD           1 CHAR         3 --
        GEM04             FLD           1 CHAR         4 --
        GEM05             FLD           1 CHAR         5 --
        GEM06             FLD           1 CHAR         6 --
        GEM07             FLD           1 CHAR         7 --
        GEM08             FLD           1 CHAR         8 --
        GEM09             FLD           1 CHAR         9 --
        HARDNESS          FLD          21 CHAR         2 --
       COLOUR             SEG    LEV#  2  AP    10    40 --
       STONE              SEG    LEV#  3  AP     3    80 --
       JEWELRY            SEG    LEV#  3  AP    10    20 --
       ITEM               SEG    LEV#  4  AP    10    70 --
```

Note The + is in the preceding screenshot to show which PCB you selected. It disappears after pressing Enter.

NAME (under GEM) is a key field and GEM01 - GEM09 are character subfields of NAME. (Subfields do not have to overlap and they can be any combination of different types of data; character data is used in this example.) The Location column shows the beginning of the field. The ATTR column shows the data type. The Kyl column contains a K for key field, and a U for unique. Leng is the length of the field.

Collapse this display by typing a **-** next to the segment name. Expand or collapse blocks of segments by using ++ or - - to specify the range of segments to expand or collapse.

Scroll this display left (or right) by pressing PF11 (or PF10):

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 20 of 26
 COMMAND ===>                                                SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG T S  Leng  OP -Search Argument-
      PCB#001             D S        --
       GEM                S      120 --
        NAME              F       20 --
        GEM01             F        1 --
        GEM02             F        2 --
        GEM03             F        3 --
        GEM04             F        4 --
        GEM05             F        5 --
        GEM06             F        6 --
        GEM07             F        7 --
        GEM08             F        8 --
        GEM09             F        9 --
        HARDNESS          F        2 --
       COLOUR             S       40 --
```

Scroll left for the following display:

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 20 of 26
 COMMAND ===>                                                SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   Hierarchy and Name                      Data/MSG TYPE SEL Location ATTR
      PCB#001                                           DB   S   GEMSDB   AP
         GEM     ............................           SEG      LEV#  1  AP
        .NAME    ............................           FLD             1 CHAR
        .GEM01   ............................           FLD             1 CHAR
        .GEM02   ............................           FLD             1 CHAR
        .GEM03   ............................           FLD             1 CHAR
        .GEM04   ............................           FLD             1 CHAR
        .GEM05   ............................           FLD             1 CHAR
        .GEM06   ............................           FLD             1 CHAR
        .GEM07   ............................           FLD             1 CHAR
        .GEM08   ............................           FLD             1 CHAR
        .GEM09   ............................           FLD             1 CHAR
        .HARDNESS............................           FLD            21 CHAR
          COLOUR ............................           SEG      LEV#  2  AP
```

The last display indents the levels to show the relationship between the segments and fields.

BROWSING AND EDITING USING PCBS

After selecting a PCB, specify the required segments to browse or edit by typing an S in the OPT column next to these segments.

In the following example (using a different PSB/PCB), segments JEWELRY and PARTS were selected with an S. The following screen displays when you press Enter:

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 15 of 15
COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB  S  GEMSDB   AP   100       --
       GEM                SEG    LEV#  1  AP    20   120 ++ ALLOWED
       COLOUR             SEG    LEV#  2  AP    10    40 ++ ALLOWED
       STONE              SEG    LEV#  3  AP     3    80 --
       JEWELRY   *SELECT* SEG S  LEV#  3  AP    10    20 ++ ALLOWED
       ITEM               SEG    LEV#  4  AP    10    70 --
       PARTS     *SELECT* SEG S  LEV#  5  AP    10    35 --
       GENINFO            SEG    LEV#  2  AP     2    64 --
       SOURCES            SEG    LEV#  3  AP    20    20 --
       COLRINFO           SEG    LEV#  3  AP     2    50 --
       ALIASES            SEG    LEV#  3  AP    20    20 --
       TRADITON           SEG    LEV#  2  AP    20    60 --
       STORIES            SEG    LEV#  2  AP     2    60 --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
****************************** Bottom of data ******************************
```

The S in the SL column shows the selected PCB and columns.

StarTool FDM determined from the selected segments that you can enter Segment Search Arguments (SSAs) on the GEM, COLOUR, and JEWELRY segments by typing ALLOWED in the -Search Argument- column. See *"Using Segment Search Arguments" on page 35* for information.

Using Segment Search Arguments

To enter segment search arguments, select the PCB in the NAME column with an S. Expand the segment by using the +.

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 20 of 26
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB  S  GEMSDB   AP   100       --
  +    GEM                SEG    LEV#  1  AP    20   120 ++ ALLOWED
        NAME              FLD           1 CHAR K,U    20
        GEM01             FLD           1 CHAR         1
        GEM02             FLD           1 CHAR         2
        GEM03             FLD           1 CHAR         3
        GEM04             FLD           1 CHAR         4
        GEM05             FLD           1 CHAR         5
        GEM06             FLD           1 CHAR         6
        GEM07             FLD           1 CHAR         7
        GEM08             FLD           1 CHAR         8
        GEM09             FLD           1 CHAR         9
        HARDNESS          FLD          21 CHAR         2
       COLOUR             SEG    LEV#  2  AP    10    40 ++ ALLOWED
       STONE              SEG    LEV#  3  AP     3    80 --
       JEWELRY   *SELECT* SEG S  LEV#  3  AP    10    20 ++ ALLOWED
       ITEM               SEG    LEV#  4  AP    10    70 --
```

The OP column displays the operator for the SSA, expressed as an abbreviation, or as symbols:

Operator	Abbreviation	Symbol	Symbol
Equal	EQ	=	
Not Equal	NE	¬=	
Greater Than or Equal	GE	>=	=>
Less Than or Equal	LE	<=	=<
Less Than	LT	<	
Greater Than	GT	>	

1. Type the value of the field in the -Search Argument- column of the field itself or, for key fields, in any of its subfields.

   For example, to find all gems where the NAME equals garnet:

   - Type EQ garnet as follow:

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 20 of 26
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB  S  GEMSDB   AP   100       --
       GEM                SEG    LEV#  1  AP    20   120 ++ ALLOWED
        NAME              FLD           1 CHAR K,U    20 EQ  garnet
        GEM01             FLD           1 CHAR         1
        GEM02             FLD           1 CHAR         2
        GEM03             FLD           1 CHAR         3
        GEM04             FLD           1 CHAR         4
        GEM05             FLD           1 CHAR         5
        GEM06             FLD           1 CHAR         6
        GEM07             FLD           1 CHAR         7
        GEM08             FLD           1 CHAR         8
        GEM09             FLD           1 CHAR         9
        HARDNESS          FLD          21 CHAR         2
       COLOUR             SEG    LEV#  2  AP    10    40 ++ ALLOWED
       STONE              SEG    LEV#  3  AP     3    80 --
       JEWELRY   *SELECT* SEG S  LEV#  3  AP    10    20 ++ ALLOWED
       ITEM               SEG    LEV#  4  AP    10    70 --
```

2. Type V on the command line to view the results.
3. To edit the results or extract the results, type ED or EX on the command line. See *Chapter 5, "Editing Data," on page 61* and *Chapter 6, "Extracting Data," on page 79* for more information.

   The IMS segment selection criteria panel displays.
4. Go to *"Specifying Segment Selection Criteria" on page 39*.

Entering Complex Key Data using Simple Search Fields

StarTool FDM allows you to enter complex key field data by using simple search fields that are subfields of the key field. Using the example above, the NAME field is a key field and GEM01 - GEM09 are search fields that are subfields of NAME. In a more complex database, the subfields might be of different data types and not be overlapping. In such a case, you could enter the operator (LT, LE, EQ, GT or GE) in the OP column of the high level key field and the individual Search Argument values in

the individual subfields of the high level field. StarTool FDM recognizes that the search arguments belong to the higher level key field and combines them into a single hexadecimal search argument for the higher level field. Just as for any other search criteria, you can edit the condition and the hexadecimal search argument before StarTool FDM sends it to IMS.

StarTool FDM provides default values for omitted subfields as follows:

- When the key field condition is GT or GE, StarTool FDM provides a default value of hexadecimal zeroes.
- When the key field condition is EQ, StarTool FDM provides a default value of hexadecimal zeroes.
- When the key field condition is LE or LT, StarTool FDM provides a default value of hexadecimal Fs (all ones) for the subfield.

Selecting All Segments

On the IMS PCB List screen, if you select the PCB without selecting any segments, all segments are selected, but no SSAs are allowed.

To select all segments and specify an SSA for the root section, use SS in a range to include all segments.

For example:

```
 ------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 15 of 15
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB  S  GEMSDB   AP   100       --
 ss    GEM       *SELECT* SEG S  LEV#  1  AP    20   120 ++ ALLOWED
       COLOUR    *SELECT* SEG S  LEV#  2  AP    10    40 --
       STONE     *SELECT* SEG S  LEV#  3  AP     3    80 --
       JEWELRY   *SELECT* SEG S  LEV#  3  AP    10    20 --
       ITEM      *SELECT* SEG S  LEV#  4  AP    10    70 --
       PARTS     *SELECT* SEG S  LEV#  5  AP    10    35 --
       GENINFO   *SELECT* SEG S  LEV#  2  AP     2    64 --
       SOURCES   *SELECT* SEG S  LEV#  3  AP    20    20 --
       COLRINFO  *SELECT* SEG S  LEV#  3  AP     2    50 --
       ALIASES   *SELECT* SEG S  LEV#  3  AP    20    20 --
       TRADITON  *SELECT* SEG S  LEV#  2  AP    20    60 --
 ss    STORIES   *SELECT* SEG S  LEV#  2  AP     2    60 --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
 ****************************** Bottom of data ******************************
```

Note This screen is the combined output of two screens: first the SSes were added, then Enter was pressed. The SSes disappear, and ALLOWED displays in the -Search Argument- field.

After selecting the segments, go to *"Specifying Segment Selection Criteria" on page 39*.

