Installation Volume 1: Installation Verification

Version 9
Installation Volume 1:
Installation Verification

Version 9
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About This Book

This information is available as part of the Information Management Software for z/OS® Solutions Information Center. To view the information within the Information Management Software for z/OS Solutions Information Center, go to http://publib.boulder.ibm.com/infocenter/imzic. This information is also available in PDF and BookManager® formats. To get the most current versions of the PDF and BookManager formats, go to the IMS™ Library page at www.ibm.com/software/data/ims/library.html.

IMS Version 9 provides an integrated IMS Connect function, which offers a functional replacement for the IMS Connect tool (program number 5655-K52). In this information, the term IMS Connect refers to the integrated IMS Connect function that is part of IMS Version 9, unless otherwise indicated.

This book is for IMS system programmers responsible for verifying the installation of the following IMS Version 9 environments:

- Database (DB Batch)
- Database Control (DBCTL)
- Database/Data Communication (DB/DC)
- Database/Data Communication with Extended Recovery Facility (DB/DC with XRF)
- Transaction Manager Control (DCCTL)

The IMS Installation task includes the initial activity of installing IMS on your z/OS system, verifying that installation as described in this book, and a variety of other activities that are described in IMS Version 9: Installation Volume 2: System Definition and Tailoring.

As you look at the installation-related activities in Table 1 on page x, notice three key sources of information:

- Use the Program Directory for Information Management System Version 9 for information on installing a new IMS system.
- Use the IMS Version 9: Installation Volume 1: Installation Verification after you have installed a new system to ensure that it has been installed properly.
- Use the IMS Version 9: Installation Volume 2: System Definition and Tailoring to tune and tailor this IMS system on an ongoing basis throughout its life.

Therefore, if you are responsible for installing a new IMS system, you should have copies of the Program Directory for Information Management System Version 9 and both volumes of IMS Installation. If you are responsible for supporting an already-installed IMS system, you probably need access to IMS Version 9: Installation Volume 2: System Definition and Tailoring only.

Table 1 on page x lists the subtasks associated with the IMS installation task and identifies the location of key information about these subtasks.
### Summary of Contents

This book is divided into four parts:

- **Part 1, “Installation Reference Information,” on page 1** contains reference information for the installation and service process. Common installation and maintenance issues are discussed. Included are considerations for function modification identifiers (FMIDs), components, optional features, and multiple copies of IMS. This part also contains reference information on data sets and their allocation and interface requirements for z/OS, VTAM®, IMS service, and the IVP sample applications. Use this part for reference as you use the Program Directory for Information Management System Version 9 to install IMS.

- **Part 2, “IVP Information,” on page 93** contains information about using the IVP to verify your IMS installation. It describes a sample path through the IVP.

- **Part 3, “IVP Reference Information,” on page 145** contains reference information for the IVP process. Included is information describing each of the IVP systems and each of the sample applications.

- **Part 4, “Appendices,” on page 187** includes lists of IVP variables, jobs, tasks, and Stage 1 source.

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### Table 1. IMS Installation Subtasks

In this table, “Volume 1” refers to **IMS Version 9: Installation Volume 1: Installation Verification** and “Volume 2” refers to **IMS Version 9: Installation Volume 2: System Definition and Tailoring**.

<table>
<thead>
<tr>
<th>Installation Subtask</th>
<th>Location of Information</th>
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</thead>
<tbody>
<tr>
<td>Installing an IMS system</td>
<td>• CBPDO or ServerPac documentation</td>
</tr>
<tr>
<td></td>
<td>• PSP bucket</td>
</tr>
<tr>
<td></td>
<td>• Program Directory for Information Management System Version 9</td>
</tr>
<tr>
<td>Verifying the correct installation of an IMS system</td>
<td><strong>Volume 1</strong></td>
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<td>Using the Installation Verification Program (IVP) system to test application or service changes</td>
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<tr>
<td>Using the IVP system for demonstrations, in-house training, or developing operation and recovery procedures</td>
<td><strong>Volume 1</strong></td>
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<tr>
<td>Building or moving your own systems onto a copy of the IVP system</td>
<td><strong>Volume 1</strong></td>
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<tr>
<td>Assigning system resource options with system configuration macros</td>
<td><strong>Volume 2</strong></td>
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<tr>
<td>Defining online applications with database and application macros</td>
<td><strong>Volume 2</strong></td>
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<tr>
<td>Defining terminals with data communication macros</td>
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<tr>
<td>Implementing ETO, RSR, or database recovery service in the IMS system</td>
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<tr>
<td>Implementing the system definition process</td>
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<tr>
<td>Installing the Transport Manager subsystem</td>
<td><strong>Volume 2</strong></td>
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<tr>
<td>Tailoring the IMS system for your environment</td>
<td><strong>Volume 2</strong></td>
</tr>
<tr>
<td>Accessing the IMS databases with CICS or DB2® UDB for z/OS</td>
<td><strong>Volume 2</strong></td>
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Additionally, you can find information about IVP error messages in **IMS Version 9 Messages and Codes, Volume 2**.
How to Use This Book

Use the Program Directory for Information Management System Version 9 to perform a complete installation of IMS Version 9 using system modification program/extended (SMP/E). Then use this book to verify your installation. This book documents how to define, prepare, and run a sample IMS system.


Except for installing the IVP dialog itself, the documentation for the IVP dialog and the IVP process are contained online within the dialog itself. After installing the IVP dialog, you can review the online documentation before using the IVP dialog. You can use the “DOC” action from within Variable Gathering (see 118 and 127), File Tailoring (see 130 and 135), and Execution (see 138) to print the online documentation for variables, jobs, and tasks.

Prerequisite Knowledge

It is assumed that you have experience working with:

- Product installation and service using SMP/E
- The z/OS environment:
  - Job Entry Subsystem (JES2 or JES3)
  - Job Control Language (JCL)
  - Utilities
  - Operations
- The Time Sharing Option (TSO) environment:
  - CLISTs and REXX EXECs
  - Interactive Systems Productivity Facility (ISPF)
  - Interactive Systems Productivity Facility/Program Development Facility (ISPF/PDF)
- The Virtual Storage Access Method (VSAM) and the Integrated Catalog Facility (ICF)

Additional Support Required

To complete the IMS to z/OS and IMS to VTAM interface requirements, you will also need the assistance of z/OS system programmers and VTAM system programmers.

Terminology and Related Publications

The following environments are considered to be “online” systems:

- DBCTL
- DCCTL
- DB/DC

These online systems are initially generated using an “ALL” system definition.
The following environments are “batch” systems:

- **DB Batch**
  This system is available as part of an “ALL” system definition for the following online systems:
  - DBCTL
  - DB/DC
  This system can also be generated as a stand-alone environment using a “BATCH” system definition for the following online systems:
  - DBCTL
  - DB/DC

- **TM Batch**
  This system is available as part of an “ALL” system definition for the following online system:
  - DCCTL
  This system can also be generated as a stand-alone environment using a “BATCH” system definition for the following “online” system:
  - DCCTL

“Fast Path” refers to situations where at least one of the following services is utilized: data entry databases (DEDBs), main storage databases (MSDBs), or expedited message handling (EMH).

For a list of related publications, refer to the “Bibliography” on page 243. For more definitions of terminology and further references see the Master Index and Glossary.

### IBM Product Names Used in This Information

In this information, the licensed programs shown in Table 2 are referred to by their short names.

**Table 2. Licensed Program Full Names and Short Names**

<table>
<thead>
<tr>
<th>Licensed program full name</th>
<th>Licensed program short name</th>
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<tbody>
<tr>
<td>IBM® Application Recovery Tool for IMS and DB2</td>
<td>Application Recovery Tool</td>
</tr>
<tr>
<td>IBM CICS® Transaction Server for OS/390®</td>
<td>CICS</td>
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<tr>
<td>IBM CICS Transaction Server for z/OS</td>
<td>CICS</td>
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<tr>
<td>IBM DB2 Universal Database</td>
<td>DB2 Universal Database</td>
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<tr>
<td>IBM DB2 Universal Database for z/OS</td>
<td>DB2 UDB for z/OS</td>
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<tr>
<td>IBM Enterprise COBOL for z/OS and OS/390</td>
<td>Enterprise COBOL</td>
</tr>
<tr>
<td>IBM Enterprise PL/I for z/OS and OS/390</td>
<td>Enterprise PL/I</td>
</tr>
<tr>
<td>IBM High Level Assembler for MVS™ &amp; VM &amp; VSE</td>
<td>High Level Assembler</td>
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<tr>
<td>IBM IMS Advanced ACB Generator</td>
<td>IMS Advanced ACB Generator</td>
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<tr>
<td>IBM IMS Batch Backout Manager</td>
<td>IMS Batch Backout Manager</td>
</tr>
<tr>
<td>IBM IMS Batch Terminal Simulator</td>
<td>IMS Batch Terminal Simulator</td>
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<tr>
<td>IBM IMS Buffer Pool Analyzer</td>
<td>IMS Buffer Pool Analyzer</td>
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<tr>
<td>IBM IMS Command Control Facility for z/OS</td>
<td>IMS Command Control Facility</td>
</tr>
<tr>
<td>Licensed program full name</td>
<td>Licensed program short name</td>
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<tr>
<td>---------------------------------------------------------------</td>
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<tr>
<td>IBM IMS Connect for z/OS</td>
<td>IMS Connect</td>
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<tr>
<td>IBM IMS Connector for Java™</td>
<td>IMS Connector for Java</td>
</tr>
<tr>
<td>IBM IMS Database Control Suite</td>
<td>IMS Database Control Suite</td>
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<td>IBM IMS Database Recovery Facility for z/OS</td>
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<td>IBM IMS Database Repair Facility</td>
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<td>IBM IMS DataPropagator™ for z/OS</td>
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<td>IBM IMS DEDB Fast Recovery</td>
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<td>IBM IMS HALDB Conversion Aid</td>
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<td>IBM IMS High Performance Load for z/OS</td>
<td>IMS HP Load</td>
</tr>
<tr>
<td>IBM IMS High Performance Pointer Checker for OS/390</td>
<td>IMS HP Pointer Checker</td>
</tr>
<tr>
<td>IBM IMS High Performance Prefix Resolution for z/OS</td>
<td>IMS HP Prefix Resolution</td>
</tr>
<tr>
<td>IBM Tivoli® NetView® for z/OS</td>
<td>Tivoli NetView for z/OS</td>
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<tr>
<td>IBM WebSphere® Application Server for z/OS and OS/390</td>
<td>WebSphere Application Server for z/OS</td>
</tr>
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<td>IBM WebSphere MQ for z/OS</td>
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<td>WebSphere Studio</td>
</tr>
<tr>
<td>IBM z/OS</td>
<td>z/OS</td>
</tr>
</tbody>
</table>

Additionally, this information might contain references to the following IBM product names:

- "IBM C/C++ for MVS" or "IBM C/C++ for MVS/ESA" is referred to as either "C/MVS" or "C++/MVS."
- "IBM CICS for MVS" is referred to as "CICS."
- "IBM COBOL for MVS & VM," "IBM COBOL for OS/390 & VM," or "IBM COBOL for z/OS & VM" is referred to as "COBOL."
- "IBM DataAtlas for OS/2" is referred to as "DataAtlas."
- "IBM Language Environment for MVS & VM" is referred to as "Language Environment."
- "IBM PL/I for MVS & VM" or "IBM PL/I for OS/390 & VM" is referred to as "PL/I."
How to Read Syntax Diagrams

The following rules apply to the syntax diagrams that are used in this information:

• Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
  – The >>> symbol indicates the beginning of a syntax diagram.
  – The ---> symbol indicates that the syntax diagram is continued on the next line.
  – The >--- symbol indicates that a syntax diagram is continued from the previous line.
  – The -->< symbol indicates the end of a syntax diagram.
• Required items appear on the horizontal line (the main path).

\[\text{---required_item}---\]

• Optional items appear below the main path.

\[\text{---required_item}---\text{optional_item}---\]

If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.

\[\text{---required_item}---\text{optional_item}---\]

• If you can choose from two or more items, they appear vertically, in a stack. If you must choose one of the items, one item of the stack appears on the main path.

\[\text{---required_item}---\text{required_choice1}---\text{required_choice2}---\]

If choosing one of the items is optional, the entire stack appears below the main path.

\[\text{---required_item}---\text{optional_choice1}---\text{optional_choice2}---\]

If one of the items is the default, it appears above the main path, and the remaining choices are shown below.

\[\text{---required_item}---\text{default_choice}---\text{optional_choice}---\text{optional_choice}---\]

• An arrow returning to the left, above the main line, indicates an item that can be repeated.
If the repeat arrow contains a comma, you must separate repeated items with a comma.

A repeat arrow above a stack indicates that you can repeat the items in the stack.

- Sometimes a diagram must be split into fragments. The syntax fragment is shown separately from the main syntax diagram, but the contents of the fragment should be read as if they are on the main path of the diagram.

- In IMS, a b symbol indicates one blank position.
- Keywords, and their minimum abbreviations if applicable, appear in uppercase. They must be spelled exactly as shown. Variables appear in all lowercase italic letters (for example, column-name). They represent user-supplied names or values.
- Separate keywords and parameters by at least one space if no intervening punctuation is shown in the diagram.
- Enter punctuation marks, parentheses, arithmetic operators, and other symbols, exactly as shown in the diagram.
- Footnotes are shown by a number in parentheses, for example (1).

### How to Send Your Comments

Your feedback is important in helping us provide the most accurate and highest quality information. If you have any comments about this or any other IMS information, you can take one of the following actions:

- Click the Feedback link located at the bottom of every page in the Information Management Software for z/OS Solutions Information Center. The information center can be found at http://publib.boulder.ibm.com/infocenter/imzic.
- Go to the IMS Library page at www.ibm.com/software/data/ims/library.html and click the Library Feedback link, where you can enter and submit comments.
- Send your comments by e-mail to imspubs@us.ibm.com. Be sure to include the title, the part number of the title, the version of IMS, and, if applicable, the specific location of the text on which you are commenting (for example, a page number in the PDF or a heading in the Information Center).
Summary of Changes

Changes to the Current Edition of This Book for Version 9

This edition includes technical and editorial changes.

The following information has been updated:

- The module names were updated in Chapter 2, “Data Sets,” on page 11.
- “Logs” on page 48 information was added in Chapter 3, “Allocating Data Sets,” on page 47.
- A new section “Using RRS” on page 75 was added to Chapter 4, “z/OS Interface Considerations,” on page 65.

Changes to This Book for IMS Version 9

This book contains new technical information for IMS Version 9, changed technical information, and editorial changes.

New information on V9 enhancements include:

- In IMS Version 9 and later, IMS uses a dynamic resource cleanup module (DFSMRC20). The resource cleanup module DFSMRCL0 is no longer required. See Chapter 1, “IMS Installation Reference Information,” on page 3 and Chapter 4, “z/OS Interface Considerations,” on page 65 for more information.
- A new section describing the precedence of installation documentation, “Documentation Precedence” on page 4.
- FMIDs:
  - IMS Connect and the IMS Connector for Java for z/OS components have been incorporated into existing FMIDs. See Table 4 on page 4.
  - The IRLM 2.2 FMID has been added to “Orderable Products—Licensed Program Number 5655–C56” on page 100.
- A new topic, “IMS.ADFSIC4J” on page 19, outlines the data set characteristics for a new IMS Java data set.
- CQS support added to the CSL sample. See “The IVP Dialog” on page 96.
- Information about the IMS Application menu, which can be used to open several applications, including the IVP and the IVP Variable Export utility. See “IMS Application Menu” on page 106.
- A new process for exporting and importing IVP variables between IMS releases. Two new variable-gathering action commands, export (Exp) and import (Imp), and the IVP Variable Export utility (DFSIVPHEX) support this new process. See “Exporting and Importing IVP Variables between IMS Releases” on page 120 for more information.
Library Changes for IMS Version 9

Changes to the IMS Library for IMS Version 9 include the addition of one title, a change of one title, organizational changes, and a major terminology change. Changes are indicated by a vertical bar (|) to the left of the changed text.