SPECIFYING SEGMENT SELECTION CRITERIA

From the IMS segment selection criteria panel, specify segment selection criteria:

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with VIEW

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
Seg Name Segment search argument
GEM      NAME     EQ garnet


COLOUR


JEWELRY
```

To select the segments on the IMS segment selection criteria panel:

1. Type a value in the Limit field.

   The Limit field controls the number of segments returned.
2. Type YES or NO in the Use copybook field.

   See *“Using the Copybook Option” on page 44*.
3. Type YES or NO in the Record select field.

   See *“Using the Record Select Option” on page 55*.
4. Specify Audit changes by typing YES or NO.

   See *“Using the Audit Changes Option” on page 58*.

5. If necessary, complete the Alloc CLIST.

   Use Alloc CLIST in conjunction with the Retain Data Bases prompt on the StarTool IMS Dataset Allocation prompt panel.

   If the database is not associated with a DYNABLOCK, pre-allocate the database files to their associated DD names at any time (even before invoking the IMS option) or by specifying the name of a CLIST to do the allocation. Type the name of this CLIST at this prompt.

6. If necessary, update your search arguments.

   See *"Updating Search Arguments"* below.

UPDATING SEARCH ARGUMENTS

Update the Search Arguments and add expressions to any of the displayed segments using the standard IMS Boolean operators on the IMS segment selection criteria screen.

The segments that are eligible for Search Arguments, and the Search Arguments that you entered on the IMS PCB List panel, display on this screen.

The following procedure explains how to update the Search Arguments:

1. To search GEMS for where the name equals garnet or topaz, type the following depending on if you are using batch, BMP, or BMP accessing DEBD:

- To search for gems where the name equals garnet or topaz using batch:

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with VIEW

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
Seg Name Segment search argument
GEM      NAME     EQ garnet+ name eq topaz


COLOUR


JEWELRY
```

- To search for gems for where the name equals garnet or topaz using BMP:

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with VIEW

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Authorization  ===> IVP (If required, IMS AGN token to allow access)
Seg Name Segment search argument
GEM      NAME     EQ garnet+ name eq topaz
```

- To search for gems where the name equals garnet or topaz using BMP accessing DEBD:

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with VIEW

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Authorization  ===> IVP (If required, IMS AGN token to allow access)
   Buffer count   ===> 4     (If required, Fast Path Buffer Count 1-999)

Seg Name Segment search argument
GEM      NAME     EQ garnet+ name eq topaz
```

2. Press PF6 to retrieve the segments that meet the segment search arguments.

   If you are editing or extracting data, type ED, EX or press PF6 to continue. See *Chapter 5, "Editing Data," on page 61* and *Chapter 6, "Extracting Data," on page 79* for more information.

This results are:

```
PEDIT-VIEW  PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ************************************
000001 JEWELRY  EARRINGS
000002 PARTS    GOLD       000100120GRAMS
000003 PARTS    GR GARNET  000200035CT
000004 PARTS    GOLD       000100100GRAMS
000005 PARTS    GR GARNET  000200028CT
000006 JEWELRY  STRAND
000007 PARTS    GARNET     150007   INCH
000008 PARTS    GARNET     150007   INCH
000009 PARTS    GARNET     150007   INCH
000010 PARTS    GARNET     150007   INCH
000011 PARTS    GARNET     150006   INCH
000012 PARTS    GARNET     150008   INCH
000013 PARTS    GARNET     150006   INCH
****** ******************** BOTTOM OF DATA *********************************
```

There are no segments for TOPAZ because there are none that meet the specified requirements in this database.

The first column is the segment name. The second column is the key portion of the data.

See *"Indenting Segments" on page 97* for information on how to indent the segments on the PEDIT panel.

USING THE COPYBOOK OPTION

1. To use copybooks, type YES on the Use copybook line on the IMS segment selection criteria panel:

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with VIEW

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> YES (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
Seg Name Segment search argument
GEM
```

2. Type V (or press PF6) to display the following screen:

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

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

  Copybook type      ===> COPYBOOK   (COPYBOOK, EXTENDED, or VERTICAL)
Copybook or Vertical Copybook data set name:
  Data set           ===> 'USER280.PDSDEMO.CNTL'
  Member name        ===> S0C9       (name of member if not included in dsn)
  Data set type      ===> MVS        (MVS, Panvalet or Librarian)
                                                                  More:     +
Optional:
  Language type      ===> EITHER     (COBOL, PLI, EITHER, or ASM)
  Starting name      ===>
  Starting column    ===> 1          (1 to 32760 if first variable is offset)

Extended copybook options:
  Extended copybook  ===> NONE    (Temp, Redo, Create, Mod, Use, Import)
  Copybook save name ===>         (3 to 6 character name used with Mod or Use)
  Source library     ===> PROFILE (Profile, Group, Sample, or Other)
```

The Copybook panel is the standard StarTool copybook screen for PEDIT.

3. Fill out the Copybook panel with the required data.

   See the appropriate sections for your Copybook type:

   - *"Specifying Copybook Type" on page 45*
   - *"Specifying Vertical Type" on page 47*
   - *"Specifying Extended Type" on page 49*

Specifying Copybook Type

1. Complete the Copybook panel with the required data.

   This example selects member GEM in data set USER07.LIB.COPYBOOK.

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

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

  Copybook type      ===> COPYBOOK   (COPYBOOK, EXTENDED, or VERTICAL)
Copybook or Vertical Copybook data set name:
  Data set           ===> 'USER07.LIB.COPYBOOK'
  Member name        ===> GEM        (name of member if not included in dsn)
  Data set type      ===> MVS        (MVS, Panvalet or Librarian)
                                                                  More:     +
Optional:
  Language type      ===> EITHER     (COBOL, PLI, EITHER, or ASM)
  Starting name      ===>
  Starting column    ===> 1          (1 to 32760 if first variable is offset)

Extended copybook options:
  Extended copybook  ===> none     (Temp, Redo, Create, Mod, Use, Import)
  Copybook save name ===>          (3 to 6 character name used with Mod or Use)
  Source library     ===> PROFILE (Profile, Group, Sample, or Other)
```

2. Press Enter to display the PEDIT screen:

```
 PEDIT-VIEW  PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB ---          Record too short
 COMMAND ===>                                                  SCROLL ===> CSR
 RECORD        1     LENGTH=       20   JEWELRY
 LEVEL AND NAME                    LENGTH TYP DATA ....1....+....2....+....3....+
01 GEM                                120
 05 NAME-OF-JEWEL                      20 CHR EARRINGS
 05 COMPOSITION                        50 CHR *EOR*
 05 HARDNESS                            2 DIS *EOR*
 05 CRYSTAL-STRUCT                     20 CHR *EOR*
 05 SPEC-GRAVITY                        3 DIS *EOR*
 05 REFRACTION                          4 DIS *EOR*
 05 DISPERSION                          3 DIS *EOR*
 05 TOUGHNESS                           8 CHR *EOR*
 05 FILLER                             10 CHR *EOR*
 ****** ******************** BOTTOM OF COPYBOOK-BYTES TOO SHORT FOR CB:   100 **
```

Change the output vertical mode by typing VERT, and back to copybook format by typing cb**.** The vertical mode display is shown in the following section, *“Specifying Vertical Type*.**”**

See *Chapter 8, “PEDIT,” on page 95* for additional functions available on the PEDIT screen.

Specifying Vertical Type

1. Complete the Copybook panel with the required data.

   This example selects member GEM in data set USER07.LIB.COPYBOOK.

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

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

  Copybook type      ===> VERTICAL   (COPYBOOK, EXTENDED, or VERTICAL)
Copybook or Vertical Copybook data set name:
  Data set           ===> 'USER07.LIB.COPYBOOK'
  Member name        ===> GEM        (name of member if not included in dsn)
  Data set type      ===> MVS        (MVS, Panvalet or Librarian)
                                                                  More:     +
Optional:
  Language type      ===> EITHER     (COBOL, PLI, EITHER, or ASM)
  Starting name      ===>
  Starting column    ===> 1          (1 to 32760 if first variable is offset)

Extended copybook options:
  Extended copybook  ===> none     (Temp, Redo, Create, Mod, Use, Import)
  Copybook save name ===>          (3 to 6 character name used with Mod or Use)
  Source library     ===> PROFILE (Profile, Group, Sample, or Other)
```

2. Press Enter to dislay the PEDIT screen:

```
PEDIT-VIEW  PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB ---          Record too short
COMMAND ===>                                                  SCROLL ===> CSR
NAME           |GEM       |NAME-OF-JEWEL       |COMPOSITION
TYPE           |LV1 120   |CHR 20              |CHR 50
COLUMN         |(1:120)   |(1:20)              |(21:51>
NUMBER         |1         |2                   |3
****** ******************** TOP OF DATA ************************************
000001 JEWELRY             EARRINGS             *EOR*
000002 PARTS               GOLD      000100120G RAMS
000003 PARTS               GR GARNET 000200035C T
000004 PARTS               GOLD      000100100G RAMS
000005 PARTS               GR GARNET 000200028C T
000006 JEWELRY             STRAND               *EOR*
000007 PARTS               GARNET    150007   I NCH
000008 PARTS               GARNET    150007   I NCH
000009 PARTS               GARNET    150007   I NCH
000010 PARTS               GARNET    150007   I NCH
000011 PARTS               GARNET    150006   I NCH
000012 PARTS               GARNET    150008   I NCH
000013 PARTS               GARNET    150006   I NCH
000014 JEWELRY             YRING      YELLOWGOL *EOR*
```

3. Go to *Chapter 8, “PEDIT,” on page 95* for additional functions on the PEDIT screen.

Specifying Extended Type

Extended copybooks can process multiple segment types (see the StarTool FDM *Reference Guide* for a complete explanation of extended copybooks).

1. Type EXTENDED in the Copybook type field on the Copybook screen, and TEMP in the Extended copybook field under Extended copybook options as in the following screen:

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

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

  Copybook type      ===> EXTENDED   (COPYBOOK, EXTENDED, or VERTICAL)
Copybook or Vertical Copybook data set name:
  Data set           ===> 'USER280.PDSDEMO.CNTL'
  Member name        ===>            (name of member if not included in dsn)
  Data set type      ===> MVS        (MVS, Panvalet or Librarian)
                                                                More:     +
Optional:
  Language type      ===> EITHER     (COBOL, PLI, EITHER, or ASM)
  Starting name      ===>
  Starting column    ===> 1          (1 to 32760 if first variable is offset)

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

2. Press Enter to display the Initialize Extended Copybook from IMS structure screen.

```
--------------- Initialize Extended Copybook from IMS structure ---------------
COMMAND ===>

  Initialize Copybooks    ===> 1   1 Do not use IMS structure
                                   2 Initialize for all segments
                                   3 Initialize for selected segments
 Specify the copybook data set in normal TSO syntax:
  Data set name           ===> 'USER07.LIB.COPYBOOK'
  Member name prefix      ===>            (Prefix to be added to segment name)
  Data set type           ===> MVS        (MVS, Panvalet or Librarian)
  Language type           ===> EITHER     (COBOL, PLI, EITHER, or ASM)

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

       The member prefix will be added to the segment name to form
       the member name and the result will be truncated as needed

       Additional editing may be required of each resulting copybook
       entry (i.e. the copybook member name may not match the segment name)
```

3. Complete the fields as follows:
   a) Choose an Initialize Copybooks option:
      — Do not use IMS structure – type each entry manually.
      — Initialize for all segments – entries for all segments are built from the IMS segments.
      — Initialize for selected segments – same as Initialize for all segments, except entries are built only for the segments that you select.
   b) If you select option 2 or 3, specify the Copybook data set in normal TSO syntax fields. For example:

Field		Description
Data set name	===>	USER09.SDS.CNTL
Member name prefix	===>	Prefix to be added to segment name. See *“Using Member Name Prefix”* below

Field		Description
Data set type	===>	MVS (MVS, Panvalet or Librarian)
Language type	===>	Either (COBOL, PLI, EITHER, or ASM)

c) Depending on your selection above, go to:

— *"Do not use IMS structure" on page 51* for option 1.

— *"Initialize for All Segments" on page 54* for option 2.

— *"Initialize Selected Segments" on page 55* for option 3.

Using Member Name Prefix

This is different from the standard extended copybook panel, because you use the member name *prefix* instead of the member name. Member names for copybooks begin with a class number to distinguish between different classes of gems. For example, C1 for class 1. In such cases, copybook members are like C1GEM and C1COLOUR. If this scheme does not generate the correct member names, manually type the member names.

The following screen shows the use of prefixes:

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

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

    Type Member     Level 01 name                  Lang Type Selection
_   1 BAS C1JEWELR                                  EITHER    YES
_   2 BAS C1PARTS                                   EITHER    YES
_   3 NA                                            EITHER    NA
_   4 NA                                            EITHER    NA
_   5 NA                                            EITHER    NA
```

Do not use IMS structure

1. If you select Option 1 - Do not use IMS structure on the Initialize Extended Copybook from IMS structure panel, a blank list displays.

2. Type an S next to the first entry as follows:

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

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

    Type Member     Level 01 name                  Lang Type Selection
S   1 NA                                            EITHER    NA
_   2 NA                                            EITHER    NA
_   3 NA                                            EITHER    NA
_   4 NA                                            EITHER    NA
_   5 NA                                            EITHER    NA
_   6 NA                                            EITHER    NA
_   7 NA                                            EITHER    NA
```

3. Press Enter to display the Extended Copybook #1 screen:

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

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

4. Enter the appropriate information to select the copybook.

5. In this example, the Data set and Member, Member name, Column number, and Compare Strings are filled out. This extended copybook entry describes a segment named GEM.

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

 Primary command: MAP to view the copybook member before exiting this panel.
                                                                   More:     +
 Specify the copybook data set and member in normal TSO syntax:
  Data set and member     ===> 'user07.lib.copybook'
  Member name             ===> GEM        (member if not included in dsname)
  Data set type           ===> MVS        (MVS, Panvalet or Librarian)
  Language type           ===> EITHER     (COBOL, PLI, EITHER, or ASM)
  Starting name           ===>                                (for base only)
  Type                    ===> BASE       (BASE, SEGMENT, CHAINED, or NA)
  Column number           ===> SEG        (1-32760 or Blank for default)
  Compare operator/Length ===> EQ         (LT,LE,EQ,GE,GT,NE or 0-32760)
  Compare Strings         ===> GEM                            (string,string)
    AND/OR ==> OR
  Column number           ===>            (1-32760 or Blank for no compare)
  Compare operator/Length ===> EQ         (LT,LE,EQ,GE,GT,NE or 0-32760)
  Compare Strings         ===>                                (string,string)
```

6. Press Enter. The segment type appears on the Extended Copybook panel. By repeating the process for each segment type, fill out the Extended Copybook panel until it looks like this:

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

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

    Type Member     Level 01 name                  Lang Type Selection
_   1 BAS GEM                                       EITHER    YES
_   2 BAS COLOUR                                    EITHER    YES
_   3 BAS STONE                                     EITHER    YES
_   4 BAS JEWELRY                                   EITHER    YES
_   5 BAS ITEM                                      EITHER    YES
_   6 BAS PARTS                                     EITHER    YES
_   7 BAS GENINFO                                   EITHER    YES
_   8 BAS SOURCES                                   EITHER    YES
```

Initialize for All Segments

If you select Option 2 - Initialize for all segments on the Initialize Extended Copybook from IMS structure panel, the following screen displays:

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

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

    Type Member     Level 01 name                  Lang Type Selection
_    1 BAS GEM                                      EITHER    YES
_    2 BAS COLOUR                                   EITHER    YES
_    3 BAS STONE                                    EITHER    YES
_    4 BAS JEWELRY                                  EITHER    YES
_    5 BAS ITEM                                     EITHER    YES
_    6 BAS PARTS                                    EITHER    YES
_    7 BAS GENINFO                                  EITHER    YES
_    8 BAS SOURCES                                  EITHER    YES
_    9 BAS COLRINFO                                 EITHER    YES
_   10 BAS ALIASES                                  EITHER    YES
_   11 BAS TRADITON                                 EITHER    YES
_   12 BAS STORIES                                  EITHER    YES
_
```

Initialize Selected Segments

If you select Option 3 - Initialize selected segments on the Initialize Extended Copybook from IMS structure panel, the following screen displays:

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

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

    Type Member     Level 01 name                  Lang Type Selection
_   1 BAS JEWELRY                                   EITHER    YES
_   2 BAS PARTS                                     EITHER    YES
_   3 NA                                            EITHER    NA
_   4 NA                                            EITHER    NA
_   5 NA                                            EITHER    NA
_   6 NA                                            EITHER    NA
_   7 NA                                            EITHER    NA
_   8 NA                                            EITHER    NA
_   9 NA                                            EITHER    NA
_  10 NA                                            EITHER    NA
_  11 NA                                            EITHER    NA
_  12 NA                                            EITHER    NA
```

All segments are defined using the information for each segment. The only difference between options 2 and 3 is that this screen shows only the information for the segments selected.

Using the Record Select Option

The Segment Search Arguments (SSAs) tell IMS the specifications for the segments you want returned.

The Record Select option of the IMS select statement for EDIT or VIEW further filters the segments that are returned. This selection process is applied to the segments returned by IMS.

1. To use the Record select option, change the Record select option to YES on the IMS segment selection criteria for EDIT, VIEW, or Extract panel.

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with VIEW

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> YES (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
Seg Name Segment search argument
GEM


COLOUR


JEWELRY
```

2. Press PF6 (or type the appropriate letter depending on your selection: E for edit, X to extract or V to view).

   The PEDIT: Record selection panel displays:

```
------------------------ PEDIT: Record selection panel  -----------------------
OPTION ===>
  Enter SAVE to save or enter LOAD to load a previously saved table
- DSN=IMS.PSBLIB,VOL=SER=OS3P9B  MEM=AGE*  ------------------------------------
                                                                    More:     +
 Record selection by count, set any as needed:
  Starting record number  ==>          (1-99999999 or blank to ignore)
  Max records to select   ==>          (1-99999999 or blank to ignore)
  Interval of selection   ==>          (2-99999999 or blank to ignore)
  Max records to search   ==>          (1-99999999 or blank to ignore)
  Force read to end       ==> NO  (Yes or No; read all records before display)

 Additional record selection by content:
1. Column number/name     ==>                                (Blank for none)
  Compare operator/Length ==> EQ       (LT,LE,EQ,GE,GT,NE,etc or 0-32760)
  Compare Strings         ==>                                 (char or hex)
    AND/OR/THN ==> OR
2. Column number/name     ==>                                (Blank for none)
  Compare operator/Length ==> EQ       (LT,LE,EQ,GE,GT,NE,etc or 0-32760)
  Compare Strings         ==>                                 (char or hex)
    AND/OR/THN ==> OR
```

3. This step is optional. Set any of the fields under Record selection by count, set any as needed then press Enter.

   The PEDIT Selection Statistics screen displays.

```
           PEDIT Selection Statistics
OPTION =>

RECORDS READ     =          5
RECORDS SELECTED =          4
MAXIMUM LIMIT REACHED BEFORE END OF FILE
```

4. Press Enter to display the following screen:

```
PEDIT-VIEW  PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ************************************
000001 JEWELRY  EARRINGS
000002 PARTS    GOLD       000100120GRAMS
000003 PARTS    GR GARNET  000200035CT
000004 PARTS    GOLD       000100100GRAMS
****** ******************* BOTTOM OF DATA ***********************************
```

5. Go to *Chapter 8, "PEDIT," on page 95* for more functions on the PEDIT screen.

USING THE AUDIT CHANGES OPTION

1. Choose the Audit changes option by changing the Audit changes option to YES on the IMS segment selection criteria for EDIT, VIEW, or Extract.

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with VIEW

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> YES (Yes/No; Yes prompts for audit data set parameters)
   Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
Seg Name Segment search argument
GEM


COLOUR


JEWELRY
```

2. Press PF6.

   The Audit initialization panel displays. You are prompted for information to allocate a data set to record changes made to the IMS database.

```
---------------------------- Audit initialization ----------------------------
COMMAND ===>

 Specify the audit data set (fully qualified and un-quoted)
     Data set          ===> DSHIGEM.PEAUDIT.Y2002.M0801.T1713001

 Specify Primary and secondary space in tracks:
     Primary           ===> 10     value in tracks
     Secondary         ===> 60     value in tracks
     Output in HEX     ===> YES    (Yes/No; Yes to always output in HEX,
                                            otherwise, output in current mode)

 Notes: a record image of each changed record will be made before and after
        each data change in the PEDIT session.
```

EDITING DATA

5

Editing is similar to viewing data in that the data must be retrieved before it can be edited.