The IMS Version 9 information is now available in the Information Management Software for z/OS Solutions Information Center, which is available at http://publib.boulder.ibm.com/infocenter/imzic. The Information Management Software for z/OS Solutions Information Center provides a graphical user interface for centralized access to the product information for IMS, IMS Tools, DB2 Universal Database (UDB) for z/OS, DB2 Tools, and DB2 Query Management Facility (QMF)™.

New and Revised Titles

The following list details the major changes to the IMS Version 9 library:

• **IMS Version 9: IMS Connect Guide and Reference**

  The library includes new information. **IMS Version 9: IMS Connect Guide and Reference** This information is available in softcopy format only, as part of the Information Management Software for z/OS Solutions Information Center, and in PDF and BookManager formats.

  IMS Version 9 provides an integrated IMS Connect function, which offers a functional replacement for the IMS Connect tool (program number 5655-K52). In this information, the term **IMS Connect** refers to the integrated IMS Connect function that is part of IMS Version 9, unless otherwise indicated.

  The information formerly titled **IMS Version 8: IMS Java User’s Guide** is now titled **IMS Version 9: IMS Java Guide and Reference** This information is available in softcopy format only, as part of the Information Management Software for z/OS Solutions Information Center, and in PDF and BookManager formats.

Organizational Changes
Organization changes to the IMS Version 9 library include changes to:

- IMS Version 9: Customization Guide
- IMS Version 9: IMS Java Guide and Reference
- IMS Version 9: Messages and Codes, Volume 1
- IMS Version 9: Utilities Reference: System

A new appendix has been added to the IMS Version 9: Customization Guide that describes the contents of the ADFSSMPL (also known as SDFSSMPL) data set.


The DLIModel utility messages that were in IMS Version 9: IMS Java Guide and Reference have moved to IMS Version 9: Messages and Codes, Volume 1.

Terminology Changes
IMS Version 9 introduces new terminology for IMS commands:

type-1 command
A command, generally preceded by a leading slash character, that can be entered from any valid IMS command source. In IMS Version 8, these commands were called classic commands.

type-2 command
A command that is entered only through the OM API. Type-2 commands are more flexible than type-2 commands and can have a broader scope. In IMS Version 8, these commands were called IMSplex commands or enhanced commands.

Accessibility features for IMS
Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use information technology products successfully.

Accessibility features
The following list includes the major accessibility features in IMS. These features support:

- Keyboard-only operation.
- Interfaces that are commonly used by screen readers.

Note: The Information Management Software for z/OS Solutions Information Center, which is available at http://publib.boulder.ibm.com/infocenter/imzic, and its related publications are accessibility-enabled. You can operate all features using the keyboard instead of the mouse.

Keyboard navigation
You can access the information center and IMS ISPF panel functions by using a keyboard or keyboard shortcut keys.
You can find information about navigating the information center using a keyboard in the information center home at publib.boulder.ibm.com/infocenter/imzic.

For information about navigating the IMS ISPF panels using TSO/E or ISPF, refer to the z/OS V1R1.0 TSO/E Primer, the z/OS V1R5.0 TSO/E User’s Guide, and the z/OS V1R5.0 ISPF User’s Guide, Volume 1. These guides describe how to navigate each interface, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

**IBM and accessibility**

See the IBM Human Ability and Accessibility Center at www.ibm.com/able for more information about the commitment that IBM has to accessibility.
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Chapter 1. IMS Installation Reference Information

This chapter provides reference information for use during an IMS installation. Use this chapter as a supplement to the installation information found in the Program Directory for Information Management System Version 9.

The following topics provide additional information:
- "Distribution Media Considerations"
- "Documentation Precedence" on page 4
- "About the IMS FMIDs" on page 4
- "Components and Optional Features of IMS" on page 5
- "Using Multiple Copies of IMS" on page 6
- "IVP Preconditioning for CICS" on page 9

Distribution Media Considerations

IVP supports the following distribution media:
- CBPDO (Custom-Built Product Delivery Offering)
- ServerPac

For information on CBPDO considerations, see “CBPDO.”

For information on ServerPac considerations, see “ServerPac.”

CBPDO

The CBPDO product package consists of one logical tape (multiple volumes). A CBPDO package that includes IMS can also include other products in the same System Release (SREL). CBPDO also provides service for the products included with the product order.

The service includes all PTFs available within one week of order fulfillment. All PTFs are identified by one or more SOURCEIDs, including PUTyymm, RSUyymm, SMCREC, and SMCCOR.

See the CBPDO “DBS Memo to User Extensions” (shipped with the CBPDO package) for additional information.

ServerPac

ServerPac is an entitled software delivery package. It consists of products and service for which IBM has performed the SMP/E installation steps and some of the post-SMP/E installation steps. To install the package on your system and complete the installation of the software it includes, use the CustomPac Installation Dialog, which is the same dialog used for all CustomPac offerings, including SystemPac® (dump-by-data-set format), ProductPac®, and RefreshPac.

For IMS, ServerPac:
- Allocates, catalogs, and loads all the data sets
- Sets up the SMP/E environment
Distribution Media

- Supplies a job to update PARMLIB (IEFSSNxx, PROGxx, IEASVCxx, and SCHEDxx)
- Directs you to start the IVP

Documentation Precedence

To install IMS, you need to consult various sources of information. At times, late-breaking information cannot be included in a publication because the information is so new. Use the following order of precedence when using installation information. Information provided with the CBPDO, or ServerPac is the most recent and takes precedence over other documentation sources.

1. CBPDO or ServerPac documentation
2. PSP bucket
3. Program Directory for Information Management System Version 9
4. IMS Version 9: Installation Volume 1: Installation Verification

Table 3. IMS Installation Documentation and Where It Can Be Obtained

<table>
<thead>
<tr>
<th>Document</th>
<th>Where to Obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBPDO documentation</td>
<td>• IBM Software Support: 1-800-879-2755</td>
</tr>
<tr>
<td></td>
<td>• <a href="http://www6.software.ibm.com/swdelivery">http://www6.software.ibm.com/swdelivery</a></td>
</tr>
<tr>
<td>ServerPac documentation</td>
<td>• IBM Software Support: 1-800-879-2755</td>
</tr>
<tr>
<td></td>
<td>• <a href="http://www6.software.ibm.com/swdelivery">http://www6.software.ibm.com/swdelivery</a></td>
</tr>
<tr>
<td>PSP bucket</td>
<td>• IBM Software Support: 1-800-879-2755</td>
</tr>
<tr>
<td></td>
<td>• <a href="http://techsupport.services.ibm.com/server/390.psp390">http://techsupport.services.ibm.com/server/390.psp390</a></td>
</tr>
<tr>
<td>Program Directory for IMS V9</td>
<td>CBPDO or ServerPac documentation</td>
</tr>
<tr>
<td></td>
<td>• <a href="http://publib.boulder.ibm.com/infocenter/dzichelp/index.jsp">http://publib.boulder.ibm.com/infocenter/dzichelp/index.jsp</a></td>
</tr>
</tbody>
</table>

About the IMS FMIDs

The IMS product is packaged under several function modification identifiers (FMIDs). This packaging choice was made in response to IMS internal requirements and is subject to change in the future. **The existence of an FMID does not imply that installation of the FMID is optional.** Refer to Table 4 to determine which FMIDs are required, optional, or not applicable. All FMIDs are installed outside of the IVP. See the Program Directory for Information Management System Version 9 for installation instructions.

Table 4. FMID Installation Requirements

<table>
<thead>
<tr>
<th>FMID</th>
<th>Description</th>
<th>DB Batch</th>
<th>DCCTL</th>
<th>DB/DC</th>
<th>DB/DC w/ XRF¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIR2101</td>
<td>Internal Resource Lock Manager V2R1</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>
### Components and Optional Features of IMS

The components and optional features of IMS described in this section can be installed during an IMS installation.

#### IRLM Component

IMS V9 supports the IRLM 2.1 or 2.2 component. IRLM 2.2 is the recommended lock manager for IMS V9.

If IRLM V2.1 or 2.2 is already installed (for example, IRLM V2.2 has already been installed with DB2), you do not need to reinstall it.

Be sure that IRLM is installed before running an IMS system definition requiring the IRLM.

### Related Reading: See the IRLMNM operand in the IMSCTRL macro in IMS Version 9: Installation Volume 2: System Definition and Tailoring.
When using multiple IMS systems of the same release level on the same z/OS system, you need only one IRLM. If two or more IMS systems share data at the block level, they must use the same IRLM.

When using multiple IMS systems of different release levels on the same z/OS system, you can have one IRLM or you can choose to use two or more IRLM address spaces. If two or more IMS systems share data and are running on the same z/OS system, they should use the same IRLM.

When using multiple IMS systems on different z/OS systems for inter-processor block-level data sharing, you must have one IRLM on each z/OS system.

**ETO Feature**

The ETO feature is an optional feature for the following IMS base environments:

- DB/DC
- DCCTL

To enable the ETO feature, specify ETO=Y as a startup parameter.

If the ETOFEAT=(,,ALL) keyword of the IMSCTRL macro is specified, system definition also creates the ETO descriptors.

**Related Reading:** See [IMS Version 9: Installation Volume 2: System Definition and Tailoring](#) for additional information.

**RSR Features**

RSR, which is comprised of the RLT and DLT features, is an optional feature for the following IMS IVP base environments:

- BATCH
- DBCTL
- DB/DC
- DCCTL

When the IVP RLT and DLT options are selected in the IVP, the appropriate options are specified in the IMS SYSGEN to support RLT and DLT. The IVP does not currently provide testing of these features.

For the DLT feature of RSR to be functional, you must use both the RLT and DLT features. During the installation of the RLT feature, only the RLT feature becomes functional. In addition, you must set up a global service group (GSG) and set up a transport manager instance (TMI). The GSG and TMI can be defined in several different places. An IMS system definition must be performed, followed by an SMP/E JCLIN.

**Related Reading:** See [IMS Version 9: Installation Volume 2: System Definition and Tailoring](#) for additional information on including RSR in your IMS system.

**Using Multiple Copies of IMS**

You can run multiple copies of IMS, with or without multiple systems coupling (MSC), in the same z/OS system and execute them concurrently. However, adding MSC allows communication and sharing of work between IMS systems.
Installing Multiple Copies

**Related Reading:** For more information on MSC, see [IMS Version 9: Administration Guide: Transaction Manager](#).

In an XRF complex, the active and alternate IMS subsystems can reside in the same z/OS system (for example, for testing).

**Using the Same IMS Release Level and Environment**

When using multiple copies of IMS at the same release level and environment, the following requirements and conditions apply (regardless of the operating system):

- A unique subsystem identifier is required for each IMS DB/DC, DBCTL, or DCCTL control region. Specify this parameter (IMSID) in the IMS procedure for IMS, or in the DBC procedure for DBCTL, and in the dependent address space procedures (IFP, BMP, and MPP) that override the value specified during system definition. The Parm Block member DFSPBxxx can also override the IMSID value specified during system definition. This value must not conflict with any subsystem identifier defined in the system, including other DB or DB/DC systems.
- Type 2 and Type 4 SVCs and the channel-end appendages can be shared.
- When using multiple copies of IMS systems at the same release level in the same z/OS system, you only need one copy of the Type 2 and Type 4 SVCs.
- All suffixed modules must be unique.

**Related Reading:** See the description of the SUFFIX= keyword of the MSGEN macro in [IMS Version 9: Installation Volume 2: System Definition and Tailoring](#).

- DFSVNUCx modules and security maintenance blocks are required to run different IMS control regions.
- You can store unique copies of module DFSV000, module DFSVNUCx, and the security maintenance blocks (created by the Security Maintenance utility) for each IMS system in a partitioned data set (PDS), concatenated with and in front of IMS.SDFSRESL. Alternatively, you can have unique copies of DFSV000 in a PDS as described, and separate other modules within IMS.SDFSRESL through the SUFFIX= parameter of the MSGEN macro during system definition.

**Recommendation:** Modify your security implementation to use Resource Access Control Facility (RACF®) or an equivalent product. Support for the Security Maintenance utility (SMU) will be eliminated in releases after IMS Version 9.

- Under the z/OS authorized program facility, authorize all libraries from which modules are to be loaded for the control region. For additional information, see “Authorizing IMS System Data Sets in the Authorized Program Facility” on page 73.

- Systems with the same combination of the following resources can share the same IMS.SDFSRESL and IMS.OPTIONS data sets (referred to below as the “data sets”):
  - VTAM
  - BTAM
  - Fast Path (DEDBs or EMH)
  - IRLM
  - MSC
  - XRF

For example, if two systems both use VTAM and IRLM, they can share the data sets. However, if one uses VTAM and the other BTAM, each must have its own data sets.
Another example: If four systems use VTAM, Fast Path, IRLM, MSC, and XRF, they can share the same data sets. However, if one system does not use XRF, three systems can share data sets, but the system without XRF must have its own data sets.

- If systems share IMS.SDFSRESL, you can store DFSMDA definitions in separate, authorized PDSs concatenated in front of IMS.SDFSRESL or use the IMSDALIB feature.

- The following IMS data sets must be unique and separately allocated to each IMS control region:

  IMS.QBLKS
  IMS.SHMSGx
  IMS.LGMSGx
  IMS.IMSMON (IMS Monitor) if used
  IMS.MSDBCP1 if used
  IMS.MSDBCP2 if used
  IMS.MSDBDUMP if used
  IMS.MSDBINIT if used
  IMS.RDS
  Online log data sets (minimum of 3)
  Write-ahead data sets (minimum of 1)

To make these data sets unique for each IMS control region, you can use the NODE= keyword of the IMSGEN macro.

- Each IMS system must have its own terminal network and MSC network (if MSC is included).

### Using Different IMS Release Levels

When running multiple copies of IMS at different release levels under the same operating system, the operating system must be at a version and release level that is required for the most recent release of IMS.

When installing different release levels of IMS in the same z/OS system, remember that running a system using the SVC from a lower level system is not supported. For example, running an IMS Version 9 system using the SVC from IMS Version 8 is not supported. Similarly, running an IMS Version 8 system using the SVC from IMS Version 7 is not supported.

The IMS dump formatting module (DFSAFMD0) installed in the host z/OS system must be from the most recent release of IMS.

In IMS Version 9 and later, IMS uses a dynamic resource cleanup module (DFSMRC20). You do not need to install the static resource cleanup module (DFSMRCL0) on the host z/OS system.

The most recent version of the DFSMRCL0 module must be installed on all pre-V9 IMS systems. For example, if you are running IMS V7, V8, and V9, you must install the module that was distributed with IMS V8.
IVP Preconditioning for CICS

When the full IMS IVP process is performed, the following functions have been performed to support the CICS DBCTL IVP:

- The IMS Sample Application (DI21PART database) has been installed.
- PSBGEN and ACBGEN have been performed for the PSBs used by the CICS DBCTL IVP.
- The database resource adapter (DRA) interface module has been assembled and placed in IMS.SDFSRESL.

Related Reading: For more information on installing DBCTL in a CICS-IMS environment, see *CICS-IMS Database Control Guide*. 
Chapter 2. Data Sets

This chapter contains information on the data sets used by IMS. The types of data sets included in this chapter are:

- IVP Dialog data sets
- SMP/E data sets
- IMS Distribution (DLIB) data sets (SMP/E controlled)
- IMS Target (TLIB) data sets (SMP/E controlled)
- IMS System (SYSTEM) data sets
- IMS Execution (EXECUTION) data sets
- IRLM data sets (Distribution and Target, SMP/E controlled)
- Non-SMP/E data sets
- User level data sets

This chapter also provides the attribute values of each data set. These data set attributes include:

- **DSORG**: Data set organization
- **DSNTYPE**: Data set name type
- **RECFM**: Record format
- **LRECL**: Logical record length
- **BLKSIZE**: Block size

The DSNAME high-level qualifier for DLIB, SYSTEM, and EXECUTION data sets must be specified on the NODE parameter of the IMSGEN macro. TLIB data sets are included in the NODE parameter for SYSTEM data sets. *IMS Version 9: Installation Volume 2: System Definition and Tailoring* describes the IMSGEN macro in detail.