1. To allow editing, type UPDATE in the Desired Access field on the StarTool IMS Dataset Allocation prompt panel.

```
-------------------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

Desired Access      ===> UPDATE    (READ or UPDATE)
Allocation CLIST    ===> IMSALLOC  (Name of CLIST to allocate IMS data sets)
Log alloc CLIST     ===> IMSLOGAL  (Name of CLIST to allocate IMS Log data set)
Retain Data Bases   ===> NO        (Yes/No, Yes will cause preallocated data
                                    bases not to be freed at the end of each
                                    EDIT or VIEW session.  For dynamically
                                    allocated data bases use NO.

If not using an allocation CLIST, enter the required data set names:
   PSB library      ===>                                          IMS DD
   DBD library      ===>                                          IMS DD
   RES library      ===>                                          DFSRESLB
   STEPLIB lib      ===>                                          IMSTASK
   Paramater lib    ===>                                          DFSVSAMP
   DFSVSAMP Member ===>           (Member in parameter library for vsam parms)

Note:  The Steplib is optional and usually contains "dyna-block" members but
       may have other "override" load module members.
```

2. Select the segments you want (*SELECT* appears beside selected segments), then type E (or Edit) on the screen where the PCB displays:

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 15 of 15
 COMMAND ===> Edit                                          SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB  S  GEMSDB   AP   100       --
       GEM       *SELECT* SEG S  LEV#  1  AP    20   120 ++ ALLOWED
       COLOUR    *SELECT* SEG S  LEV#  2  AP    10    40 --
       STONE              SEG    LEV#  3  AP     3    80 --
       JEWELRY            SEG    LEV#  3  AP    10    20 --
       ITEM               SEG    LEV#  4  AP    10    70 --
       PARTS              SEG    LEV#  5  AP    10    35 --
       GENINFO            SEG    LEV#  2  AP     2    64 --
       SOURCES            SEG    LEV#  3  AP    20    20 --
       COLRINFO           SEG    LEV#  3  AP     2    50 --
       ALIASES            SEG    LEV#  3  AP    20    20 --
       TRADITON           SEG    LEV#  2  AP    20    60 --
       STORIES            SEG    LEV#  2  AP     2    60 --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
****************************** Bottom of data ******************************
```

3. Press Enter to display the IMS segment selection criteria for EDIT, VIEW, or Extract screen. Enter E (or EDIT) or press PF6 from this screen.

```
PDSIMSS1 - IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with EDIT

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
Seg Name Segment search argument
GEM
```

4. When you press Enter from the previous screen, the following screen displays on which you make edits.

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ************************************
000001 GEM      RUBY                ALUMINUM OXIDE, VARIETY OF CORUNDUM e
000002 COLOUR   RED
000003 GEM      PEARL               90% CALCIUM CARBONATE
000004 COLOUR   WHITE
000005 GEM      OPAL                HYDRATED AMORPHOUS SILICA
000006 GEM      GARNET              IRON ALUMINIUM SILICATE
000007 COLOUR   GREEN
000008 COLOUR   ORANGE
000009 COLOUR   RED
000010 GEM      CHROME DIOPSIDE
000011 COLOUR   GREEN
000012 GEM      EMERALD             BERYL PLUS CHROMIUM
000013 GEM      PERIDOT             MAGNESIUM/IRON SILICATE
000014 COLOUR   GREEN
000015 GEM      TSAVORITE
000016 COLOUR   GREEN
000017 GEM      AQUAMARINE          BERYLLIUM ALUMINUM SILICATES +
000018 COLOUR   BLUE
```

5. Before entering any edits, you must scroll/max down until you find BOTTOM OF DATA to retrieve all the segments.

Notes about Editing

- To edit, the PROCOPT parameter of the PCB must allow the type of edit requested.
- All changes are made as soon as you press Enter; backing out is not available except to use the IMS log data set that was allocated for this edit session.
- If you abend before ending the PEDIT session, the changes may not have been made by IMS.
- To get a better view of the database structure, type SEGMENT INDENT on the COMMAND line.

6. After retrieving all segments, perform the following operations in edit mode:
   - Update – change an existing segment by typing over it. See *"Updating a Segment" on page 65*.
   - Delete – delete an existing segment. See *"Deleting Data" on page 67*.
   - Repeat – repeat an existing segment. See *"Repeating Segments" on page 69*.
   - Copy – copy an existing segment. See *"Copying Segments" on page 72*.
   - Insert – insert a new segment. See *"Inserting Lines" on page 76*.

UPDATING A SEGMENT

To update an existing segment, type over the data.

1. After you access your data, the following screen displays:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ***************************************
000001 GEM      RUBY                ALUMINUM OXIDE, VARIETY OF CORUNDUM e
000002 COLOUR   RED
000003 GEM      PEARL               90% CALCIUM CARBONATE
000004 COLOUR   WHITE
000005 GEM      OPAL                HYDRATED AMORPHOUS SILICA
000006 GEM      GARNET              IRON ALUMINIUM SILICATE
000007 COLOUR   GREEN
000008 COLOUR   ORANGE
000009 COLOUR   RED
000010 GEM      CHROME DIOPSIDE
000011 COLOUR   GREEN
000012 GEM      EMERALD             BERYL PLUS CHROMIUM
000013 GEM      PERIDOT             MAGNESIUM/IRON SILICATE
000014 COLOUR   GREEN
000015 GEM      TSAVORITE
000016 COLOUR   GREEN
000017 GEM      AQUAMARINE          BERYLLIUM ALUMINUM SILICATES +
000018 COLOUR   BLUE
```

2. To change the percentage of Calcium Carbonate on line 3 to 85%, type 85% over 90%.

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
****** ********************* TOP OF DATA ************************************
000001 GEM      RUBY                ALUMINUM OXIDE, VARIETY OF CORUNDUM e
000002 COLOUR   RED
000003 GEM      PEARL               85% CALCIUM CARBONATE
000004 COLOUR   WHITE
000005 GEM      OPAL                HYDRATED AMORPHOUS SILICA
000006 GEM      GARNET              IRON ALUMINIUM SILICATE
000007 COLOUR   GREEN
000008 COLOUR   ORANGE
000009 COLOUR   RED
000010 GEM      CHROME DIOPSIDE
000011 COLOUR   GREEN
000012 GEM      EMERALD             BERYL PLUS CHROMIUM
000013 GEM      PERIDOT             MAGNESIUM/IRON SILICATE
000014 COLOUR   GREEN
000015 GEM      TSAVORITE
000016 COLOUR   GREEN
000017 GEM      AQUAMARINE          BERYLLIUM ALUMINUM SILICATES +
000018 COLOUR   BLUE
```

Editing Variable Length Records

Variable length records are preceded by their length. To change the length, changing the preceding length (LL) has no effect. To decrease the length, go into hex mode and change the bytes on the end of the record to X'00' since trailing blanks (X'40') are assumed to be valid data.

Editing Data with No Key

When you attempt to edit (delete or insert) segments without unique keys, you must understand the IMS insert rules for that segment. Insert rules of LAST,FIRST,HERE are enforced. You can view keyed segments with non-unique keys but not edited. StarTool FDM requires that all non-keyed children under a parent must be selected or editing is not possible.

The key portion of a segment cannot be updated. To change a key, repeat/copy the segment, change the key of this new segment, then delete the original segment.

DELETING DATA

1. Delete by typing D on the line to be deleted. Then press Enter. In the example, line 3 (where 90% was changed to 85%) will be deleted.

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ************************************
000001 GEM      RUBY                ALUMINUM OXIDE, VARIETY OF CORUNDUM e
000002 COLOUR   RED
D00003 GEM      PEARL               85% CALCIUM CARBONATE
000004 COLOUR   WHITE
000005 GEM      OPAL                HYDRATED AMORPHOUS SILICA
000006 GEM      GARNET              IRON ALUMINIUM SILICATE
000007 COLOUR   GREEN
000008 COLOUR   ORANGE
000009 COLOUR   RED
000010 GEM      CHROME DIOPSIDE
000011 COLOUR   GREEN
000012 GEM      EMERALD             BERYL PLUS CHROMIUM
000013 GEM      PERIDOT             MAGNESIUM/IRON SILICATE
000014 COLOUR   GREEN
000015 GEM      TSAVORITE
000016 COLOUR   GREEN
000017 GEM      AQUAMARINE          BERYLLIUM ALUMINUM SILICATES +
000018 COLOUR   BLUE
```

2. To delete a block of segments, use the SPF convention of typing DD on the first and last lines.

   PEDIT does not allow a segment to be deleted if that deletion results in IMS automatically deleting children. A message displays. This occurs for a single delete or a block delete; if the block of segments includes a parent, it must also include all of its children.

For example, this attempted deletion:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
****** ********************* TOP OF DATA ************************************
000001 GEM      RUBY                ALUMINUM OXIDE, VARIETY OF CORUNDUM e
000002 COLOUR   RED
000003 STONE    R01 0001800000014499PINKRED   SOMEINCLUSIONTHAILAND
000004 STONE    R02 0001620000012999PURPLERED SOMEINCLUSIONTHAILAND
000005 STONE    R03 0001100000012199RED       CLEAN        THAILAND
000006 STONE    R04 0001410000011299PINKRED   FLAWLESS     THAILAND
000007 STONE    R05 0001420000009999PINKRED   CLEAN        THAILAND
000008 STONE    R06 0001150000009299RED       CLEAN        THAILAND
000009 STONE    R07 0001250000008799PINKRED   CLEAN        THAILAND
000010 STONE    R08 0001250000008799PINKRED   CLEAN        THAILAND
000011 STONE    R09 0001150000008099PINKRED   CLEAN        THAILAND
000012 GEM      PEARL               90% CALCIUM CARBONATE
000013 COLOUR   WHITE
000014 STONE    W01 0004400000005299WHITE     OPAQUE       JAPAN
000015 STONE    W02 0004310000005199WHITE     OPAQUE       JAPAN
000016 GEM      OPAL                HYDRATED AMORPHOUS SILICA
000017 GEM      GARNET              IRON ALUMINIUM SILICATE
000018 COLOUR   GREEN
d00019 COLOUR   ORANGE
000020 STONE    O01 0000590000014799ORANGE    CLEAN        AFRICA
000021 STONE    O02 0000560000012399ORANGE    CLEAN        AFRICA
```

results in the following message:

```
PDS#474H The Delete block must include all children
```

In this example, COLOUR is the parent of STONE, JEWELRY, ITEM, and PARTS. You may not be aware of this, and may not want to delete all these child segments.

REPEATING SEGMENTS

You can repeat segments or blocks of segments.

1. To repeat a segment, type an R on the line to be repeated:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
000373 STONE    B01 0026000000020899BROWN     CLEAN        AFRICA
000374 STONE    B02 0009600000011599GREENYELLWFLAWLESS     AFRICA
000375 STONE    B03 0010400000008399GOLDEN    CLEAN        AFRICA
000376 COLOUR   GREEN
000377 STONE    G01 0032910000049399LIGHTGREENFLAWLESS     AFRICA
000378 STONE    G02 0009000000010899GREENBLUE FLAWLESS     AFRICA
000379 STONE    G03 0009700000007799LIMEGREEN CLEAN        AFRICA
r00380 STONE    G04 0102600000006199ADVACADOGRFLAWLESS     AFRICA
000381 COLOUR   ORANGE
000382 STONE    O01 0012750000019199ORANGE    FLAWLESS     AFRICA
000383 STONE    O02 0011300000016999ORANGE    FLAWLESS     AFRICA
000384 STONE    O03 0009450000014199ORANGE    FLAWLESS     AFRICA
000385 STONE    O04 0014640000012899BROWNORANGFLAWLESS     AFRICA
000386 STONE    O05 0008450000012699ORANGERED FLAWLESS     AFRICA
000387 STONE    O06 0005050000006099ORANGERED FLAWLESS     AFRICA
000388 STONE    O07 0005950000005999ORANGE    CLEAN        AFRICA
000389 STONE    O08 0009550000005799ORANGERED FLAWLESS     AFRICA
000390 COLOUR   PINK
000391 STONE    P01 0020000000030099PINK      FLAWLESS     AFRICA
```

2. Press Enter to display the following screen:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                              SCROLL ===> CSR
000373 STONE    B01 0026000000020899BROWN     CLEAN        AFRICA
000374 STONE    B02 0009600000011599GREENYELLWFLAWLESS     AFRICA
000375 STONE    B03 0010400000008399GOLDEN    CLEAN        AFRICA
000376 COLOUR   GREEN
000377 STONE    G01 0032910000049399LIGHTGREENFLAWLESS     AFRICA
000378 STONE    G02 0009000000010899GREENBLUE FLAWLESS     AFRICA
000379 STONE    G03 0009700000007799LIMEGREEN CLEAN        AFRICA
000380 STONE    G04 010260000006199ADVACADOGRFLAWLESS     AFRICA
==PEN> STONE    G04 010260000006199ADVACADOGRFLAWLESS     AFRICA
000382 COLOUR   ORANGE
000383 STONE    O01 0012750000019199ORANGE    FLAWLESS     AFRICA
000384 STONE    O02 0011300000016999ORANGE    FLAWLESS     AFRICA
000385 STONE    O03 0009450000014199ORANGE    FLAWLESS     AFRICA
000386 STONE    O04 0014640000012899BROWNORANGFLAWLESS     AFRICA
000387 STONE    O05 0008450000012699ORANGERED FLAWLESS     AFRICA
000388 STONE    O06 0005050000006099ORANGERED FLAWLESS     AFRICA
000389 STONE    O07 0005950000005999ORANGE    CLEAN        AFRICA
000390 STONE    O08 0009550000005799ORANGERED FLAWLESS     AFRICA
000391 COLOUR   PINK
```

Because a previous line was repeated, the key is the same. IMS does not accept this (the StarTool FDM for IMS Option supports only unique keys), so the new line is flagged as pending (**==**PEN>). The new line is not added until the key is changed.

You can clear the **==**PEN> by placing the cursor anywhere on the line and press the Enter key for the new segment to be written to the database.

StarTool FDM for IMS Option determines the correct position for this new line to be added. It is not immediately inserted after the original line. This intelligent insertion only applies for single line repeats; for block repeats, the repeated lines are inserted immediately after the last line of the block.

3. If you want the segment written to the database (and remove the ==PEN>), change the highlighted key:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
000373 STONE    B01 0026000000020899BROWN     CLEAN        AFRICA
000374 STONE    B02 0009600000011599GREENYELLWFLAWLESS     AFRICA
000375 STONE    B03 0010400000008399GOLDEN    CLEAN        AFRICA
000376 COLOUR   GREEN
000377 STONE    G01 0032910000049399LIGHTGREENFLAWLESS     AFRICA
000378 STONE    G02 0009000000010899GREENBLUE FLAWLESS     AFRICA
000379 STONE    G03 0009700000007799LIMEGREEN CLEAN        AFRICA
000380 STONE    G04 0102600000006199ADVACADOGRFLAWLESS     AFRICA
==PEN> STONE    G05 0102600000006199ADVACADOGRFLAWLESS     AFRICA
000382 COLOUR   ORANGE
000383 STONE    O01 0012750000019199ORANGE    FLAWLESS     AFRICA
000384 STONE    O02 0011300000016999ORANGE    FLAWLESS     AFRICA
000385 STONE    O03 0009450000014199ORANGE    FLAWLESS     AFRICA
000386 STONE    O04 0014640000012899BROWNORANGFLAWLESS     AFRICA
000387 STONE    O05 0008450000012699ORANGERED FLAWLESS     AFRICA
000388 STONE    O06 0005050000006099ORANGERED FLAWLESS     AFRICA
000389 STONE    O07 0005950000005999ORANGE    CLEAN        AFRICA
000390 STONE    O08 0009550000005799ORANGERED FLAWLESS     AFRICA
000391 COLOUR   PINK
```

If you want to delete the pending line, type a D on the line.

4. Press Enter to display the following screen:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000062
COMMAND ===>                                                SCROLL ===> CSR
000373 STONE    B01 0026000000020899BROWN     CLEAN        AFRICA
000374 STONE    B02 0009600000011599GREENYELLWFLAWLESS     AFRICA
000375 STONE    B03 0010400000008399GOLDEN    CLEAN        AFRICA
000376 COLOUR   GREEN
000377 STONE    G01 0032910000049399LIGHTGREENFLAWLESS     AFRICA
000378 STONE    G02 0009000000010899GREENBLUE FLAWLESS     AFRICA
000379 STONE    G03 0009700000007799LIMEGREEN CLEAN        AFRICA
000380 STONE    G04 010260000006199ADVACADOGRFLAWLESS     AFRICA
000381 STONE    G05 010260000006199ADVACADOGRFLAWLESS     AFRICA
000382 COLOUR   ORANGE
000383 STONE    O01 0012750000019199ORANGE    FLAWLESS     AFRICA
000384 STONE    O02 0011300000016999ORANGE    FLAWLESS     AFRICA
000385 STONE    O03 0009450000014199ORANGE    FLAWLESS     AFRICA
000386 STONE    O04 0014640000012899BROWNORANGFLAWLESS     AFRICA
000387 STONE    O05 0008450000012699ORANGERED FLAWLESS     AFRICA
000388 STONE    O06 0005050000006099ORANGERED FLAWLESS     AFRICA
000389 STONE    O07 0005950000005999ORANGE    CLEAN        AFRICA
000390 STONE    O08 0009550000005799ORANGERED FLAWLESS     AFRICA
000391 COLOUR   PINK
```

Repeating Blocks

For block repeats, you must change the key for the parent, and you must change the the parent key before changing any of its children keys. Once you change the parent key, the keys of the children may now be correct for this parent. The ==PEN> is not removed automatically.

To remove the ==PEN>, put the cursor anywhere on the line and press Enter.

COPYING SEGMENTS

Copying occurs in a manner similar to SPF in which you type a C on the line to be copied, and type an A (or B) on the line after (or before) its new position. Unlike SPF, StarTool FDM for IMS Option verifies that this new position is valid in the database structure.

If the new position is not valid, the following information displays:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ************************************
000001 GEM         RUBY                ALUMINUM OXIDE, VARIETY OF CORUNDUM e
000002  COLOUR     RED
000003   STONE     R01 0001800000014499PINKRED   SOMEINCLUSIONTHAILAND
000004   STONE     R02 0001620000012999PURPLERED SOMEINCLUSIONTHAILAND
000005   STONE     R03 0001100000012199RED       CLEAN        THAILAND
000006   STONE     R04 0001410000011299PINKRED   FLAWLESS     THAILAND
000007   STONE     R05 0001420000009999PINKRED   CLEAN        THAILAND
000008   STONE     R06 0001150000009299RED       CLEAN        THAILAND
000009   STONE     R07 0001250000008799PINKRED   CLEAN        THAILAND
000010   STONE     R08 0001250000008799PINKRED   CLEAN        THAILAND
000011   STONE     R09 0001150000008099PINKRED   CLEAN        THAILAND
C      GEM         PEARL               90% CALCIUM CARBONATE
000013  COLOUR     WHITE
A        STONE     W01 0004400000005299WHITE     OPAQUE       JAPAN
000015   STONE     W02 0004310000005199WHITE     OPAQUE       JAPAN
000016 GEM         OPAL                HYDRATED AMORPHOUS SILICA
000017 GEM         GARNET              IRON ALUMINIUM SILICATE
-------------------------------------------------------------------------
| The segment(s) can not be insert at this point in the data base structure |
------------------------------------------------------------------------- G
000021    ITEM     YGE0000020 0000005699    20000216            .57 CT IN 22K G
```

Copying Blocks

For a block copy, select like segments to the first segment and its children. For example, lines 174 through line 177 are copied and placed after line 171:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                                SCROLL ===> CSR
000168   STONE     PY7 0002820000001599PURPLEYELLFLAWLESS     BOLIVIA
000169   STONE     PY8 0002120000001299PURPLEYELLFLAWLESS     BOLIVIA
000170 GEM         CITRINE              SILICON DIOXIDE
a00171 GEM         JADE                 JADEITE  /  NEPHRITE
000172 GEM         IOLITE
000173 GEM         SPINEL               MAGNESIUM ALUMINUM OXIDE
cc0174  COLOUR     GREEN
000175   STONE     G01 0003860000007799AQUA      FLAWLESS     BURMA
000176   STONE     G02 0002850000005799AQUA      CLEAN        BURMA
cc0177   STONE     G03 0002710000004899AQUA      CLEAN        BURMA
000178  COLOUR     ORANGE
000179   STONE     O01 0003400000040899ORANGE    FLAWLESS     BURMA
000180   STONE     O02 0003150000028399ORANGE    FLAWLESS     BURMA
000181   STONE     O03 0004560000027399ORANGE    CLEAN        BURMA
000182   STONE     O04 0002550000019199ORANGE    FLAWLESS     BURMA
000183   STONE     O05 0002660000011999ORANGE    CLEAN        BURMA
000184   STONE     O06 0001900000011499ORANGE    FLAWLESS     BURMA
000185   STONE     O07 0001910000011499ORANGE    FLAWLESS     BURMA
000186   STONE     O08 0001800000010899ORANGE    FLAWLESS     BURMA
```