The IMS online change function requires multiple copies of the system data sets IMS.MATRIX, IMS.ACBLIB, IMS.MODBLKS, and IMS.FORMAT. The base copies of these data sets are called “staging libraries,” and the copies form “active and inactive libraries.”

**Related Reading:** Refer to the sections “Tuning Your System” and “Modifying Your System Design” in the *IMS Version 9: Administration Guide: System* for a full explanation of the IMS online change function and procedures for using data sets.

The following topics provide additional information:

- “IVP Dialog Data Sets” on page 12
- “SMP/E Data Sets” on page 12
- “Distribution (DLIB) Data Sets” on page 14
- “Target (TLIB) Data Sets” on page 21
- “System (SYSTEM) Data Sets” on page 26
- “Execution (EXECUTION) Data Sets” on page 31
- “IRLM Data Sets” on page 43
- “Non-SMP/E Data Set (IMS.ADFSOPSC)” on page 44
IVP Data Sets

- “User Data Set (USER.ISPTABL)” on page 44

IVP Dialog Data Sets

IVP Dialog data sets are user data sets (not known to SMP/E) that are needed by the IVP dialog.

**IMS.INSTALIB**

INSTALIB contains the IMS installation materials created by the file tailoring phase of the IVP dialog.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.INSTATBL**

INSTATBL contains the ISPF tables that are read and updated by the IVP dialog.

This data set has the following attributes:

- **DSORG**: Partitioned
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.IVP.EXPORT**

IMS.IVP.EXPORT is the export data set that is used in the process for exporting and importing variables during the IVP variable-gathering phase. The data set can have any name. If the data set does not exist, you can create it during the export process. See “Exporting and Importing IVP Variables between IMS Releases” on page 120 for more information about this process.

- **DSORG**: Sequential or partitioned
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

SMP/E Data Sets

SMP/E data sets establish the SMP/E environment for IMS. IBM does not recommend sharing these data sets with other products.

Depending on your service philosophy, one SMP/E Consolidated Software Inventory (CSI) can support multiple ZONES. Products having the same SMP/E SREL (P115 for IMS) are eligible for sharing the same SMP/E CSI.

For more information on SMP/E, refer to *SMP/E for z/OS and OS/390 Reference*. 

12  Installation Volume 1: Installation Verification
**IMS.DLIBZONE.CSI**

DLIBZONE (for distribution, or DLIB, zone) is used to record information about the status and structure of the distribution libraries. You assign each distribution zone a one to seven-character name when you create it. This name appears in the SET BDY command.

The DLIBZONE data set has the following attribute:

- **DSORG** VSAM KSDS

**IMS.GLBLZONE.CSI**

GLBLZONE (for global zone) contains information about SYSMODS and HOLDDATA that have been processed by the SMP/E RECEIVE. It also contains information that allows SMP/E to access the DLIBZONE and TRGTZONE, and information that allows you to tailor parts of SMP/E processing.

The GLBLZONE data set has the following attribute:

- **DSORG** VSAM KSDS

**IMS.SMPLTS**

The SMPLTS data set is a target library that maintains the base version of a load module. The load module specifies a SYSLIB allocation to implicitly include modules. A base version of a load module includes only the explicitly defined modules for the load module. It is maintained in the SMPLTS if the load module is defined to SMP/E with a SYSLIB allocation (that is, its LMOD entry contains a CALLLIBS subentry list). SMP/E uses the load module in the SMPLTS as input when binding the load module into its specified target libraries.

Each target zone must have its own SMPLTS data set. The SMPLTS cannot be shared with any other target zone.

This data set has the following attributes:

- **DSORG** Partitioned data set extended (PDSE)
- **DSNTYPE** LIBRARY
- **RECFM** U
- **LRECL** 0
- **BLKSIZE** Greater than or equal to 6144

**IMS.SMPPTS**

SMPPTS is used as temporary storage for SYSMODs. It contains one member for each SYSMOD that is received.

This data set has the following attributes:

- **DSORG** Partitioned
- **RECFM** FB
- **LRECL** 80
- **BLKSIZE** Multiple of 80
SMP/E Data Sets

**IMS.SMPSCDS**
IMS.SMPSCDS contains backup copies of target zone entries that are changed by inline JCLIN during APPLY processing.

Each target zone must have its own SMPSCDS data set. The SMPSCDS cannot be shared by any other target zone.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>DSORG</th>
<th>Partitioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECFM</td>
<td>FB</td>
</tr>
<tr>
<td>LRECL</td>
<td>80</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Multiple of 80</td>
</tr>
</tbody>
</table>

**IMS.SMPSTS**
IMS.SMPSTS is a temporary target source library for source modules that exist only in a distribution library.

Each target zone must have its own SMPSTS data set. The SMPSTS cannot be shared by any other target zone.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>DSORG</th>
<th>Partitioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECFM</td>
<td>FB</td>
</tr>
<tr>
<td>LRECL</td>
<td>80</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Multiple of 80</td>
</tr>
</tbody>
</table>

**IMS.TRGTZONE.CSI**
TRGTZONE (for target zone) is used to record information about the status and structure of the target libraries. You assign each target zone a one to seven-character name when you create it. This name appears in the SET BDY command.

Each TRGTZONE must have its own SMPLTS, SMPMTS, SMPSTS, and SMPSCDS data sets. Each TRGTZONE can support only one release of a given product. Products having the same SMP/E SREL (P115 for IMS) are eligible for sharing the same SMP/E TRGTZONE. However, IBM does not recommend this practice.

The TRGTZONE data set has the following attribute:

| DSORG | VSAM KSDS |

**Other SMP/E Data Sets**

**Related Reading:** Refer to SMP/E for z/OS and OS/390 Reference for additional information.

---

**Distribution (DLIB) Data Sets**

IMS distribution libraries (DLIBs) contain the master copy of elements in IMS and can be used to restore SYSMODs in the target library or used in rebuilding a target environment. These data sets are maintained by SMP/E.
Related DLIB Data Sets

This topic lists the IMS FMIDs and their related DLIBs.

The following topics provide additional information:

- “System Services Data Sets”
- “RSR Recovery-Level Tracking feature Data Sets”
- “RSR Database-Level Tracking feature Data Sets”
- “Database Manager Data Sets”
- “Transaction Manager Data Sets”
- “Extended Terminal Option Data Sets” on page 16
- “IMS Java Data Sets” on page 16

System Services Data Sets

The following DLIBs are used by the System Services component FMID:

- IMS.ADFSBASE
- IMS.ADFSCLST
- IMS.ADFSDATA
- IMS.ADFSEXEC
- IMS.ADFSISRC
- IMS.ADFSLOAD
- IMS.ADFSMAC
- IMS.ADFSMLIB
- IMS.ADFSPLIB
- IMS.ADFSRTRM
- IMS.ADFSSSLIB
- IMS.ADFSSMPL
- IMS.ADFSSRC
- IMS.ADFSTLIB

RSR Recovery-Level Tracking feature Data Sets

The RSR Recovery-Level Tracking feature FMID uses the IMS.ADFSLOAD DLIB.

RSR Database-Level Tracking feature Data Sets

The RSR Database-Level Tracking feature FMID uses the IMS.ADFSLOAD DLIB.

Database Manager Data Sets

The following DLIBs are used by the Database Manager FMID:

- IMS.ADFSCLST
- IMS.ADFSLOAD
- IMS.ADFSPLIB
- IMS.ADFSSRC

Transaction Manager Data Sets

The following DLIBs are used by the Transaction Manager FMID:

- IMS.ADFSEXEC
- IMS.ADFSLOAD
- IMS.ADFSPLIB
- IMS.ADFSSMPL
DLIB Data Sets

IMS.ADFSSRC

Extended Terminal Option Data Sets
The Extended Terminal Option feature FMID uses the IMS.ADFSLOAD DLIB.

IMS Java Data Sets
IMS Java uses the following DLIB data sets:
- IMS.ADFSJCIC
- IMS.ADFSJH9
- IMS.ADFSJCL
- IMS.ADFSJLB9
- IMS.ADFSJSAM
- IMS.ADFSJTOL
- IMS.ADFSIC4J

IMS.ADFSBASE
ADFSBASE contains SMP/E sample jobs to install IMS.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

IMS.ADFSCLST
ADFSCLST contains TSO CLISTs.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

IMS.ADFSDATA
ADFSDATA contains data.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80
IMS.ADFSEXEC

ADFSEXEC contains TSO REXX EXECs.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

IMS.ADFSISRC

ADFSISRC contains DBRC skeletal JCL members, a sample application, and miscellaneous source modules.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

IMS.ADFSJCIC

ADFSJCIC contains code required to access IMS when using IMS Java from CICS.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: VB
- **LRECL**: 255
- **BLKSIZE**: Greater than or equal to 259

IMS.ADFSJHF9

ADFSJHF9 contains the IMS Java runtime library.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: VB
- **LRECL**: 255
- **BLKSIZE**: Greater than or equal to 259
DLIB Data Sets

**IMS.ADFSJJCL**
ADFSJJCL contains the side decks for IMS Java.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.ADFSJLB9**
ADFSJLB9 contains local modules for IMS Java.

This data set has the following attributes:
- **DSORG**: Partitioned data set extended (PDSE)
- **DSNTYPE**: LIBRARY
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: Greater than or equal to 6144

**IMS.ADFSJSAM**
ADFSJSAM contains sample Java programs.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: VB
- **LRECL**: 255
- **BLKSIZE**: Greater than or equal to 259

**IMS.ADFSJTOL**
ADFSJTOL contains code for IMS Java tools.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: VB
- **LRECL**: 255
- **BLKSIZE**: Greater than or equal to 259
IMS.ADFSIC4J
ADFSIC4J contains code for IMS Connector for Java for z/OS components.

This data set has the following attributes:
- DSORG: Partitioned
- DSNTYPE: PDS
- RECFM: VB
- LRECL: 255
- BLKSIZE: Greater than or equal to 259

IMS.ADFSLOAD
ADFSLOAD contains individually linked load modules.

This data set has the following attributes:
- DSORG: Partitioned
- DSNTYPE: PDS
- RECFM: U
- LRECL: 0
- BLKSIZE: Greater than or equal to 6144

IMS.ADFSMAC
ADFSMAC contains system definition macros, utility macros, and the macros required for IMS module assembly.

This data set has the following attributes:
- DSORG: Partitioned
- DSNTYPE: PDS
- RECFM: FB
- LRECL: 80
- BLKSIZE: Multiple of 80: the BLKSIZE for this data set should be greater than or equal to the larger of the SYS1.AMACLIB and SYS1.AMODGEN BLKSIZEs.

The BLKSIZEs for ADFSMAC and OPTIONS should be the same to prevent DCB conflicts during IMS system definition and SMP/E processing.

IMS.ADFSMLIB
ADFSMLIB contains ISPF dialog message members.

This data set has the following attributes:
- DSORG: Partitioned
- DSNTYPE: PDS
- RECFM: FB
- LRECL: 80
DLIB Data Sets

**IMS.ADFSPLIB**
ADFSPLIB contains ISPF dialog panels.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.ADFSRTRM**
ADFSRTRM contains description members used by the IVP dialog.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.ADFSSLIB**
ADFSSLIB contains ISPF dialog file tailoring skeletons.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.ADFSSMPL**
ADFSSMPL contains sample jobs and exits.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80
IMS.ADFSSRC

ADFSSRC contains source modules for the IMS DB licensed program, the System Services component, and the Transaction Manager licensed program.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

IMS.ADFSTLIB

ADFSTLIB contains ISPF dialog tables.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

Target (TLIB) Data Sets

The TLIB data sets are the IMS SMP/E target libraries (SYSLIBs), and are the libraries used to run and use IMS.

IMS Data Sets Maintained by SMP/E

The following data sets are built by the SMP/E APPLY job:

- **IMS.MODBLKS**
- **IMS.SDFSBASE**
- **IMS.SDFSCLST**
- **IMS.SDFSPLIB**
- **IMS.SDFSRESL**
- **IMS.SDFSISRC**
- **IMS.SDFSSLIB**
- **IMS.SDFSSSRC**
- **IMS.SDFSTLIB**
Target Data Sets

**IMS System Definition Data Sets**

The following data sets are initially loaded or updated by Stage 2 of the IMS system definition (SYSDEF) process (see also “IMS SYSDEF Data Sets” on page 26):

- IMS.MODBLKS
- IMS.SDFSRESL

**IMS.MODBLKS**

MODBLKS contains the control block modules created by IMS system definition. Its contents are copied by the Online Change utility to either IMS.MODBLKSA or IMS.MODBLKSB.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: Greater than or equal to 32760. Default 32760. IMS.SDFSRESL, MODBLKS, MODBLKSA, and MODBLKSB should have the same BLKSIZE.

**IMS.SDFSBASE**

SDFSBASE is the target library for ADFSBASE and contains sample jobs.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.SDFSCLST**

SDFSCLST is the target library for ADFSCLST and contains TSO CLISTs.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.SDFSDATA**

SDFSDATA is the target library for ADFSDATA and contains data.

This data set has the following attributes:

- **DSORG**: Partitioned
### IMS.SDFSEXEC

SDFSEXEC is the target library for ADFSEXEC and contains TSO REXX EXECs.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

### IMS.SDFSISRC

SDFSISRC is the target library for ADFSISRC and contains DBRC skeletal JCL members, and sample application and miscellaneous source modules.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

### IMS.SDFSJLIB

SDFSJLIB contains the bind output for IMS Java and load modules. It must be APF authorized.

**Related Reading**: For more information, see “Authorizing IMS System Data Sets in the Authorized Program Facility” on page 73.

This data set has the following attributes:

- **DSORG**: Partitioned data set extended (PDSE)
- **DSNTYPE**: LIBRARY
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: Greater than or equal to 32760. Default 32760.

### IMS.SDFSJSID

SDFSJSID is the target library for ADFSJJCL and contains side decks.

This data set has the following attributes:
Target Data Sets

**IMS.SDFSMAC**
IMS.SDFSMAC is the target library for ADFSMAC, and it contains the IMS macros.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

The BLKSIZEs for SDFSMAC and OPTIONS should be the same to prevent DCB conflicts during IMS system definition and SMP/E processing.

**IMS.SDFSMLIB**
SDFSMLIB is the target library for ADFSMLIB and contains ISPF dialog message members.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**IMS.SDFSPLIB**
SDFSPLIB is the target library for ADFSPLIB and contains ISPF dialog panels.

This data set has the following attributes:
- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80
IMS.SDFSRESL

IMS.SDFSRESL contains the IMS nucleus and required action modules. This data set is built by a combination of SYSGEN and SMP/E APPLY processing.

IMS.SDFSRESL must reside on DASD that supports a maximum record size of 18K or greater. This includes 3350s, 3375s, 3380s, and 3390s.

Prior to running online, you should APF authorize IMS.SDFSRESL and any data set concatenated to it on JOBLIB or STEPLIB DD statements. For more information see "Authorizing IMS System Data Sets in the Authorized Program Facility" on page 73.

For IMS batch, APF authorize IMS.SDFSRESL and any data set concatenated to it on the DFSRESLB DD statement. This DD statement provides an authorized library for the IMS SVC modules. You do not need to authorize the JOBLIB or STEPLIB statement for IMS batch. If you omit the DFSRESLB DD statement, the IMS SVC modules are loaded from JOBLIB or STEPLIB, and JOBLIB or STEPLIB data sets must be authorized.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSZIE**: Greater than or equal to 32760. Default 32760. IMS.SDFSRESL, IMS.MODBLKS, IMS.MODBLKSA, and IMS.MODBLKSB should have the same BLKSZIE.