Press Enter to display the following screen:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                                SCROLL ===> CSR
000168   STONE     PY7 0002820000001599PURPLEYELLFLAWLESS     BOLIVIA
000169   STONE     PY8 0002120000001299PURPLEYELLFLAWLESS     BOLIVIA
000170 GEM         CITRINE              SILICON DIOXIDE
000171 GEM         JADE                 JADEITE  /  NEPHRITE
==PEN>  COLOUR     GREEN
==PEN>   STONE     G01 0003860000007799AQUA      FLAWLESS     BURMA
==PEN>   STONE     G02 0002850000005799AQUA      CLEAN        BURMA
==PEN>   STONE     G03 0002710000004899AQUA      CLEAN        BURMA
000176 GEM         IOLITE
000177 GEM         SPINEL               MAGNESIUM ALUMINUM OXIDE
000178  COLOUR     GREEN
000179   STONE     G01 0003860000007799AQUA      FLAWLESS     BURMA
000180   STONE     G02 0002850000005799AQUA      CLEAN        BURMA
000181   STONE     G03 0002710000004899AQUA      CLEAN        BURMA
000182  COLOUR     ORANGE
000183   STONE     O01 0003400000040899ORANGE    FLAWLESS     BURMA
000184   STONE     O02 0003150000028399ORANGE    FLAWLESS     BURMA
000185   STONE     O03 0004560000027399ORANGE    CLEAN        BURMA
000186   STONE     O04 0002550000019199ORANGE    FLAWLESS     BURMA
```

The lines were copied after line 171, but are marked ==PEN>. As with Repeat, you can fix this by typing over the keys to make them unique.

Delete these pending lines by typing D on the line.

As with Repeat, if you need to change the key, a change must be made to the key to remove the ==PEN>.

If the key does not require change, place the cursor anywhere on the line and press Enter to remove the ==>PEN.

INSERTING LINES

You insert a line by typing an I on the line preceding the area where you want to insert the new segment.

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                                SCROLL ===> CSR
000168   STONE     PY7 0002820000001599PURPLEYELLFLAWLESS     BOLIVIA
000169   STONE     PY8 0002120000001299PURPLEYELLFLAWLESS     BOLIVIA
000170 GEM         CITRINE              SILICON DIOXIDE
000171 GEM         JADE                 JADEITE  /  NEPHRITE
000172  COLOUR     GREEN
000173   STONE     G01 0003860000007799AQUA      FLAWLESS     BURMA
000174   STONE     G02 0002850000005799AQUA      CLEAN        BURMA
000175   STONE     G03 0002710000004899AQUA      CLEAN        BURMA
000176 GEM         IOLITE
000177 GEM         SPINEL               MAGNESIUM ALUMINUM OXIDE
000178  COLOUR     GREEN
000179   STONE     G01 0003860000007799AQUA      FLAWLESS     BURMA
000180   STONE     G02 0002850000005799AQUA      CLEAN        BURMA
i00181   STONE     G03 0002710000004899AQUA      CLEAN        BURMA
000182  COLOUR     ORANGE
000183   STONE     O01 0003400000040899ORANGE    FLAWLESS     BURMA
000184   STONE     O02 0003150000028399ORANGE    FLAWLESS     BURMA
000185   STONE     O03 0004560000027399ORANGE    CLEAN        BURMA
000186   STONE     O04 0002550000019199ORANGE    FLAWLESS     BURMA
000187   STONE     O05 0002660000011999ORANGE    CLEAN        BURMA
000188   STONE     O06 0001900000011499ORANGE    FLAWLESS     BURMA
000189   STONE     O07 0001910000011499ORANGE    FLAWLESS     BURMA
```

Press Enter to display the following screen:

```
PDSPEIM2 -- PEDIT Insert IMS Segment -----------
OPTION ===>

  Enter Segment number from list below ===>
   2 COLOUR
   3 STONE
   4 JEWELRY
```

A list of the segments that you can insert after the indicated segment display. Type the number of the segment that is to be inserted. In this example, type 4 (JEWELRY).

The following screen displays:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                                SCROLL ===> CSR
000168   STONE     PY7 0002820000001599PURPLEYELLFLAWLESS     BOLIVIA
000169   STONE     PY8 0002120000001299PURPLEYELLFLAWLESS     BOLIVIA
000170 GEM         CITRINE              SILICON DIOXIDE
000171 GEM         JADE                 JADEITE  /  NEPHRITE
000172  COLOUR     GREEN
000173   STONE     G01 0003860000007799AQUA      FLAWLESS     BURMA
000174   STONE     G02 0002850000005799AQUA      CLEAN        BURMA
000175   STONE     G03 0002710000004899AQUA      CLEAN        BURMA
000176 GEM         IOLITE
000177 GEM         SPINEL               MAGNESIUM ALUMINUM OXIDE
000178  COLOUR     GREEN
000179   STONE     G01 0003860000007799AQUA      FLAWLESS     BURMA
000180   STONE     G02 0002850000005799AQUA      CLEAN        BURMA
000181   STONE     G03 0002710000004899AQUA      CLEAN        BURMA
==PEN>   JEWELRY
000183  COLOUR     ORANGE
000184   STONE     O01 0003400000040899ORANGE    FLAWLESS     BURMA
000185   STONE     O02 0003150000028399ORANGE    FLAWLESS     BURMA
000186   STONE     O03 0004560000027399ORANGE    CLEAN        BURMA
```

The segment is marked as pending until you complete the required fields are filled in you press Enter.

Inserting Segments on the Top Line

If you type I on the top line (**** TOP OF DATA ***), a pop-up panel does not display; the only segment you can insert in this position is a root, which is inserted immediately:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ************************************
==PEN> GEM
000002 GEM         RUBY                 ALUMINUM OXIDE, VARIETY OF CORUNDUM e
000003  COLOUR     RED
000004   STONE     R01 0001800000014499PINKRED   SOMEINCLUSIONTHAILAND
```

Inserting Multiple Lines

Type a decimal digit after the Insert command to indicate the number of lines to be inserted. The lines are all of the same segment type. For example, typing I5 (which was inserted into the screen and does not appear after you press Enter) on line 9 results in:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                                SCROLL ===> CSR
000024   STONE     O01 0000590000014799ORANGE    CLEAN        AFRICA
000025   STONE     O02 0000560000012399ORANGE    CLEAN        AFRICA
000026   STONE     O03 0000383000007699ORANGE    SLIGHTINC    AFRICA
000027   STONE     O04 0000212000007499ORANGE    CLEAN        AFRICA
000028   STONE     O05 0000232000006999REDORANGE CLEAN        AFRICA
000029   STONE     O06 0000590000005999ORANGERED CLEAN        AFRICA
I50030  COLOUR     RED
==PEN>   STONE
==PEN>   STONE
==PEN>   STONE
==PEN>   STONE
==PEN>   STONE
000036   STONE     R01 0000923000036999RED       CLEAN        AFRICA
000037   STONE     R02 0001745000026199DRK RED   FLAWLESS     AFRICA
000038   STONE     R03 0001646000024699DRK RED   FLAWLESS     AFRICA
000039   STONE     R04 0000725000018199REDORANGE SLIGHTINC    AFRICA
000040   STONE     R05 0000450000009099ORANGERED CLEAN        AFRICA
000041   STONE     R06 0000305000007699ORANGERED FLAWLESS     AFRICA
000042   STONE     R07 0000360000005499RED       FLAWLESS     AFRICA
```

EXTRACTING DATA

6

This facility allows you to extract segments from an IMS database. You can edit the extracted segments file and load it to another IMS database.

1. Select option IM from the StarTool FDM Version 7.4.0 Primary Options menu.
2. The StarTool Menu of IMS Services panel appears. Select Option 1, IMSALLOC.

```
------------------------ StarTool Menu of IMS Services ------------------------
OPTION  ===> 1


   1  -  IMSALLOC - Prompt for IMS libraries and PSB Member List for DL1
   2  -  IMSBMP   - Prompt for IMS libraries and PSB Member List for BMP
   3  -  MEMLIST  - Display PSB MEMLIST if active               Inactive
   4  -  IMSPCB   - Display current PCB LIST if active          Inactive
   5  -  EDIT/VIEW    - Return to EDIT/VIEW if it is active     Inactive
   6  -  GO       - GO to the session with IMS if it is active  Inactive
   7  -  LOAD     - Build LOAD IMS job
   8  -  CONVERT  - Build job to Convert DBD source to PSB source
```

3. Press Enter. The StarTool IMS Dataset Allocation Prompt panel appears.

```
-------------------- StarTool IMS Dataset Allocation prompt -------------------
OPTION ===>

Desired Access     ===> READ   (READ or UPDATE)
Allocation CLIST   ===> IMSALLOC (Name of CLIST to allocate IMS data sets)
Log alloc CLIST    ===> IMSLOGAL (Name of CLIST to allocate IMS Log data set)
Retain Data Bases  ===> NO       (Yes/No, Yes will cause preallocated data
                                  bases not to be freed at the end of each
                                  EDIT or VIEW session.  For dynamically
                                  allocated data bases use NO.

 If not using an allocation CLIST, enter the required data set names:
   PSB library     ===>                                          IMS DD
   DBD library     ===>                                          IMS DD
   RES library     ===>                                          DFSRESLB
   STEPLIB lib     ===>                                          IMSTASK
   Paramater lib   ===>                                          DFSVSAMP
   DFSVSAMP Member ===>          (Member in parameter library for vsam parms)

Note:  The Steplib is optional and usually contains "dyna-block" members but
       may have other "override" load module members.
```

4. Change the default field entries if necessary and press Enter to allocate the IMS libraries and log.

The StarTool IMS PSB Member Prompt panel appears.

```
------------------------ StarTool IMS PSB member prompt -----------------------
OPTION ===>

 Enter member name or group for PSB list
   MEMBERS ===> AGEMS*            (set to * or a member group for MEMLIST

Alternate selections for creating a MEMLIST:
Member selection  ===>    (choose any of the following member filters)
           1 - All members updated today
           2 - All members updated since yesterday
           3 - All members updated in the last week
           4 - All members updated in the last month
           5 - All members updated in the last year

 If a member group is specified, a general purpose MEMLIST will be built.
 The member list S line command will be set to  PSB
```

5. Specify criteria for creating a PSB member list:
   - type a member name or member group name and/or
   - choose an alternate selection criteria (1-5).

The following screen shows the resulting member list (when AGEMS* was specified).

```
----------------- PSB MEMLIST (Attributes), Session#  1  ----- Row 1 to 6 of 6
COMMAND ===>                                                  SCROLL ===> PAGE
Enter an ISPF command, a StarTool subcommand or a special control code:
- DSN=IMS.PSBLIB,VOL=SER=OS3P9B  MEM=AGEMS*  ----------------------------------
 CMD  NAME     DATA/MSG ALIASOF  LEN/LKED   --  ATTRIBUTES   - APF MODE  MAIN
 s    AGEMSDB                    2001/11/09
      AGEMSDBG                   2001/04/05
      AGEMSDBO                   2001/04/05
      AGEMSDBP                   2001/04/05
      AGEMSDBT                   2001/01/18
      AGEMSDS                    2000/10/05
****************************** Bottom of data ********************************



-------------------
| TOTAL=        6 |
| ADDS =        6 |
-------------------
```

6. Select a member and press Enter.

   The next screen displays the PCB (program communication block) list for the selected PSB (program specification block).

7. Select a PCB and press Enter.

```
------------------------- IMS PCB List for AGEMSDB   - ------- Row 1 to 3 of 3
COMMAND ===>                                                 SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
 s    PCB#001             DB     GEMSDB   AP   100       --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
****************************** Bottom of data ******************************
```

The next screen displays the segments for the selected PCB.

8. Select the segments you want to extract. Type ex (or extract) on the command line, and press Enter.

   Note It is possible to select segments that cause errors when attempting to reload them. This can occur for a number of reasons. For example, children may become orphans in their new environment.

```
------------------------- IMS PCB List for AGEMSDB   - ----- Row 1 to 15 of 15
COMMAND ===> ex                                              SCROLL ===> CSR
Enter an EDIT, VIEW, EXTRACT, or a StarTool subcommand :
 OPT   NAME      Data/MSG TYP SL Location ATTR Kyl Leng  OP -Search Argument-
      PCB#001             DB  S  GEMSDB   AP   100       --
 s     GEM                SEG    LEV#  1  AP    20   120 --
 s     COLOUR             SEG    LEV#  2  AP    10    40 --
 s     STONE              SEG    LEV#  3  AP     3    80 --
       JEWELRY            SEG    LEV#  3  AP    10    20 --
       ITEM               SEG    LEV#  4  AP    10    70 --
       PARTS              SEG    LEV#  5  AP    10    35 --
       GENINFO            SEG    LEV#  2  AP     2    64 --
       SOURCES            SEG    LEV#  3  AP    20    20 --
       COLRINFO           SEG    LEV#  3  AP     2    50 --
       ALIASES            SEG    LEV#  3  AP    20    20 --
       TRADITON           SEG    LEV#  2  AP    20    60 --
       STORIES            SEG    LEV#  2  AP     2    60 --
      PCB#002             DB     IVPDB1   A     10       --
      PCB#003             DB     HIDAMI01 G     20       --
****************************** Bottom of data ******************************
```

   The following screen appears for segments that allow an SSA to be entered.

9. Specify the selection criteria for the segment. In the following example, GEM segments are selected when the GEM01 field contains a packed 1.

   The Record select, Audit changes, and Alloc CLIST options can also be selected. The Use copybook option is not available when using Extract.

10. Press PF6 to continue with the extract.

```
---------- IMS segment selection criteria for EDIT, VIEW, or Extract ----------
COMMAND ===>

When ready, press PF6 to continue with EXTRACT

FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

   Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
   Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
   Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
   Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
Seg Name Segment search argument
GEM      gem01  ge p'1'
```

11. Specify the extract data set name and space allocation. Press Enter.

```
--------------------------- Extract Data Set prompt ---------------------------
COMMAND ===>

 Specify the extract data set
     Data set          ===> IMS.EXTRACT
     Allocation type   ===> NEW    (New, Old, or Mod)

 Specify Primary and secondary space in tracks for NEW data set
     Primary           ===> 4       value in tracks
     Secondary         ===> 2       value in tracks

 Note:  The extract file must be have a record format of VB
        and a minumum logical record length of 133       .
        A NEW file will be allocated with the minumum LRECL
```

The following message displays:

```
DFS627I IMS RTM CLEANUP ( EOT ) COMPLETE FOR ST USER263 .    .,RC=0
0
 ***
```

12. Press Enter.

The following screen displays with the Extract complete message.

```
---------- IMS segment selection criteria for EDIT, V        Extract complete
 COMMAND ===>

 When ready, press PF6 to continue with EXTRACT

 FROM PCB PCB#001  DBD GEMSDB   Limit ===> 10000   (max segments to retrieve)

    Use copybook   ===> NO  (Yes/No; Yes prompts for copybook, ignored for EXT)
    Record select  ===> NO  (Yes/No; Yes prompts for record selection options)
    Audit changes  ===> NO  (Yes/No; Yes prompts for audit data set parameters)
    Alloc CLIST    ===>          (CLIST to allocate the Data Bases if needed)
 Seg Name Segment search argument
```

LOADING EXTRACTED DATA

This facility allows you to insert a file of extracted segments into an initialized IMS database.

1. Select option IM from the StarTool FDM Version 7.4.0 Primary Options menu.

2. The StarTool Menu of IMS Services panel appears. Select Option 7, LOAD.

```
------------------------ StarTool Menu of IMS Services ------------------------
OPTION  ===> 7


   1  -  IMSALLOC - Prompt for IMS libraries and PSB Member List for DL1
   2  -  IMSBMP   - Prompt for IMS libraries and PSB Member List for BMP
   3  -  MEMLIST  - Display PSB MEMLIST if active              Active
   4  -  IMSPCB   - Display current PCB LIST if active         Inactive
   5  -  EDIT/VIEW    - Return to EDIT/VIEW if it is active    Inactive
   6  -  GO       - GO to the session with IMS if it is active  Current session
   7  -  LOAD     - Build LOAD IMS job
   8  -  CONVERT  - Build job to Convert DBD source to PSB source


 Note:  The PCB LIST can only be selected from the PSB Member list
        If the MEMLIST is Current Then option 3 will prompt for more
        members.

        IMS is active in this GO session #1
```

3. Fill in the fields on the Data Set Prompt panel and press Enter.

```
--------------------------  Data Set Prompt        --------------------------
COMMAND ===>

 PSBlib data set      ==> 'ims.psblib'
 PSBNAME for inserts  ==> PSB
 DBDlib data set      ==> 'ims.dbdlib'
 RES library          ==> 'ims.reslib'
 STEPLIB lib          ==> 'ims.steplib'
 Paramater lib        ==> 'ims.proclib'
 DFSVSAMP Member      ==> dfsvsamp
 Input data set       ==> user263.my.extarct
 IMS Logging dataset  ==> 'ims.log.datetime'
 Database dynablock   ==> Y     (N - for no)
 DBD name override    ==> N     (Y - for yes)

 JOB and JOBLIB statements for the batch job:
 ===> //reload job (acct#...)
 ===>
 ===>
 ===>
```

4. If you specify Y for Database dynablock and N for DBD name override, the system goes to the generated JCL screen.

   Note In the following example, the third STEPLIB DD must be replaced with the name of your installation StarTool FDM load library.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
--------------------------------------------------------------------------------
EDIT       USER280.SPFTEMP1.CNTL                          Columns 00001 00072
Command ===>                                                 Scroll ===> CSR
****** **************************** Top of Data ******************************
000001 //RELOAD JOB (ACCT#...)
000002 //* USING SKELETON PDS$DYNO
000003 //LDIMSDB1 EXEC PGM=DFSRRC00,PARM='DLI,PDSIMSRL,PSB'
000004 //STEPLIB  DD   DISP=SHR,DSN=IMS.STEPLIB
000005 //         DD   DISP=SHR,DSN=IMS.RESLIB
000006 //*        DD   DISP=SHR,DSN=SYS1.STARTOOL.LOAD
000007 //DFSRESLB DD   DISP=SHR,DSN=IMS.RESLIB
000008 //IMS      DD   DISP=SHR,DSN=IMS.PSBLIB
000009 //         DD   DISP=SHR,DSN=IMS.DBDLIB
000010 //IEFRDER  DD   DISP=SHR,DSN=IMS.LOG.DATETIME
000011 //DFSVSAMP DD   DISP=SHR,DSN=IMS.PROCLIB(DFSVSAMP)
000012 //PRINTOUT DD   SYSOUT=*
000013 //SYSPRINT DD   SYSOUT=*
000014 //SYSUDUMP DD   SYSOUT=*
000015 //INDATA   DD   DISP=SHR,DSN=USER280.USER263.MY.EXTARCT
000016 //SYSPRINT DD   SYSOUT=*
****** ***************************** Bottom of Data ****************************
```

If you specify N for Database dynablock, the system goes to the Database Information Prompt panel where you specify allocation information.

```
------------------------- Database Information Prompt -------------------------
COMMAND ===>

 Data base required allocation information
 DDNAME       ==>
 DSNAME       ==>
 DISP         ==>
 More?        ==> Y
```

If you specify Y for DBD name override, the system goes to the Database Name Overrides panel where you specify overrides.

```
--------------------------- Database Name Overrides ---------------------------
COMMAND ===>

  Data base    Data base
  old name     new name
 >            >
 >            >
 >            >
 >            >
 >            >
 >            >
 >            >
 >            >
 >            >
 >            >
 >            >
```

5. Make any necessary changes to the generated JCL and submit the job to load the extracted data to the database.

CONVERTING DBD SOURCE TO PSB SOURCE

7

Use this utility to convert DBD source to PSB source.