IMS.SDFSRTRM

SDFSRTRM is the target library for ADFSRTRM and contains description members used by the IVP dialog.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSZIE**: Multiple of 80

IMS.SDFSSLIB

SDFSSLIB is the target library for ADFSSLIB and contains ISPF dialog file tailoring skeletons.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
Target Data Sets

LRECL 80
BLKSIZE Multiple of 80

IMS.SDFSSMPL
SDFSSMPL is the target library for ADFSSMPL and contains sample jobs and exits.

This data set has the following attributes:
DSORG Partitioned
DSNTYPE PDS
RECFM FB
LRECL 80
BLKSIZE Multiple of 80

IMS.SDFSSRC
SDFSSRC is the target library for ADFSSRC and contains source programs.

This data set has the following attributes:
DSORG Partitioned
DSNTYPE PDS
RECFM FB
LRECL 80
BLKSIZE Multiple of 80

IMS.SDFSTLIB
SDFSTLIB is the target library for ADFSTLIB and contains ISPF dialog tables.

This data set has the following attributes:
DSORG Partitioned
DSNTYPE PDS
RECFM FB
LRECL 80
BLKSIZE Multiple of 80: INSTATBL and SDFSTLIB must have the same BLKSIZE.

System (SYSTEM) Data Sets
The SYSTEM data sets are IMS system libraries. These data sets are user data sets (not known to SMP/E).

IMS SYSDEF Data Sets
The following data sets are initially loaded by Stage 2 of the IMS system definition (SYSDEF) process. (See also “IMS System Definition Data Sets” on page 22.)
IMS.FORMAT (described in “IMS FORMAT” on page 35)
IMS.LGENIN
IMS.LGENOUT
JOBS Data Sets

JOBS data sets include various IMS jobs.

MATRIX Data Sets

The MATRIX data sets contain the IMS optional security data. The MATRIX data sets include:
- IMS.MATRIX
- IMS.MATRIXA
- IMS.MATRIXB

All three data sets must be read protected. However, you need write authorization for the job, which builds the IMS security tables and matrixes. If required, you can assign a RACF password and user ID. The active MATRIX data set (in use in the online system) at any time corresponds directly to the MODBLKS data set that is active; they must have the same suffix. If MODBLKSA is the active data set, security data is taken from MATRIXA. If MODBLKSB is the active data set, security data is taken from MATRIXB.

MODBLKS Data Sets

The IMS control region, the SMU, and the MSVERIFY utility use IMS.MODBLKS data sets that contain the IMS system definition output for the control block modules affected by online change. The MODBLKS data sets include:
- IMS.MODBLKS
- IMS.MODBLKSA
- IMS.MODBLKSB

For more information see “IMS.MODBLKS” on page 22.

**Recommendation:** Modify your security implementation to use Resource Access Control Facility (RACF) or an equivalent product. Support for the Security Maintenance utility (SMU) will be eliminated in releases after IMS Version 9.

TCFSLIB Data Sets

TCFSLIB data sets contain TCO SCRIPTS.

IMS.JOBS

JOBS contains job streams that are submitted for execution by either the IMS operator command: /START REGION or the z/OS command: START IMSRDR,MBR=. You must customize any jobs stored in this data set with your installation job names, job statement parameters, and other pertinent specifications. This data set also contains the RACF password or user ID (on a job statement), and therefore must be read protected. You can assign a RACF password and user ID to this data set, and optionally code a RACF System Task Authorization exit routine to verify the use of protected data sets. Otherwise, system security cannot be assured.

This data set has the following attributes:
**System Data Sets**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Partitioned</td>
</tr>
<tr>
<td>DSNTYPE</td>
<td>PDS</td>
</tr>
<tr>
<td>RECFM</td>
<td>FB</td>
</tr>
<tr>
<td>LRECL</td>
<td>80</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Multiple of 80</td>
</tr>
</tbody>
</table>

**IMS.LGENIN**

LGENIN contains the input for the LGEN System Definition Sort/Split function.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Partitioned</td>
</tr>
<tr>
<td>DSNTYPE</td>
<td>PDS</td>
</tr>
<tr>
<td>RECFM</td>
<td>FB</td>
</tr>
<tr>
<td>LRECL</td>
<td>80</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Multiple of 80. Default 11440. IBM recommends a large BLKSIZE for processing efficiency.</td>
</tr>
</tbody>
</table>

**IMS.LGENOUT**

LGENOUT contains the output from the LGEN System Definition Sort/Split function. The members of this data set are used as input for conditional assembly steps during stage 2 of system definition.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Partitioned</td>
</tr>
<tr>
<td>DSNTYPE</td>
<td>PDS</td>
</tr>
<tr>
<td>RECFM</td>
<td>FB</td>
</tr>
<tr>
<td>LRECL</td>
<td>80</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Multiple of 80. Default 11440. IBM recommends a large BLKSIZE for processing efficiency.</td>
</tr>
</tbody>
</table>

**IMS.MATRIX**

MATRIX contains the security tables created by the IMS Security Maintenance Utility (SMU). Its contents are copied by the Online Change utility to either IMS.MATRIXA or IMS.MATRIXB.

**Recommendation:** Modify your security implementation to use Resource Access Control Facility (RACF) or an equivalent product. Support for the Security Maintenance utility (SMU) will be eliminated in releases after IMS Version 9.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Partitioned</td>
</tr>
<tr>
<td>DSNTYPE</td>
<td>PDS</td>
</tr>
<tr>
<td>RECFM</td>
<td>U</td>
</tr>
<tr>
<td>LRECL</td>
<td>0</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>User choice. Default 6144.</td>
</tr>
</tbody>
</table>
**IMS.MATRIXA, IMS.MATRIXB**

MATRIXA and MATRIXB contain MATRIX members. When one of these libraries is active (in use by the online system), the contents of IMS.MATRIX are copied to the other, or inactive, library for use in the next online change run.

IMS.MATRIXA or IMS.MATRIXB can be brought online by a sequence of master terminal operator /MODIFY commands.

Prior to running online, you should APF authorize these data sets to the z/OS system. For more information, see “Authorizing IMS System Data Sets in the Authorized Program Facility” on page 73.

These data sets have the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User choice. Default 6144.

**IMS.MODBLKSA, IMS.MODBLKSB**

MODBLKSA and MODBLKSB contain MODBLKS members. When one of these libraries is active (in use by the online system), the contents of IMS.MODBLKS are copied to the other, or inactive, library for use in the next online change run.

IMS.MODBLKSA or IMS.MODBLKSB can be brought online by a sequence of master terminal operator /MODIFY commands.

Prior to running online, you should APF authorize these data sets to the z/OS system. For more information, see “Authorizing IMS System Data Sets in the Authorized Program Facility” on page 73.

These data sets have the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: Greater than or equal to 32760. Default 32760. IMS.SDFSRESL, MODBLKS, MODBLKSA, and MODBLKSB should have the same BLKSIZE.

**IMS.OBJDSET**

OBJDSET contains the assembler output created during IMS system definition Stage 2 execution. You specify the name of this data set in the IMSGEN macro.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
System Data Sets

LRECL  80
BLKSIZE Multiple of 80 less than or equal to 3200. This BLKSIZE limit of 3200 is a binder-imposed maximum for data sets containing object modules referenced by INCLUDE.

IMS.OPTIONS
OPTIONS contains the configuration dependent macros stored there by Stage 2 processing.

This data set has the following attributes:
DSORG Partitioned
DSNTYPE PDS
RECFM FB
LRECL 80
BLKSIZE Multiple of 80. The BLKSIZE for this data set should be greater than or equal to the larger of the SYS1.SDFSMAC and SYS1.AMODGEN BLKSIZEs.

The BLKSIZEs for SDFSMAC and OPTIONS should be the same to prevent DCB conflicts during IMS system definition and SMP/E processing.

IMS.PROCLIB
PROCLIB contains the cataloged procedure and control statement members that are created by IMS system definition. It also contains user-created control statement members that are used to tailor IMS. After system definition, you might need to move some procedures to SYS1.PROCLIB.

Related Reading: Refer to [IMS Version 9: Installation Volume 2: System Definition and Tailoring](#) for additional information.

This data set has the following attributes:
DSORG Partitioned
DSNTYPE PDS
RECFM FB
LRECL 80
BLKSIZE Multiple of 80 less than or equal to 3200.

IMS.TCFSLIB
TCFSLIB contains control statement members (scripts) used by IMS time-controlled operations (TCO).

This data set has the following attributes:
DSORG Partitioned
DSNTYPE PDS
RECFM F
LRECL 80
Execution (EXECUTION) Data Sets

These data sets are used during the execution of the IMS system and its related utilities. These data sets are user data sets (not known to SMP/E).

ACBLIB Data Sets

The ACBLIB data sets contain the application description and database control blocks. The ACBLIB data sets include:

IMS.ACBLIB  
IMS.ACBLIBA  
IMS.ACBLIBB

They require space for each PSB and all unique physical DBDs.

In systems that share data, the ACBLIBs in both systems must be identical, or the systems must share the same ACBLIB.

DBDLIB Data Sets

The IMS.DBDLIB data set contains the database description blocks (DBDs) created by the DBDGEN utility.

DBRC RECON Data Sets

The RECON data sets contain the registration information for all IMS databases identified to it. The RECON data sets include:

IMS.RECON1  
IMS.RECON2  
IMS.RECON3

FORMAT Data Sets

These data sets contain MFS definitions. The FORMAT data sets include:

IMS.FORMAT  
IMS.FORMATA  
IMS.FORMATB  
IMS.REFERAL  
IMS.TFORMAT

IMS.REFERAL, IMS.FORMAT, and IMS.TFORMAT are initialized during Stage 2 of IMS system definition. IMS.FORMATA and IMS.FORMATB are created by copying the staging library, IMS.FORMAT. You must allocate one additional track for each user-defined format/message descriptor set for the IMS.FORMAT, IMS.REFERAL, and IMS.TFORMAT data sets.

Log Data Sets

The log data sets include:

IMS.DFSOLPnn  
IMS.DFSOLSnn  
IMS.DFSWADSn  
IMS.IEFRDER
Message Queue Data Sets
The message queue data sets are used for message queueing. The message queue data sets include:
- IMS.LGMSG
- IMS.LGMSG1-LGMSG9
- IMS.LGMSGL
- IMS.MODSTAT
- IMS.QBLKS
- IMS.QBLKSL
- IMS.SHMSG
- IMS.SHMSG1-SHMSG9
- IMS.SHMSGL

For information on allocating the Message Queue Data Sets, refer to “Message Queues” on page 54.

MSDB Data Sets
MSDB data sets contain information associated with MSDB databases. The MSDB data sets include:
- IMS.MSDBCP1
- IMS.MSDBCP2
- IMS.MSDBCP3
- IMS.MSDBCP4
- IMS.MSDBDUMP
- IMS.MSDBINIT

Online Change Data Sets
The online change data sets include:
- IMS.MODSTAT
- IMS.MODSTAT2
- IMSPLEX.OLCSTAT

PGMLIB Data Sets
The IMS.PGMLIB data set contains user-written application programs and required and optional user exit routines.
PSBLIB Data Sets

The IMS.PSBLIB data set contains the program specification blocks (PSBs) created by the PSBGEN utility.

SYSOUT Data Sets

SYSOUT data sets include:

- IMS.SYSOnnn Data Sets—Refer to “IMS.SYSOnnn” on page 42 and to “SPOOL SYSOUT” on page 59.
- Direct Output Data Sets—Refer to “Direct Output” on page 47.

Trace Data Sets

Trace data sets contain output from IMS internal tracing. The trace data sets include:

- IMS.DFSTRA01
- IMS.DFSTRA02
- IMS.DFSTRA0T

IMS.ACBLIB

ACBLIB contains the application control blocks (ACBs) created by the ACBGEN utility. Its contents are copied by the Online Change Utility to either IMS.ACBLIBA or IMS.ACBLIBB.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Partitioned</td>
</tr>
<tr>
<td>DSNTYPE</td>
<td>PDS</td>
</tr>
<tr>
<td>RECFM</td>
<td>U</td>
</tr>
<tr>
<td>LRECL</td>
<td>0</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>User choice. Default 6144.</td>
</tr>
</tbody>
</table>

IMS.ACBLIBA, IMS.ACBLIBB

ACBLIBA and ACBLIBB contain ACBLIB members. When one of these libraries is active (in use by the online system), the contents of IMS.ACBLIB are copied to the other, or inactive, library for use in the next online change run.

IMS.ACBLIBA or IMS.ACBLIBB can be brought online by a sequence of master terminal operator /MODIFY commands.

If you specify DOPT in the APPLCTN macro, concatenate the library containing these PSBs after the library containing the non-DOPT PSBs (that is, after the library pointed to by the IMS.ACBLIBA or IMS.ACBLIBB DD cards). The order of concatenation must be the same for IMS.ACBLIBA and IMS.ACBLIBB.

These data sets have the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Partitioned</td>
</tr>
<tr>
<td>DSNTYPE</td>
<td>PDS</td>
</tr>
<tr>
<td>RECFM</td>
<td>U</td>
</tr>
<tr>
<td>LRECL</td>
<td>0</td>
</tr>
</tbody>
</table>
Execution Data Sets

**IMSDBDLIB**

DBDLIB contains the database description blocks (DBDs) created by the DBDGEN utility. Each DBD (one per database) requires approximately 1500 to 2500 bytes of direct access storage. Exact requirements depend on the number of data set groups, segments, fields, and hierarchic levels.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User choice. Default 6144.

**IMS.DFSOLPnn, IMS.DFSOLSnn**

DFSOLPnn and DFSOLSnn are the online log data sets (OLDS) used by the IMS online systems. OLDS can occur singly (SNGL) or in pairs (DUAL). DFSOLPnn is the primary (or SNGL) OLDS. DFSOLSnn is the secondary OLDS. The nn suffix can range from 00 to 99. A minimum of 3 OLDSs (SNGL or DUAL) must be available to start IMS.

**Related Reading:** For additional information, refer to “Logs” on page 48.

These data sets have the following attributes:

- **DSORG**: Sequential
- **RECFM**: VB
- **LRECL**: BLKSIZE-4
- **BLKSIZE**: Multiple of 2048 greater than or equal to 6144. These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified. IBM recommends that you choose a BLKSIZE that results in from 1 to 4 blocks per track.

**IMS.DFSTRA01, IMS.DFSTRA02**

DFSTRA01 and DFSTRA02 are the external trace data sets used by the IMS online systems. The two data sets are used when the trace table OUT parameter is used in the DFSVSMxx OPTIONS statement or when the /TRACE SET ON TABLE nnn OPTION LOG command is used. The data sets are used in a wrap-around fashion. (When DFSTRA01 fills, then DFSTRA02 is used. When DFSTRA02 fills, then DFSTRA01 is used.)

These data sets have the following attributes:

- **DSORG**: Sequential
- **RECFM**: VB
- **LRECL**: 4016
- **BLKSIZE**: (LRECL*n)+4. The block size must be a multiple of the LRECL (4016), with an additional 4 bytes for the block descriptor word. The recommended BLKSIZE is 20084, which is 5 logical records.
The block descriptor word (4) is recommended for current DASD, because it is 1/2 track. Future DASD might change the track size, and older DASD might have different track sizes.

These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

**IMS.DFSTRA0T**

If you prefer to use tape for the external trace data set, you must use DFSTRA0T instead of DFSTRA01 and DFSTRA02.

DFSTRA0T must be dynamically allocated.

This data set has the following attributes:

- **DSORG**: Sequential
- **RECFM**: VB
- **LRECL**: 4016
- **BLKSIZE**: \((LRECL\times n)+4\)

**IMS.DFSWADSn**

DFSWADSn are the write-ahead data sets (WADS) used by the IMS online systems. WADS can occur singly (SNGL) or in pairs (DUAL), but primary or secondary concepts do not apply as they do with OLDS. The \(n\) suffix can range from 0 to 9. A minimum of 1 WADS must be available to start IMS.

For additional information, refer to "Logs" on page 48.

These data sets have the following attributes:

- **DSORG**: Sequential
- **KEYLEN**: 1
- **RECFM**: F
- **LRECL**: 2080
- **BLKSIZE**: 2080

These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

**IMS.FORMAT**

FORMAT contains the message format service blocks (MFS) created by the MFS Language utility. Its contents are copied by the Online Change Utility to either IMS.FORMATA or IMS.FORMATB.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
Execution Data Sets

| BLKSIZE | User choice. Default 6144. The FORMAT, FORMATA, FORMATB, and TFORMAT data sets must all have the same BLKSIZE. |

**IMS.FORMATA, IMS.FORMATB**

FORMATA and FORMATB contain FORMAT members. When one of these libraries is active (in use by the online system), the contents of IMS.FORMAT are copied to the other, or inactive, library for use in the next online change run.

IMS.FORMATA or IMS.FORMATB can be brought online by a sequence of master terminal operator /MODIFY commands.

These data sets have the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User choice. Default 6144. The FORMAT, FORMATA, FORMATB, and TFORMAT data sets must all have the same BLKSIZE.

**IMS.IEFRDER, IMS.IEFRDER2**

IEFRDER usually refers to the primary IMS batch log. IEFRDER2 usually refers to the secondary IMS batch log. They can also refer to the input data set in the IMSRDR procedure.

For additional information, refer to “Logs” on page 48.

In batch logging, these data sets have the following attributes:

- **DSORG**: Sequential
- **RECFM**: VB
- **LRECL**: BLKSIZE-4
- **BLKSIZE**: User choice between 4K and 32K; IBM recommends a 2K multiple greater than or equal to 6K.

**IMS.IMSMON**

IMSMON contains the trace records for either the DB Monitor or IMS (System) Monitor if the trace records are not routed to the IMS log.

For additional information, refer to “Logs” on page 48.

This data set has the following attributes:

- **DSORG**: Sequential
- **RECFM**: VB
- **LRECL**: BLKSIZE-4
- **BLKSIZE**: User choice; IBM recommends a 2K multiple greater than or equal to 6K.
**IMS.MODSTAT**

MODSTAT contains information to indicate which of the following suffixed data sets the IMS online system must use at initialization time. MODSTAT must be the ddname for these data sets.

- ACBLIBA or ACBLIBB
- FORMATA or FORMATB
- MODBLKSA and MATRIXA or MODBLKSB and MATRIXB

This data set has the following attributes:

- **DSORG**: Sequential
- **RECFM**: F
- **LRECL**: 80
- **BLKSIZE**: 80

This data set is a single-record BSAM data set and requires one track of storage.

Before the IMS system can be run, you need to initialize IMS.MODSTAT.

**IMS.MODSTAT2**

MODSTAT2 is used only in an XRF complex; this data set is identical in function to IMS.MODSTAT. Its ddname must be MODSTAT2. As with MODSTAT, you need to initialize this data set before the IMS system can run.

This data set has the following attributes:

- **DSORG**: Sequential
- **RECFM**: F
- **LRECL**: 80
- **BLKSIZE**: 80

This data set is a single-record BSAM data set and requires one track of storage.

**IMS.MSDBCP1, IMS.MSDBCP2**

MSDBCP1 and MSDBCP2 are required if MSDBs are defined to the system. During each IMS checkpoint, a control record followed by the contents of the contiguous block of virtual storage occupied by the MSDBs is written to one of these data sets. The data sets are used alternately by successive checkpoints, with each subsequent checkpoint overlaying a previous one.

These data sets have the following attributes:

- **DSORG**: Sequential
- **RECFM**: Determined by IMS
- **LRECL**: Determined by IMS
- **BLKSIZE**: Determined by IMS

These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.
Execution Data Sets

**IMS.MSDBCP3, IMS.MSDBCP4**

MSDBCP3 and MSDBCP4 are used only in an XRF complex; these data sets are identical in function to MSDBCP1 and MSDBCP2. With XRF, any two of the four data sets can contain the latest MSDB checkpoint. Although an active subsystem can select the data set containing the latest MSDB checkpoint and any other, the alternate subsystem must select the two data sets not used by the active subsystem.

These data sets have the following attributes:

- **DSORG**: Sequential
- **RECFM**: Determined by IMS
- **LRECL**: Determined by IMS
- **BLKSIZE**: Determined by IMS

These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

**IMS.MSDBDUMP**

MSDBDUMP is required when the command /DBDUMP specifies database MSDB. This command causes a dump of all MSDBs to be written to this data set. The contents are identical to that of MSDBCPx. Successive executions of the command cause the previous contents to be overlaid.

This data set has the following attributes:

- **DSORG**: Sequential
- **RECFM**: Determined by IMS
- **LRECL**: Determined by IMS
- **BLKSIZE**: Determined by IMS

This data set must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

**IMS.MSDBINIT**

MSDBINIT is required for an IMS system that includes MSDBs. This data set contains a record for each MSDB segment. It is read during all cold starts and during a normal restart if the MSDBLOAD parameter is specified for the /NRESTART command. It is produced by executing the MSDB Dump Recovery or MSDB Maintenance utility. MSDBINIT can contain one, several, or all MSDBs defined.

This data set has the following attributes:

- **DSORG**: Sequential
- **RECFM**: VBT
- **LRECL**: BLKSIZE-4
- **BLKSIZE**: User choice

This data set must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.
IMS.PGMLIB

PGMLIB contains user-written application programs and required and optional user exit routines.

This data set has the following attributes:

- **DSORG**: Partitioned or Partitioned Extended (PDSE)
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User choice. Default 6144.

IMSPLEX.OLCSTAT

OLCSTAT is an optional data set that contains global online change information and status. OLCSTAT is a global data set that is dynamically allocated by IMS. The MODSTAT and MODSTAT2 data sets do not need to be defined in the IMS control region JCL when OLCSTAT is used.

To enable global online change, OLCSTAT must be defined instead of the local MODSTAT data set. All IMSs in an IMSplex must define the same physical OLCSTAT data set. Otherwise, IMS initialization fails. OLCSTAT is required if OLC=GLOBAL is defined.

To initialize the OLCSTAT data set, run the Global Online Change utility, DFSUOLC0.

This data set has the following attributes:

- **DSORG**: Sequential
- **RECFM**: V
- **LRECL**: 5204
- **BLKSIZE**: Default 5208

IMS.PSBLIB

PSBLIB contains the program specification blocks (PSBs) created by the PSBGEN utility. Each PSB (one per program) requires approximately 250 to 500 bytes of direct access storage. Exact requirements depend on the number of databases (PCBs) in the PSB and the number of sensitive segments. This data set is required in DB and DB/DC systems.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User choice. Default 6144.
IMS.QBLKS, IMS.SHMSG/1-9, IMS.LGMSG/1-9

QBLKS, SHMSG, and LGMSG are required by the IMS DB/DC system for message queuing. Space requirements for message queue data sets vary with the system environment. Allocation guidelines are presented separately under "Message Queues" on page 54.

These data sets have the following attributes:

- **DSORG**: Sequential
- **RECFM**: Determined by IMS
- **LRECL**: Determined by IMS
- **BLKSIZE**: Determined by IMS

These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

For SHMSG and LGMSG, up to ten data sets can be provided for each. Multiple message queue data sets provide for configuration flexibility and performance.

If you use multiple data sets, you must do the following:

- Add the data sets in sequence, with SHMSG or LGMSG specified first.
- Specify the same space allocation for all data sets. Even if you allocate different amounts for multiple data sets, the smallest amount specified is the amount used for all data sets. For example, if four data sets are allocated with 600, 600, 500, and 400 cylinders respectively, the actual total available space is 1600 cylinders (4 X 400), rather than 2100 cylinders (the sum of the allocated amounts). Records are assigned to the data sets cyclically; thus, the smallest space allocated controls the amount of space for all, which in turn determines the total space available and the highest valid record number.

The ddnames for the data sets must be:

- For SHMSG:
  - SHMSG
  - SHMSG1
  - SHMSG2
  - SHMSG3
  - SHMSG4
  - SHMSG5
  - SHMSG6
  - SHMSG7
  - SHMSG8
  - SHMSG9

- For LGMSG:
  - LGMSG
  - LGMSG1
  - LGMSG2
  - LGMSG3
  - LGMSG4
  - LGMSG5
- LGMSG6
- LGMSG7
- LGMSG8
- LGMSG9

**IMS.QBLKSL, IMS.SHMSGL, IMS.LGMSGL**

QBLKSL, SHMSGL, and LGMSGL are used only in an XRF complex; these data sets are similar in function to the regular message queue data sets. These data sets are always cold started and used as local message queues on an XRF alternate subsystem, from startup until completion of takeover, when the regular message queues become available. The DCB specification for the local message queue data sets must match the regular message queue data sets. However, the local message queues can be much smaller. The local message queues must be large enough to hold the shutdown message margin, plus primary and secondary IMS master terminal messages until they are dequeued.

These data sets have the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Sequential</td>
</tr>
<tr>
<td>RECFM</td>
<td>Determined by IMS</td>
</tr>
<tr>
<td>LRECL</td>
<td>Determined by IMS</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Determined by IMS</td>
</tr>
</tbody>
</table>

These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

**IMS.RDS**

RDS contains information required for recovery, including the checkpoint ID table required for restarting IMS. However, RDS does not contain any log records.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Sequential</td>
</tr>
<tr>
<td>RECFM</td>
<td>Determined by IMS</td>
</tr>
<tr>
<td>LRECL</td>
<td>Determined by IMS</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Determined by IMS</td>
</tr>
</tbody>
</table>

You should allocate a minimum of five contiguous tracks to this data set.

**IMS.RDS2**

RDS2 is used only in an XRF complex; this data set is identical in function to IMS.RDS.

This data set has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Sequential</td>
</tr>
<tr>
<td>RECFM</td>
<td>Determined by IMS</td>
</tr>
<tr>
<td>LRECL</td>
<td>Determined by IMS</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Determined by IMS</td>
</tr>
</tbody>
</table>
You should allocate a minimum of five contiguous tracks to this data set. Do not manage either RDS data set with a migration or recall system that might recall the data set to a volume other than the one to which it was originally allocated. If you do so, IMS might be unable to warm start or emergency start the system.

**IMS.RECON1, IMS.RECON2, IMS.RECON3**

RECON1, RECON2, and RECON3 data sets contain system restart and recovery information managed by the Database Recovery Control (DBRC) function.

These data sets have the following attribute:

| DSORG | VSAM KSDS |

**IMS.REFERAL**

REFERAL contains intermediate text copies of descriptions supplied to the MFS Language utility.

This data set has the following attributes:

| DSORG | Partitioned |
| DSNTYPE | PDS |
| RECFM | FB |
| LRECL | 80 |
| BLKSIZE | Multiple of 80 |

**IMS.SYSOnnn**

The SYSOnnn DASD data sets are used to store spool SYSOUT data. The contents of these data sets can be printed using the SPOOL SYSOUT Print utility. This utility is either scheduled automatically or must be submitted manually, depending upon an option in the LINEGRP system definition macro. \( mnn \) is a one- to three-digit suffix assigned sequentially by IMS during system definition.

This data set has the following attributes:

| DSORG | Sequential |
| RECFM | UM |

These data sets must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

These data sets must be initialized before they are used by IMS. For example, these data sets can be allocated on the SYSUT2 DD statement for the IEBGENER utility. Use DD DUMMY for SYSUT1. Specify DCB attributes for both SYSUT1 and SYSUT2.

For more information on how to allocate SPOOL data sets, see "SPOOL SYSOUT" on page 59.

**IMS.TFORMAT**

TFORMAT contains the online MFS descriptors, created by the MFS Language utility, for MFSTEST (test mode) online execution.
This data set must be concatenated in front of FORMATA or FORMATB in the IMSTFMTA or IMSTFMTB DD statements in the IMS execution procedure.

If you change MFS formats online, two DD statements must point to this TFORMAT data set, or the DD statements can point to two separate TFORMAT data sets.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User Choice. Default 6144. The FORMAT, FORMATA, FORMATB, and TFORMAT data sets must all have the same BLKSIZE.

This data set must be allocated as a single extent (contiguous tracks). Secondary allocation must not be specified.

### IRLM Data Sets

The IRLM data sets are the distribution and target libraries associated with the IRLM.

**IMS.ADXRLOAD**

ADXRLOAD is the IRLM distribution library that contains object modules.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User choice. Greater than or equal to 6144.

**IMS.ADXRSAMP**

ADXRSAMP is the IRLM distribution library that contains JCL.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80.

**IMS.SDXRSAMP**

SDXRSAMP is the IRLM target library that contains load modules.

This data set has the following attributes:
**IRLM Data Sets**

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80.

**IMS.SDXRRESL**

IMS.SDXRRESL is the IRLM target library that contains load modules.

Prior to running online, you should APF authorize IMS.SDXRRESL to the z/OS system. For more information see, "Authorizing IMS System Data Sets in the Authorized Program Facility" on page 73.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: U
- **LRECL**: 0
- **BLKSIZE**: User choice. Greater than or equal to 32760.

**Non-SMP/E Data Set (IMS.ADFSOPSC)**

ADFSOPSC is not installed by SMP/E.

ADFSOPSC contains optional machine-readable material (assembler language source output from the PL/X compiler) for the IMS System Services and IMS Database Manager (IMS DB) licensed program product and its dependent features and functions.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80

**User Data Set (USER.ISPTABL)**

These data sets can be allocated by the user.

Some IMS programs use ISPF as a dialog manager and might require the use of a user table data set. The user data set might be required to use some of the features of DFSSPOC, DFSHALDB, and Syntax Checker. The USER.ISPTABL data set must be the only data set allocated to file ISPTABL and must also be in the ISPTLIB concatenation before the IMS.SDFSTLIB data set.
Multiple users cannot use the same USER.ISPTABL data set at the same time. A user can have more than one USER.ISPTABL data set, but can use only one data set at a time.

This data set has the following attributes:

- **DSORG**: Partitioned
- **DSNTYPE**: PDS
- **RECFM**: FB
- **LRECL**: 80
- **BLKSIZE**: Multiple of 80
Chapter 3. Allocating Data Sets

Related Reading: The DBRC RECON data set data is described in IMS Version 9: Database Recovery Control (DBRC) Guide and Reference.

The following topics provide additional information:
- “Direct Output”
- “Logs” on page 48
- “Message Queues” on page 54
- “OSAM” on page 54
- “VSAM” on page 55
- “Online Change” on page 56
- “Without Online Change” on page 58
- “SPOOL SYSOUT” on page 59
- “XRF Data Sets” on page 61
- “Dynamic Allocation Considerations” on page 63
- “Global Resource Serialization Considerations” on page 63
- “JES Considerations” on page 64
- “RACF Considerations” on page 64

Direct Output

For direct SYSOUT lines defined to IMS, you can use any valid output device supported by the operating system’s BSAM. You can specify the following record formats: F, FM, FB, FBM, FBS, FBSM, V, VM, VB, and VBM. You can specify block sizes, but these are adjusted downward at execution time if they are larger than system-definition maximums.

For fixed-format records, the system-defined buffer size must be at least 20 bytes longer than the DCB block size for the data set. For variable-length records, the buffer size must be 16 bytes longer than the desired block size, including Block Descriptor Word and Record Descriptor Word. To accommodate the data to be written, you can select logical record specifications that are restricted as follows:
- For fixed-format records, the block size must be an even multiple of logical record length.
- For unblocked variable-format records, maximum logical record length equals block size minus 4, and must include the RDW (4 bytes).

Table 5 lists device types and the corresponding default data set values for direct output data sets. If you do not supply DCB parameters, these default record format, logical record length, and block size values apply.