1. Select IM from the StarTool FDM Version 7.4.0 Primary Options menu.
2. The StarTool Menu of IMS Services panel appears. Select Option 8, CONVERT.

```
------------------------ StarTool Menu of IMS Services ------------------------
OPTION  ===> 8


   1  -  IMSALLOC - Prompt for IMS libraries and PSB Member List for DL1
   2  -  IMSBMP   - Prompt for IMS libraries and PSB Member List for BMP
   3  -  MEMLIST  - Display PSB MEMLIST if active               Active
   4  -  IMSPCB   - Display current PCB LIST if active          Inactive
   5  -  EDIT/VIEW- Return to EDIT/VIEW if it is active         Inactive
   6  -  GO       - GO to the session with IMS if it is active  Current session
   7  -  LOAD     - Build LOAD IMS job
   8  -  CONVERT  - Build job to Convert DBD source to PSB source
```

3. Fill in the information on the DBD to PSB Prompt panel.

```
-------------------------  DBD to PSB Prompt        -------------------------
 COMMAND ===>

  PSB source dataset   ==> user263.test.psbsrc
  PSB Member           ==> tempxxx
  DBD source dataset   ==> user263.test.dbdsrc
  DBD Member           ==> gemsdb

  JOB and JOBLIB statements for the batch job:
  ===> //RELOAD JOB (ACCT#...)
  ===>
  ===>
  ===>
```

4. The generated JCL screen appears so you can edit and submit the job.

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
  EDIT       USER298.SPFTEMP1.CNTL                          Columns 00001 00072
 Command ===>                                                Scroll ===> PAGE
 ****** **************************** Top of Data ******************************
 000001 //RELOAD JOB (ACCT#...)
 000002 //* USING SKELETON PDS$ID2P
 000003 //CONVERT1 EXEC PGM=PDSIMD2P
 000004 //*STEPLIB  DD   DISP=SHR,DSN=SYS1.STARTOOL.LOAD
 000005 //PSBOUT   DD   DISP=SHR,DSN=USER263.TEST.PSBSRC(TEMPXXX)
 000006 //DBDSRC   DD   DISP=SHR,DSN=USER263.TEST.DBDSRC(GEMSDB)
 000007 //PRINTOUT DD   SYSOUT=*
 000008 //SYSUDUMP DD   SYSOUT=*
 000009 //SYSPRINT DD   SYSOUT=*
 ****** *************************** Bottom of Data ***************************
```

After the job completes, enter the PSB source member to the IMS PSB generation utility to verify the syntax. Then enter the generated PSB to the IBM ACB generation utility to verify the PSB/DBD references.

PEDIT

8

When you respond to the following screen with VIEW, EDIT (if in an edit session), EXTRACT (if extracting data), or PF6, IMS is attached and an IMS log is allocated.

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
 EDIT       USER298.SPFTEMP1.CNTL                        Columns 00001 00072
Command ===>                                              Scroll ===> PAGE
****** ***************************** Top of Data ******************************
000001 //RELOAD JOB (ACCT#...)
000002 //* USING SKELETON PDS$ID2P
000003 //CONVERT1 EXEC PGM=PDSIMD2P
000004 //*STEPLIB  DD   DISP=SHR,DSN=SYS1.STARTOOL.LOAD
000005 //PSBOUT   DD   DISP=SHR,DSN=USER263.TEST.PSBSRC(TEMPXXX)
000006 //DBDSRC   DD   DISP=SHR,DSN=USER263.TEST.DBDSRC(GEMSDB)
000007 //PRINTOUT DD   SYSOUT=*
000008 //SYSUDUMP DD   SYSOUT=*
000009 //SYSPRINT DD   SYSOUT=*
****** *************************** Bottom of Data ****************************
```

Unlike other types of data that can be edited with PEDIT, all changes are made when you press Enter or when you remove a ==PEN> by completing the data. You cannot cancel the effect of the edit with a CANCEL command. To reverse the change is to manually (using StarTool FDM) restore the segments to their former value, or to use the LOG created by StarTool FDM as input for an IMS recovery. If you type CANCEL on the COMMAND line after an edit, the following message displays:

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
 EDIT       USER298.SPFTEMP1.CNTL                        Columns 00001 00072
Command ===>                                              Scroll ===> PAGE
****** ***************************** Top of Data ******************************
000001 //RELOAD JOB (ACCT#...)
000002 //* USING SKELETON PDS$ID2P
000003 //CONVERT1 EXEC PGM=PDSIMD2P
000004 //*STEPLIB  DD   DISP=SHR,DSN=SYS1.STARTOOL.LOAD
000005 //PSBOUT   DD   DISP=SHR,DSN=USER263.TEST.PSBSRC(TEMPXXX)
000006 //DBDSRC   DD   DISP=SHR,DSN=USER263.TEST.DBDSRC(GEMSDB)
000007 //PRINTOUT DD   SYSOUT=*
000008 //SYSUDUMP DD   SYSOUT=*
000009 //SYSPRINT DD   SYSOUT=*
****** **************************** Bottom of Data ****************************
```

If there is an abend during the PEDIT session, the changes may not be made by IMS.

Once you end this PEDIT session, the session with IMS also terminates. Changes made to the database are recorded in the IMS LOG data set allocated by the IMSLOGAL CLIST and indicated by the following message:

```
DFS627I IMS RTM CLEANUP ( EOT ) COMPLETE FOR ST tso-userid . .  RC=00
```

Additional PEDIT Options

The PEDIT panel displays when you view or edit data.

When you are viewing, the PEDIT-VIEW panel displays, which does not allow you to save your changes.

The following options are available on both PEDIT screens.

Displaying the Concatenated Key

Display the concatenated key for any segment by typing a K on the line for the segment. For example, to get the concatenated key for the first ITEM segment:

```
PDSPN33     PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000059
COMMAND ===>                                          SCROLL ===> CSR
000039   STONE     R04 0000725000018199REDORANGE SLIGHTINC    AFRICA
000040   STONE     R05 0000450000009099ORANGERED CLEAN        AFRICA
k00041   STONE     R06 0000305000007699ORANGERED FLAWLESS     AFRICA
000042   STONE     R07 0000360000005499RED       FLAWLESS     AFRICA
000043   STONE     R08 0000150000003799ORANGE    FLAWLESS     AFRICA
000044   STONE     R09 0000145000003699ORANGE    FLAWLESS     AFRICA
000045   STONE     R10 0000246000003699DRKRED    FLAWLESS     AFRICA
000046   STONE     R11 0000330000002999RED       CLEAN        AFRICA
000047   STONE     R12 0000325000002999RED       CLEAN        AFRICA
000048   STONE     R13 0000135000002099REDORANGE FLAWLESS     AFRICA
000049   STONE     R14 0000121000001899ORANGERED FLAWLESS     AFRICA
000050   STONE     R15 0000075000000599ORANGERED VERYSLIGHTINCAFRICA
000051   STONE     R16 0000092000000699ORANGERED VERYSLIGHTINCAFRICA
000052   STONE     R17 0000495000004499ORANGERED CLEAN        AFRICA
000053   JEWELRY   STRAND
000054    ITEM     S000000010 0000001299    20000216           239.3 CT ROUND B
000055    ITEM     S000000020 0000001299    20000216           216.3 CT ROUND B
000056    ITEM     S000000030 0000001299    20000216           216.6 CT ROUND B
000057    ITEM     S000000040 0000001299    20000216           221.3 CT ROUND B
```

Press Enter to display the following screen.

```
PDSPEIMK -- PEDIT IMS Concatenated key ----------
OPTION ===>

GEM=GARNET,COLOUR=RED,STONE=R06
```

Indenting Segments

You can turn off and on the display of the segment name with the SEGMENT command on the command line. The syntax is:

```
SEGMENT  ON|OFF|INDENT
```

Show the relationship among the segments by indenting the segments. Indentation is controlled by the INDENT option of the SEGMENT ON|OFF|INDENT command.

An example of the SEGMENT command with the INDENT option follows:

```
PEDIT-VIEW  PSB=AGEMSDB ,PCB=PCB#001 ,DBD=GEMSDB --- COLUMNS 000001 000058
COMMAND ===>                                                SCROLL ===> CSR
****** ******************** TOP OF DATA ************************************
000001   JEWELRY    EARRINGS
000002     PARTS    GOLD       000100120GRAMS
000003     PARTS    GR GARNET  000200035CT
000004     PARTS    GOLD       000100100GRAMS
000005     PARTS    GR GARNET  000200028CT
000006   JEWELRY    STRAND
000007     PARTS    GARNET     150007   INCH
000008     PARTS    GARNET     150007   INCH
000009     PARTS    GARNET     150007   INCH
000010     PARTS    GARNET     150007   INCH
000011     PARTS    GARNET     150006   INCH
000012     PARTS    GARNET     150008   INCH
000013     PARTS    GARNET     150006   INCH
****** ******************** BOTTOM OF DATA *********************************
```

COLLECTING DIAGNOSTIC DATA

9

If problems occur, collect the following data for Serena Customer Support:

- The load modules for all the PSBs and DBDs involved. For logical databases and databases with logical children, there should be more than one DBD.
- The source statements for PSBs and DBDs.
- A capture of the screen output for incorrect data or for an abend; the registers and PSW at time of abend.
- If it appears that there is a loop, take an MVS console dump using the following commands:

  ```
  DUMP COMM=(DUMP OF tso-user-id)
  xx,SDATA=(PSA,TRT,RGN,SUM),END
  ```

  where *xx* is the outstanding WTOR for this dump.
- A copy of messages written to the MVS SYSLOG for the TSO *userid* by IMS.

See *"Support" on page 9* for Serena Customer Support contact information.

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