Table 5. Default Data Set Attributes for Direct Output Data Sets

<table>
<thead>
<tr>
<th>Device Type</th>
<th>RECFM</th>
<th>LRECL</th>
<th>BLKSIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3211</td>
<td>VM</td>
<td>137</td>
<td>141</td>
</tr>
<tr>
<td>2540P</td>
<td>V</td>
<td>84</td>
<td>88 (note 1)</td>
</tr>
<tr>
<td>2400 series tape</td>
<td>VBM</td>
<td>125</td>
<td>(note 2)</td>
</tr>
</tbody>
</table>

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Direct Output Data Sets

Table 5. Default Data Set Attributes for Direct Output Data Sets (continued)

<table>
<thead>
<tr>
<th>Device Type</th>
<th>RECFM</th>
<th>LRECL</th>
<th>BLKSIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DASD</td>
<td>VBM</td>
<td>125</td>
<td>1/4 Track</td>
</tr>
</tbody>
</table>

Notes:
1. Control characters are not supported.
2. Block size only depends on system-definition buffer size. Each segment is treated as a logical record. When you specify blocking, all segments of a message are contained within a block, unless the block size is not large enough.

   Fixed-length segments are padded with trailing blanks. If blocking is used, the balance of the block is also padded when a message does not have the same number of segments as logical records in the block.

   Tape blocks are not shorter than 18 bytes, regardless of the record format.

   Because volume switching is provided by operator command when tape is used, specify a large value (for example, 99) for the volume count sub-parameter of the VOLUME keyword on the associated DD statement. In an IMS system in which binary synchronous devices are also operating, and only one tape drive is allocated, timeout problems can occur.

Logs

For online IMS executions, allocate the IMS log to multiple data sets on DASD. Log records are initially written to an OLDS, and subsequently copied (archived) to the system log data set (SLDS). An SLDS can be on DASD or tape. Batch users can allocate a log (also known as the system log data set) to DASD or tape.

In addition, for log write-ahead, provide the write-ahead data sets (WADS). You can specify log write-ahead options in the DCLWA keyword of the TRANSACT macro. Log records created by IMS can be written to a WADS before the results of processing are externalized. Thus, a WADS contains a copy of committed log records in the online log data set buffers that have not yet been written to an OLDS.

Related Reading: For additional information on IMS logging, see IMS Version 9: Operations Guide. For the JCL requirements for the IMS log data sets, see IMS Version 9: Installation Volume 2: System Definition and Tailoring.

You do not need DD statements for this log and the system output log (IEFRDER and IERGDER2) for online IMS executions; you must remove the DD statements from your JCL. With batch, however, do not change the DD statements for logging.

If you specify a secondary log in the IMSCTF macro, the ddnames for the primary and secondary log data sets must be IERGDER and IERGDER2. The system rounds the BLKSIZE for IERGDER and IERGDER2 data sets to a double-word boundary (a multiple of eight).

If you specify MONITOR in the IMSCTF macro, the IMSMON DD statement is used for both the DB and IMS Monitor data sets. You can allocate the IMSMON data set on DASD or tape (SL or SUL). You need a minimum of two buffers. If the block size you specify is smaller than the system-calculated minimum, the latter is used. The block size is rounded up to a double-word boundary (a multiple of eight). You can specify the IMSMON data set through a JCL DD statement or a DFSMDA dynamic allocation member. If the block size is dynamically allocated,
the default is 4096. If it is JCL allocated and DCB=BLKSIZE=NNNN is not specified in the IMSMON DD statement, the default block size is 1048 even if a larger block size is preallocated.

If you do not specify BLKSIZE, or if BLKSIZE=0 is coded in the JCL, the default for batch log data sets is LRECL=4092 and BLKSIZE=4096.

If you are using a 64 bit capable environment with OLDS blocksize that is a multiple of 4K, and you allocate a tape device for this IMSMON, it must be a 64 bit capable device. If the tape device is not 64 bit capable, the Monitor will not start and you will receive the error message: DFS2201I “OPEN ERROR FOR IMSMON”.

Online Logs

The online log data sets are required for online IMS execution. Because OLDS can be required for restart, it cannot be a temporary data set. Single or dual online logs can be specified by the OLDSDEF control statement in the DFSVSMxx member of IMS.PROCLIB. The only specific naming requirements for online log data sets is that they be unique. However, ddnames for the online log data set must be of the form DFSOLPnnn for primary online log data sets, and DFSOLSnnn for secondary online log data sets, where nn can be any numeric value. An OLDS must be a single volume and extent, and at least three data sets must be allocated. However, if an OLDS is to be stopped and started with /STA and /STO commands, DFSMDA members must exist with IMS.SDFSRESL for each such data set. You must provide DFSMDA members for all OLDSs. The maximum number of OLDSs is 100.

If you use dual logging, you should allocate at least 6 data sets with corresponding numeric values, with a maximum of 200 possible. You can dynamically allocate an additional OLDS using the /START OLDS master terminal operator command. If you use dynamic allocation you should preallocate and catalog candidate data sets, and specify data set names using the dynamic allocation macro, DFSMDA. You must provide a DFSMDA member for each OLDS.

Related Reading: For information on using DFSMDA, see [IMS Version 9: Utilities]

Reference: System

Define the initial set of OLDSs to be acquired by restart initialization in the OLDSDEF control statement in the DFSVSMxx member of IMS.PROCLIB. You can dynamically allocate this set of OLDSs, or specify them through DD statements.

Recommendation: Consider assigning enough OLDS space to each OLDS so that it almost fills an SLDS volume at the end of each archive process. If the size of an OLDS exceeds the capacity of a tape volume, additional tape mounts are required. If an OLDS can be contained on a single SLDS volume, the Log Archive utility accesses the SLDS while still allocated to the IMS online system. You can use DISP=OLD only if you can allocate sufficient OLDS space to hold all the log records generated by the online system between startup and shutdown. Archiving must then be performed while the online system is not active.

OLDS block sizes must be equal. Predefine the OLDS with block size, logical record length (LRECL), and record format specified at definition time. The OLDS LRECL must equal the OLDS block size minus 4 bytes (BLKSIZE-4 = LRECL). The OLDS record format must be variable blocked (VB), and block size must meet the following requirements:
Log Data Sets

- It must be a minimum of 6KB and a multiple of 2048. If IMS is going to run in z/Architecture mode, log buffer storage will only be fixed above 2 gigabytes if the block size is a multiple of 4096.
- It must not exceed a maximum of 30,720 bytes, because this is the largest multiple of 2048 supported by BSAM.
- At a minimum, its length must be the same as the length of the largest log record, plus 20 bytes. The largest log record length is a function of the block size for the message queue data sets, the EMH terminal buffer size, and the DEDB control interval size.

The main factor that determines OLDS block size is the track size of the OLDS devices. The OLDS block size cannot exceed the OLDS track size.

The WADS temporarily holds partially filled OLDS buffers, which means that only full OLDS buffers are written to the OLDS. Therefore, choose a large OLDS block size to achieve more efficient DASD space utilization.

Table 6 provides some recommended OLDS block sizes (in multiples of 2048) that maximize DASD space utilization for several DASD devices. Table 6 also provides information on blocks per track and bytes of log data per track.

Table 6. Recommended OLDS Block Sizes

<table>
<thead>
<tr>
<th>Device Type</th>
<th>OLDS Block Size</th>
<th>Blocks per Track</th>
<th>Bytes of Log Data per Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>2105</td>
<td>26624</td>
<td>2</td>
<td>53248</td>
</tr>
<tr>
<td>2105</td>
<td>18432</td>
<td>3</td>
<td>55296</td>
</tr>
<tr>
<td>3330</td>
<td>12288</td>
<td>1</td>
<td>12288</td>
</tr>
<tr>
<td>3350</td>
<td>18432</td>
<td>1</td>
<td>18432</td>
</tr>
<tr>
<td>3380</td>
<td>22528</td>
<td>2</td>
<td>45056</td>
</tr>
<tr>
<td>3390</td>
<td>26624</td>
<td>2</td>
<td>53248</td>
</tr>
<tr>
<td>3390</td>
<td>18432</td>
<td>3</td>
<td>55296</td>
</tr>
<tr>
<td>9340</td>
<td>22528</td>
<td>2</td>
<td>45056</td>
</tr>
</tbody>
</table>

Table 7 provides recommended OLDS block sizes for device types 3380 and 3390 if IMS is running in z/Architecture mode, in which the OLDS block sizes must be multiples of 4096. Table 7 also provides information on blocks per track and bytes of log data per track.

Table 7. Recommended OLDS Block Sizes in z/Architecture Mode

<table>
<thead>
<tr>
<th>Device Type</th>
<th>OLDS Block Size</th>
<th>Blocks per Track</th>
<th>Bytes of Log Data per Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>3380</td>
<td>20480</td>
<td>2</td>
<td>40960</td>
</tr>
<tr>
<td>3380</td>
<td>12288</td>
<td>3</td>
<td>36864</td>
</tr>
<tr>
<td>3390</td>
<td>24576</td>
<td>2</td>
<td>49152</td>
</tr>
<tr>
<td>3390</td>
<td>16384</td>
<td>3</td>
<td>49152</td>
</tr>
</tbody>
</table>

Log initialization ensures that the block size specified in the OLDS data set control block (DSCB) data set is large enough to handle the maximum length log record. If the block size is too small, an abend can occur.
To change the OLDS block size, archive all OLDS data, and scratch and reallocate each OLDSs to ensure that all OLDS block sizes remain identical. Also use the DELETE.LOG DBRC command to remove the OLDS from the DBRC RECON data set.

DASD space for each OLDS must be contiguous, and secondary extents are not permitted. Pairs of OLDSs (primary and secondary) must have the same space allocation.

The minimum number of buffers that you can specify is 2, with a maximum of 999. The OLDSDEF control statement in the DFSVSMxx member of PROCLIB specifies the desired number of OLDS buffers. The default number of buffers is 5.

**Setting the TOD Clock During IPL**

**Attention:** Setting the Greenwich mean time (GMT) clock value back at IPL time can cause severe database integrity and recovery problems. Issuing a SET CL0CK command to change the local time, for example at the end of daylight savings time, has no effects on IMS recoverability.

The time-of-day (TOD) clock setting is critical to IMS log integrity and the proper functioning of database recovery, IMS restart, and XRF tracking/takeover. Never set the TOD clock to a time earlier than the immediate prior shutdown or failure without taking actions to reset the recovery base. You can reset the recovery base by invalidating the existing log, image copy, and change accumulation data sets. If the TOD clock must be set to a time earlier than the previous shutdown or failure, you must complete the following procedure to reset the recovery base:

1. Reallocate a different block size for the OLDS data sets.
2. Reinitialize the DBRC RECON data set.
3. Make image copies of all database data sets.
4. Cold start IMS.

Issuing a SET CL0CK command does not reset the TOD clock. You can set the TOD clock only at system IPL either by changing the setting of the sysplex timer (external time reference or ETR); or by replying to the IPL prompts for setting the clock with the GMT option. Therefore, you don't need to reset the recovery base if you issue a SET CL0CK command when the TOD setting must be changed for daylight savings time (for example).

**Formatting Newly Initialized (Reinitialized) Volumes for OLDS**

If a newly initialized (or reinitialized) volume is to contain an OLDS, prior to use in the online production system, you must format the volume or space occupied by the OLDS. If it is not formatted, **severe performance degradation and excessive device and channel utilization** can be expected until the OLDS is completely filled once. This problem is noticeable during emergency restart and XRF tracking/takeover.

Although IMS does not provide a formatting utility, many techniques for formatting are available, such as:

- Copy an existing OLDS (of the same size) into the new OLDS.
- Copy an existing volume into the new volume, rename the OLDS to a new name, and delete unrelated VTOC entries.
- Use another IMS subsystem to fill the OLDS (turn on all traces to the log, and issue checkpoint commands until the OLDS is filled).
- Write your own program to write at least 1 byte of data in each track on the volume, or to fill the OLDS with the maximum number of LRECL blocks.
Log Data Sets

Write-Ahead

The write-ahead data set (WADS) is a small DASD data set containing a copy of log records reflecting committed operations in the OLDS buffers that have not yet been written to the OLDS. WADS space is continually reused after the records it contains are written to the OLDS. You can specify this required data set by JCL, or you can dynamically allocate it. You can specify single or dual WADSs by the execution time parameter WADS=S|D. The WADS ddname is DFSWADSn, where n is a number from 0 through 9. If you define multiple instances of a WADS, they are used in the WADS DD statement suffix sequence as indicated by the n in the ddname. Preallocate the WADS on DASD supporting Count Key Data (CKD) architecture and then format the WADS with a /NRE or /ERE FORMAT WA command at least once before it is used. Each WADS must be on the same device type and have the same space allocation. Each WADS must be allocated on a minimally used device and data path.

Tracks in the WADS data set are used in groups. A track group can only contain data from one OLDS block at any given time. The size of a WADS track group depends on the OLDS block size and the WADS segment size. IMS sets the WADS segment size to 4K if the operating system is capable of running in 64-bit mode and the OLDS block size is divisible by 4K, otherwise IMS sets the segment size to 2K. Use the following formula to calculate the size of a WADS track group:

Number of tracks in a WADS track group = (OLDS block size/WADS segment size) + 1

The WADS should be large enough to hold at least one WADS track group for each OLDS block that fits on an OLDS track. You can use the WADS track group size (or the number of tracks in a WADS track group) to calculate the recommended minimum WADS sizes using the following formula:

Minimum WADS size (in tracks) = (number of tracks in a WADS track group) x (number of OLDS blocks per track)

Table 8 provides the calculated recommended minimum WADS sizes for 32-bit mode operating systems based on the OLDS block size and on the DASD device type being used.

<table>
<thead>
<tr>
<th>OLDS Block Size</th>
<th>WADS with OLDS on 3380</th>
<th>WADS with OLDS on 3390</th>
</tr>
</thead>
<tbody>
<tr>
<td>6K</td>
<td>28 tracks or 2 cylinders</td>
<td>36 tracks or 3 cylinders</td>
</tr>
<tr>
<td>8K</td>
<td>25 tracks or 2 cylinders</td>
<td>30 tracks or 2 cylinders</td>
</tr>
<tr>
<td>10K</td>
<td>24 tracks or 2 cylinders</td>
<td>30 tracks or 2 cylinders</td>
</tr>
<tr>
<td>12K</td>
<td>21 tracks or 2 cylinders</td>
<td>28 tracks or 2 cylinders</td>
</tr>
<tr>
<td>14K</td>
<td>24 tracks or 2 cylinders</td>
<td>24 tracks or 2 cylinders</td>
</tr>
<tr>
<td>16K</td>
<td>18 tracks or 2 cylinders</td>
<td>27 tracks or 2 cylinders</td>
</tr>
<tr>
<td>18K</td>
<td>20 tracks or 2 cylinders</td>
<td>30 tracks or 2 cylinders</td>
</tr>
<tr>
<td>20K</td>
<td>22 tracks or 2 cylinders</td>
<td>22 tracks or 2 cylinders</td>
</tr>
<tr>
<td>22K</td>
<td>24 tracks or 2 cylinders</td>
<td>24 tracks or 2 cylinders</td>
</tr>
<tr>
<td>24K</td>
<td>13 tracks or 1 cylinder</td>
<td>26 tracks or 2 cylinders</td>
</tr>
<tr>
<td>26K</td>
<td>14 tracks or 1 cylinder</td>
<td>28 tracks or 2 cylinders</td>
</tr>
<tr>
<td>28K</td>
<td>15 tracks or 1 cylinder</td>
<td>15 tracks or 1 cylinder</td>
</tr>
<tr>
<td>30K</td>
<td>16 tracks or 2 cylinders</td>
<td>16 tracks or 2 cylinders</td>
</tr>
</tbody>
</table>
Table 9 provides the calculated recommended minimum WADS sizes for 64-bit mode operating systems based on the OLDS block size and on the DASD device type being used.

<table>
<thead>
<tr>
<th>OLDS Block Size</th>
<th>WADS with OLDS on 3380</th>
<th>WADS with OLDS on 3390</th>
</tr>
</thead>
<tbody>
<tr>
<td>8K</td>
<td>15 tracks or 1 cylinders</td>
<td>18 tracks or 2 cylinders</td>
</tr>
<tr>
<td>12K</td>
<td>12 tracks or 1 cylinders</td>
<td>16 tracks or 2 cylinders</td>
</tr>
<tr>
<td>16K</td>
<td>10 tracks or 1 cylinders</td>
<td>15 tracks or 1 cylinders</td>
</tr>
<tr>
<td>20K</td>
<td>12 tracks or 1 cylinders</td>
<td>12 tracks or 1 cylinders</td>
</tr>
<tr>
<td>24K</td>
<td>7 tracks or 1 cylinders</td>
<td>14 tracks or 1 cylinders</td>
</tr>
<tr>
<td>28K</td>
<td>8 tracks or 1 cylinders</td>
<td>8 tracks or 1 cylinders</td>
</tr>
</tbody>
</table>

The maximum number of WADS tracks that are ever used is calculated by the following formula:

\[
\text{Maximum number of tracks} = ([\text{OLDS block size/\text{WADS segment size}}] + 1) \times (\text{number of OLDS buffers})
\]

The maximum amount of space that is used for each WADS is large enough to contain 255 OLDS buffers.

WADS should be allocated in the range of the recommended minimum size from the table (or by using the minimum WADS size formula). Obtain the maximum size by using the maximum number of tracks formula. Most installations find that four to five cylinders are appropriate.

Define the initial set of WADSs to be acquired by restart initialization in the WADSDEF control statement in the DFSVSMxx member of IMS.PROCLIB.

**System Log**

A system log data set (SLDS) can be on tape or DASD, single or dual.

An SLDS is the log data set created by IMS batch execution.

An SLDS is also one of the output data sets created when the Log Archive utility is used to archive an OLDS. The Log Archive utility can also be used to copy a batch log (SLDS) from DASD to tape (or another DASD data set).

When the Log Archive utility is used to archive an OLDS to tape, you can force the primary and secondary SLDS volumes to contain the same data by specifying the number of log blocks per volume. SLDS block size can be different from the block size of the OLDSs being archived, but the block size of the primary SLDS must be the same as the secondary SLDS block size.

If 3480 tape drives are used for logging, they are forced to run in tape-write-immediate mode.

The SLDS is dynamically allocated to the address space if needed by restart. Define the SLDS (IMSLOGR) through the dynamic allocation macro DFSMDA.

If SMS-managed generation data sets (GDS) are used for the SLDS, certain error conditions might cause the SLDS to be overwritten. For batch allocations of SMS GDS, the data set is cataloged in deferred roll-in status at step allocation time, and
Log Data Sets

Rolled-in at step deallocation time. If a power failure occurs after the SLDS has been written and closed, but before step deallocation, IMS assumes the SLDS is valid; however, SMS does RECLAIM processing at the next allocation. RECLAIM processing means that a data set in deferred roll-in status is reused. For DISP=NEW, the new data would overwrite the existing data.

Message Queues

The amount of DASD space allocated to the message queue data sets depends on how many transaction codes and logical terminal names you specify during system definition, and how many short and long messages are to be held by the system during any period of time. The DASD space becomes reusable when the message it was allocated for is processed, and when the space is no longer required for recovery. You can change the amount of DASD space for the message queue data sets prior to a start of IMS. Allocating less space (than in the previous execution) prior to a /NRE or /ERE BLDQ can cause the restart to abnormally terminate.

For single-mode transactions, a message space is available as soon as it is processed by an application program (for example, the program terminates normally or requests the next message).

For multiple-mode transactions, the message spaces are available only after the application program that processes them terminates normally or takes a checkpoint.

For logical terminal messages, a given message space is made available after the successful receipt of this message by the terminal device.

The number of records to be reserved in each data set to allow the system to shut down depends on message throughput and the number of regions scheduled.

**Recommendations:** Observe the following recommendations for message queue data sets:

- If you use emergency restart procedures using BLDQ, reallocate logical record size and data set spaces carefully. Allocate enough space to the data set to hold log records relating to message queue activity occurring between checkpoints. The BLDQ procedure always restores the message queue entries to the relative position in the respective queue data sets at the time saved. If the logical record or data set size is decreased, you might be unable to restart in some situations.

**Related Reading:** For information on restarting, see the section “Starting/Restarting IMS” in the *IMS Version 9: Operations Guide*.

- Do not manage the QBLKS, SHMSG, and LGMSG queue data sets with a migration/recall system that might recall the data sets to a volume other than the one to which they were originally allocated. If you do so, IMS might be unable to warm start or emergency start the system.

- Secondary allocation is not allowed for message queue data sets.

OSAM

The recommended method of allocation for OSAM (overflow sequential access method) single or multiple volumes is through the use of JCL at the time the data set is loaded using the SPACE parameter.
If your installation control of DASD storage and volumes is such that the OSAM data sets must be reserved ahead of time, or you decide that a message queue data set requires more than one volume, the OSAM data sets can be preallocated.

**Restrictions:** Preallocation has the following restrictions:

- DCB parameters must not be specified.
- If the data set is to be expanded beyond the preallocated space, a secondary quantity must be specified during preallocation. Queue data sets are constrained to only that space that is preallocated.

When a multiple-volume data set is preallocated, the method of allocation must allocate extents on all volumes to be used. The end of the data set needs to be correctly indicated in the data set control block (DSCB) on the last volume.

The suggested method is to use the IEFBR14 utility once for each volume on which space is desired. **Do not** merely use IEFBR14 and specify a DD statement for a multivolume data set. This action only puts an extent on the first volume and does not indicate which volume is the last volume of the data set. Figure 1 displays the recommended OSAM data set allocation JCL.

```
//OSAMALL JOB
//S1 EXEC PGM=IEFBR14
//SYSPRINT DD SYSOUT=A
//EXTENT1 DD DSNNAME=OSAM.SPACE,DISP=(,KEEP),
//       UNIT=3390,VOL=SER=AAAAA,
//       SPACE=(CYL,(10,5))
//S2 EXEC PGM=IEFBR14
//SYSPRINT DD SYSOUT=A
//EXTENT2 DD DSNNAME=OSAM.SPACE,DISP=(,KEEP),
//       UNIT=3390,VOL=SER=BBBBBB,
//       SPACE=(CYL,(15,5))
//LAST EXEC PGM=IEFBR14
//SYSPRINT DD SYSOUT=A
//EXTENTL DD DSNNAME=OSAM.SPACE,DISP=(,KEEP),
//       UNIT=3390,VOL=SER=LLLLL,
//       SPACE=(CYL,(15,5))
```

*Figure 1. Sample OSAM Data Set Allocation JCL*

**Note:** If the OSAM data sets must be cataloged, use IEHPROGM or Access Method Services (AMS) to ensure that all volumes are included in the catalog entry.

**Attention:** Do not reuse multivolume OSAM data set extents without scratching and reallocating the space first. If you do not scratch and reallocate the space first, an invalid end-of-file mark can be left in the DSCB of the last volume of the data set. This causes an embedded EOF mark somewhere in the middle of the data set.

**VSAM**

VSAM database data sets are defined by an AMS DEFINE CLUSTER command.

**Related Reading:** This command and all its parameters are described in z/OS DFSMS Access Method Services for Catalogs. For additional information on optional keywords for IMS databases, see “Optional Functions Specified in the Access Method Services Define Cluster Command” in [IMS Version 9: Administration Guide: Database Manager](#).
VSAM Data Sets

Sharing of VSAM data sets is specified by the DEFINE CLUSTER SHAREOPTIONS keyword. IMS VSAM databases that use data sharing must be defined with at least SHAREOPTIONS (3,3). This allows IMS to access the VSAM VSI so that any extensions to the VSAM data set are known by all IMS sharing systems.

VSAM data sets opened for update by XRF-capable IMS online systems must also use at least SHAREOPTIONS (3,3), in order for extensions to the VSAM data set to be tracked by the alternate system. Because VSAM data sets opened for input are not extended by VSAM, the VSAM VSI is not required. SHAREOPTIONS (3,3) can be used even if the online system is XRF capable. SHAREOPTIONS (3,3) is not necessary for Fast Path DEDBs; SHAREOPTIONS (2,3) can be used for this environment.

Online Change

In many installations, it is important that the online system be available during a large portion of the day. The ability to add, delete, and replace IMS databases, programs, transactions, and MFS formats online, without the necessity to bring down your IMS system, is a major step toward continuous operations. Adding, deleting, or changing IMS resources involves changes to the control blocks set up for these resources. If your system is to use the online change facility of IMS, it requires a MODBLKS system definition. A MODBLKS system definition generates the control block members for resources that can be added or changed online. These control blocks are stored in the library IMS.MODBLKS, and are used by the IMS control region, the Security Maintenance utility, and the Multiple Systems Coupling Verification utility when an online change to your IMS system is requested.

Recommendation: Modify your security implementation to use Resource Access Control Facility (RACF) or an equivalent product. Support for the Security Maintenance utility (SMU) will be eliminated in releases after IMS Version 9.

When you first install the IMS online change function, it is necessary to create three copies of each of the following libraries:

- IMS.MODBLKS—the library that contains the control blocks to support online change of databases, programs, transactions, routing codes, and MFS formats
- IMS.MATRIX—the library that contains your system’s security tables
- IMS.ACBLIB—the library that contains database and program descriptors
- IMS.FORMAT—the library that contains your MFS maps produced by the MFS Language and Service utilities

The libraries listed above are for the exclusive use of IMS offline functions and are called the staging libraries. For each library, a copy is made to produce a data set with a data set name suffixed with an A and a B, for example, IMS.FORMATA and IMS.FORMATB. These two copies of each library are used by the IMS online system.

At initial installation, the staging libraries and the IMS A libraries are identical. At this time, the A libraries are referred to as the active libraries. They are the libraries from which IMS draws its execution information. The B libraries are not used at this time and are referred to as the inactive libraries.

Figure 2 on page 57 illustrates how libraries are used when you change your system online:
1. You apply changes to the staging libraries.
2. The staging libraries are subsequently copied to the inactive (B) libraries using the Online Change utility.
3. Operator commands are issued to cause the B libraries to become the active ones; the old active (A) libraries become the inactive ones.

The process above is repeated as necessary. When you choose to add, replace, or delete any of the IMS resources mentioned in this section, you apply your changes to the offline staging libraries by running one of the following:

- A MODBLKS system definition–if you have added, changed, or deleted applications, programs, full-function databases, DEDBs, or routing codes
- An ACBGEN–if you have added or changed any databases or programs
- The MFS Language and Service utilities–if you have added or changed any MFS format definitions
- The Security Maintenance utility–if you have added, changed, or deleted resources

**Recommendation:** Modify your security implementation to use Resource Access Control Facility (RACF) or an equivalent product. Support for the Security Maintenance utility (SMU) will be eliminated in releases after IMS Version 9.

You can apply changes to IMS.FORMAT, IMS.ACBLIB, or IMS.MATRIX independently or in combination. IMS.MODBLKS is changed by the MODBLKS system definition. If the security tables are changed, the suffix of the inactive library must match that of the inactive IMS.MODBLKS library.
Online Change Data Sets

After the sequence of commands (/MODIFY for local online change or INITIATE OLC for global online change) has been issued to cause the previously inactive libraries to become the active libraries, your previously active libraries now become the inactive libraries. They are not destroyed until they are overwritten by the next online change sequence. You can return to the inactive libraries if backup and recovery are necessary, or if an incorrect definition occurs during your online change run.

Additionally, IMS monitors for you which set of libraries is currently active. If local online change is enabled, this information is kept in a status data set, IMS.MODSTAT. If global online change is enabled, this information is kept in the IMSPLEX.OLCSTAT data set.

After an online change is successfully completed, it persists across all types of IMS restarts. Additionally, the new resources can be easily maintained by running an SMP/E JCLIN against the Stage 1 output stream produced by your MODBLKS system definition to record the contents of the new system definition in your SMP/E control data set. This ensures that any maintenance applied to your IMS system is applied to the currently active IMS system. Do not manage the online change data sets with a migration/recall system that might recall the data set to a volume other than the one to which it was originally allocated. If you do so, IMS might be unable to warm start or emergency start the system.

Without Online Change

If you do not plan to use the online change function, you do not need to maintain the full set of staging, active, and inactive libraries. You only need to manage the staging libraries, and not to make copies for the active data sets, which would have exactly the same contents.

You need to modify the JCL, generated in the IMS member of IMS.PROCLIB, for the online execution for the following ddnames:

- MODBLKSA
- MODBLKSB
- IMSACBA
- IMSACBB
- FORMATA
- FORMATB
- MATRIXA
- MATRIXB

Each of these DD statements must use a DSN parameter pointing to a staging library. For example, ddnames MODBLKSA and MODBLKSB use DSN=IMS.MODBLKS, and ddnames FORMATA and FORMATB use DSN=IMS.FORMAT. If you plan to use terminals in MFSTEST mode, the DD statements for the MFS library that contain the formats under test (ddnames IMSTFMTA and IMSTFMTB) have the staging library (IMS.FORMAT) concatenated to IMS.TFORMAT.

In addition, the IMS.MODSTAT data set must be initialized appropriately, which is most conveniently done using the INITMOD procedure. This procedure initializes IMS.MODSTAT so that the ddnames with suffix A are set to be the active libraries.
If global online change is enabled, the IMSPLEX.OLCSTAT data set must be initialized instead of the IMS.MODSTAT data set. See Chapter 2, “Data Sets,” on page 11 for more information about the IMSPLEX.OLCSTAT data set.

### SPOOL SYSOUT

When allocating SPOOL data sets, be sure that they are properly initialized (empty), or that the first record is a non-status record. Do this with the IEBGENER utility.

Allocate space for spool SYSOUT data sets as required, but do not specify secondary allocation. You need DCB parameters DSORG=PS and RECFM=UM. If not supplied, these parameters are set automatically. You can specify block size in the DD statement, but it can be adjusted downward by the system, if larger than the system definition specification.

Records written to this data set are standard z/OS variable-length blocked (VBM) records. The designation of the undefined record format (UM) specification reduces the buffer space requirement in the IMS control region. The minimum block size is 20 bytes, which is sufficient for one print line. The maximum block size is the track size of the device on which the data set is allocated.

**Recommendation:** Allocate at least two data sets.

IMS uses BSAM EXCP to maintain the end-of-file (EOF) mark on the subsequent track of the SPOOL data sets to support online access (TSO browsing).

**Restriction:** EXCP does not support partitioned data sets extended (PDSEs), extended format data sets, or hierarchical file system (HFS) data sets.

### Defining Spool Line Groups

You specify, in system definition, a LINEGRP macro to be dedicated to spool output. Associated with the LINEGRP macro are LINE, TERMINAL, and NAME macro specifications. The specification requirements for one such group are illustrated in Table 10.

**Table 10. Example of Spooled SYSOUT in System Definition**

<table>
<thead>
<tr>
<th>Macro</th>
<th>Coding</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINEGRP</td>
<td>DDNAME = (SPOOL1, SPOOL2)</td>
<td>2 data sets spooled SYSOUT</td>
</tr>
<tr>
<td></td>
<td>UNITYPE = SPOOL</td>
<td></td>
</tr>
<tr>
<td>LINE</td>
<td>BUFSIZE = 1200</td>
<td>Buffer size in bytes</td>
</tr>
<tr>
<td>TERMINAL</td>
<td>AUTOSCH</td>
<td>Optional, specified if automatic scheduling</td>
</tr>
<tr>
<td>NAME</td>
<td>RPT10</td>
<td>Use LTERM names that show nature of output</td>
</tr>
</tbody>
</table>

System definition execution automatically generates appropriate DD statements in the IMS procedure in IMS.PROCLIB. The ddnames are those given in the LINEGRP macro, and the data set names are of the form IMS.SYSnn. The order of the ddnames in the Stage 1 input stream determines the incremented value of *nn*. If, in the example shown in Table 10, the LINEGRP macro is the first spool line group, the data set name for the ddname SPOOL2 is IMS.SYS02.
SPOOL SYSOUT Data Sets

System definition also automatically generates procedures named DFSWTnnn, members in IMS.PROCLIB that are tailored to the print operation for the data sets implied in each line group. Referring to the same example, a member of the IMSJOBS data set named IMSWT000 invokes DFSWT000, because it is the first individual job to print output for a spool line group.

The default values for job class and message class used for execution of the IMSWTnnn procedures are derived from the parameters of the MAXREGN keyword on the IMSCtrl macro. You must review these generated procedures for your installation’s output class requirements. The DFSWTnnn procedures are the executable portions that are invoked for each IMSWTnnn member.

For spool lines, the logical record length specification must be the maximum segment length desired +8, and the block size must be at least equal to LRECL+10. Assign a nonzero value to LRECL. Message segments are truncated at a value of LRECL+4. For example, if the buffer size you specify in the LINE macro is 132, block size can be 116, and LRECL 106. The combined size of the data sets must be at least as large as the largest possible message. If the physical block size of the data set is larger than the buffer size specified in the LINE macro during IMS system definition, IMS adjusts the block size (DCBLKSI) downward to the specified BUFSIZE –10. Likewise, if the physical LRECL size of the data set is larger than the newly adjusted DCBLKSI, DCBLRECL is set to DCBLKSI-10.

When all spool SYSOUT data sets defined for a line group are full, IMS shuts the line down and sends a message (DFS998I) to the master terminal that the physical terminal is inoperative. If you specify the AUTOSCH option in the TERMINAL macro during system definition, a spool print program is scheduled as each data set is filled.

Implementing SPOOL Line Groups in an XRF Environment

To properly implement SPOOL data sets in an XRF complex, note the following considerations:

- Separate SPOOL data sets must be used for the active and alternate IMS subsystems.

  Related Reading: Refer to the documentation for the DFSWTnnn procedure before selecting names for the SPOOL data sets; see IMS Version 9: Utilities Reference: Database and Transaction Manager.

- The appropriate DD statements must be added to the execution procedures for the active and alternate IMS subsystems.

- Separate JOBS data sets must be used for the active and alternate IMS subsystems.

- Separate IMSRDR procedures must be used for the active and alternate IMS subsystems (use the PRDR= execution parameter).

- The IMSRDR procedures used for the active and alternate IMS subsystems must reference the appropriate JOBS data set.

- The IMSWTnnn members of the JOBS data sets must reference the appropriate SPOOL data sets. Depending upon the names chosen for the SPOOL data sets, the SYS2= parameter in the DFSWTnnn procedure can be used to access the correct data sets.
XRF Data Sets
Three main XRF requirements for placing your IMS data sets are:

- Availability of data sets during tracking and takeover
  An XRF complex consists of two systems that must sometimes access the same data sets or identical copies of the same data sets. Therefore, use of XRF requires that you load some data sets on DASD shared by the two systems. IBM recommends that you load other data sets on shared DASD. However, you can switch some data sets through a switching device or maintain separate copies of them.

- Prevention of single points of failure
  Use of XRF requires that you maintain and constantly synchronize separate copies of some data sets for the two systems.

- Accessibility of data sets to one IMS system
  IBM recommends keeping the data sets unique to one system on local DASD.

Mandatory Shared
Use of XRF requires that some IMS system data sets, such as the system logs, be available to both the active and the alternate IMS subsystems during the tracking phases. Use of XRF requires that others, such as the DEDB data sets, be present immediately at takeover.

The following data sets must reside on DASD that active and alternate IMS subsystems share:

- CRITICAL DL/I DATABASE (DFSMDA definitions)
- DEDB AREA
- DFSOLPxx (DFSMDA definitions are recommended)
- DFSOLSxx (DFSMDA definitions are recommended)
- DFSWADSx (DFSMDA definitions are recommended)
- IMSRDS
- IMSRDS2
- MODSTAT
- MODSTAT2
- MSDBINIT
- RECON1 (DFSMDA definitions are recommended)
- RECON2 (DFSMDA definitions are recommended)
- RECON3 (DFSMDA definitions are recommended)

These data sets must be accessible to both subsystems through the catalog structure. Also, do not store OLDS, WADS, or RDS on volumes containing data sets (IMS or otherwise) that can be subject to a RESERVE operation. Keep such data sets separated.

Mandatory Replication
Certain IMS execution data sets contain information unique to only one subsystem. Replicate these data sets, so each active and alternate IMS subsystem has its own unique data sets. Store these data sets on local, non-shared DASD, and define them in a separate catalog structure. The data sets in this category are:

- IMSMON
- LGMSGx
XRF Considerations

LGMSGL
MSDBCXP1
MSDBCXP2
MSDBCXP3
MSDBCXP4
MSDBDUMP
QBLKS
QBLKSL
SHMSGx
SHMSGL
SPOOLx
SYSABEND
SYSUDUMP

If your XRF configuration requires that both IMS subsystems be executable on either CPC, these data sets must be on shared or switchable DASD, and in a catalog structure accessible to both subsystems.

Optional Replication

To avoid single points of failure, you can duplicate certain other IMS execution data sets and store them in non-shared local DASD. Data sets in this category are:

DBDLIB (used by DL/I batch)
FORMATA
FORMATB
IMSA Wikipedia
IMSA Wikipedia
IMSTFMTA
IMSTFMTB
JOBS (used in the IMSRDR procedure)
MATRIXA
MATRIXB
MODBLKSA
MODBLKSB
PGMLIB
PROCLIB
PSBLIB (used by DL/I batch)
SDFSRESL
SDXRRESL
TCFSLIB
OTHER STEPLIB DATA SETS

If your XRF configuration requires that both IMS subsystems be executable on either CPC, these data sets must be on shared or switchable DASD and in a catalog structure accessible to both subsystems.
Other Data Sets

When planning your XRF configuration, it is important to consider the possible impact on the other IMS data sets. Also examine the impact on activities other than online execution, such as IMS system definition and the application of SMP/E service. Table 11 provides information on data sets in this category, including descriptions and whether or not they are managed by SMP/E.

Table 11. Other Data Sets Impacted by XRF

<table>
<thead>
<tr>
<th>Data Set</th>
<th>Description</th>
<th>Managed by SMP/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACBLIB</td>
<td>online change staging library</td>
<td>No</td>
</tr>
<tr>
<td>ADFSCLST</td>
<td>used during installation</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSEEXEC</td>
<td>used during installation</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSLOAD</td>
<td>used by SYSDEF</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSMAC</td>
<td>used by SYSDEF</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSMLIB</td>
<td>used during installation</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSPLIB</td>
<td>used during installation</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSRTRM</td>
<td>used during installation</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSSLIB</td>
<td>used during installation</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSSRC</td>
<td>used by SYSDEF</td>
<td>Yes</td>
</tr>
<tr>
<td>ADFSTLIB</td>
<td>used during installation</td>
<td>Yes</td>
</tr>
<tr>
<td>FORMAT</td>
<td>online change staging library</td>
<td>No</td>
</tr>
<tr>
<td>INSTALIB</td>
<td>used during IVP</td>
<td>No</td>
</tr>
<tr>
<td>INSTATBL</td>
<td>used during IVP</td>
<td>No</td>
</tr>
<tr>
<td>MATRIX</td>
<td>online change staging library</td>
<td>No</td>
</tr>
<tr>
<td>MODBLKS</td>
<td>created by SYSDEF</td>
<td>Yes</td>
</tr>
<tr>
<td>OBJDSET</td>
<td>created by SYSDEF</td>
<td>No</td>
</tr>
<tr>
<td>OPTIONS</td>
<td>created by SYSDEF; used by SMP/E and SYSDEF</td>
<td>No</td>
</tr>
<tr>
<td>PROCLIB</td>
<td>created by SYSDEF</td>
<td>No</td>
</tr>
<tr>
<td>REFERAL</td>
<td>used in conjunction with FORMAT</td>
<td>No</td>
</tr>
<tr>
<td>SDFSMAC</td>
<td>created by SMP/E</td>
<td>Yes</td>
</tr>
<tr>
<td>SDFSRESL</td>
<td>created by SYSDEF and SMP/E</td>
<td>Yes</td>
</tr>
<tr>
<td>TFORMAT</td>
<td>online change staging library</td>
<td>No</td>
</tr>
</tbody>
</table>

Some of these data sets appear in earlier lists in this section. You must avoid possible synchronization conflicts.

Dynamic Allocation Considerations

It is essential to synchronize the DFSMDA members in the IMS SDFSRESL(s), or associated libraries, across the XRF complex.

Global Resource Serialization Considerations

Include all IMS data set names in the global resource serialization SYSTEMS exclusion resource name lists (RNLs). Do not include the DBRC RECON data set or the OLDS and WADS names in the RESERVE conversion RNL.
JES Considerations

If you use JES3, include all IMS data sets and databases in the RESDSN statement.

RACF Considerations

Store the Resource Access Control Facility (RACF) data sets on DASD shared by the active and alternate IMS subsystems.

To avoid single points of failure, use the RACF backup facility to keep a second copy of these data sets also on shared DASD.

RACF protects IMS databases from unauthorized users. In a DB/DC system, RACF is bypassed by VSAM for all its databases. However, RACF is invoked to verify that the control region is authorized to access any OSAM database known to it and that is being opened. OSAM does not provide a way to bypass RACF.

In an IMS batch region, RACF is invoked when VSAM or OSAM databases known to RACF are accessed. RACF verifies that the application accessing the database is authorized.

RACF can provide signon verification security by requiring user identification at signon. User accountability is possible by logging the user ID in database change records, and by producing a log record during signon and signoff at the terminal. User exit routines are available for this type of security verification with or without the use of RACF.

Related Reading: For more information on the use of RACF to provide database security, see “Establishing IMS Security” in IMS Version 9: Administration Guide. You might have to make modifications to the RACF User Installation exit routine for IMS control regions running as started tasks.

For additional information on RACF, see z/OS SecureWay® Security Server RACF General User’s Guide.

Recommendation: Modify your security implementation to use Resource Access Control Facility (RACF) or an equivalent product. Support for the Security Maintenance utility (SMU) will be eliminated in releases after IMS Version 9.
Chapter 4. z/OS Interface Considerations

This chapter describes information and required steps that you must consider while installing IMS and IRLM on z/OS.

**Important:** After the z/OS and VTAM interface steps are completed, you must IPL z/OS and specify either CLPA or MLPA=xx, or both. Also, note that IMS can run in 32-bit or 64-bit processing modes.

The following topics provide additional information:
- “IMS” on page 75
- “IRLM” on page 75

IMS

There are many requirements that you must consider and required steps to ensure a complete and correct installation of IMS on z/OS. These topics describe these requirements and required actions.

The following topics provide additional information:
- “Preventing Installation Problems” on page 66
- “Setting up JCL” on page 66
- “Keeping Some Required Nonstandard z/OS Macros in Their Original Libraries” on page 66
- “Updating the IBM-Supplied Program Properties Table” on page 66
- “Installing Required IMS Links to z/OS” on page 68
- “Installing the Type 2 SVC Module” on page 70
- “Binding the Channel-to-Channel (CTC) Channel-End Appendage” on page 71
- “Installing the Resource Clean-up Module” on page 71
- “Uninstalling DFSMRCL0” on page 72
- “Binding the Abend Formatting Routine” on page 73
- “Adding the Offline Dump Formatting Routine to the Print Dump Exit Control Table” on page 73
- “Binding the DBRC Type 4 SVC” on page 73
- “Authorizing IMS System Data Sets in the Authorized Program Facility” on page 73
- “Updating the APPC / z/OS Administration Dialog” on page 74
- “Ensuring that DFSMS Macros are Available” on page 74
- “Using RRS” on page 75

Preventing Installation Problems

Be sure to take the following actions to prevent problems during the installation of IMS on z/OS:
- Use z/OS macro libraries for your IMS stage 2 definition. IMS runs only under z/OS.
• Include the libraries from which IMS is loaded and executed in the appropriate authorization table, so that the control region executes as an APF-authorized program. In z/OS, IMS runs as an authorized program.

Related Reading: For information about APF authorization, see the section about the IEAAPFx (authorized program facility list) in the z/OS MVS Initialization and Tuning Reference.

• Use JOBLIB or STEPLIB DD statements instead of having the IMS.SDFSRESL in LNKLSTxx (those data sets concatenated to SYS1.LINKLIB). If IMS.SDFSRESL is in LNKLSTxx, it is possible for a different IMS release level (whose own IMS.SDFSRESL is not properly APF authorized) to load the modules from LNKLSTxx. The incompatible module release level can cause unpredictable results.

• Update the program properties table. The IMS control region operates as a job step task or as a system task. All control region execution is in supervisor state. See “Updating the IBM-Supplied Program Properties Table” for more information.

Related Reading: For additional information on maintaining system integrity when running under z/OS, refer to OS/390 V2R10.0 MVS Conversion Notebook.

Setting up JCL

Note the following requirements when setting up your z/OS JCL:
• The JOB or STEP libraries must be APF authorized for the control region. For the dependent region, PGMLIB does not need to be authorized and can be concatenated with SDFSRESL as STEPLIB.
• The EXEC statement must specify PGM=DFSMVRC0 for the control region.
• IMS.SDFSRESL must be APF authorized.
• IMS.MATRIXA and IMS.MATRIXB must be APF authorized.
• IMS.MODBLKSA and IMS.MODBLKSB must be APF authorized.
• IMS.SDXRRESL must be APF authorized.
• IMS.SDFSJLIB must be APF authorized.
• The library into which your DB2 modules are loaded (DFSESLL DD or a JOBLIB or STEPLIB) must be APF authorized.

Related Reading: For more information on z/OS JCL, refer to the information on the system definition process in IMS Version 9: Installation Volume 2: System Definition and Tailoring.

Keeping Some Required Nonstandard z/OS Macros in Their Original Libraries

The assembly of certain IMS modules requires z/OS macros not contained on the standard z/OS System Macro libraries. Because these requirements are subject to change due to IMS and z/OS maintenance, keep these macros in their original libraries, and use the JCL generated by IMS for SYS1.MODGEN (or SYS1.AMODGEN).

Updating the IBM-Supplied Program Properties Table

All of the following modules are predefined in the default PPT that is shipped with z/OS V1R4 and later:
• BPEINI00
• CQSINIT0
• DFSMVRC0
• DXRRLM00

If you do not modify the default z/OS PPT, these IMS modules are automatically added to the PPT. If you have removed the default entries for these modules, you must reinstate the entries using the procedures described in this section.

**IMS Entry**

An IMS online environment (DB/DC, DBCTL, DCCTL) requires this PPT entry. If you are only using IMS BATCH, this entry is not needed. A sample of the required entry is shown below and may be found in the IMS.INSTALIB data set. Please refer to **Appendix B, “IVP JOBs and TASKs,” on page 195** for the correct entry titled "Update SCHEDxx -- PPT Entries."

```c
/* IMS ONLINE CONTROL REGION */
PPT PGNAME(DFSMVRC0)
  /* PROGRAM NAME = DFSMVRC0 */
  CANCEL /* PROGRAM CAN BE CANCELLED */
  KEY(7) /* PROTECT KEY ASSIGNED IS 7 */
  NOSWAP /* PROGRAM IS NOT-SWAPPABLE */
  NOPRIV /* PROGRAM IS NOT PRIVILEGED */
  SYST /* PROGRAM IS A SYSTEM TASK */
  DSI /* DOES REQUIRE DATA SET INTEGRITY */
  PASS /* PASSWORD PROTECTION ACTIVE */
  AFF(NONE) /* NO CPU AFFINITY */
  NOPREF /* NO PREFERRED STORAGE FRAMES */
```

The PPT Entry for program DFSMVRC0 must specify NOSWAP as shown.

**IRLM Entry**

If you are using IRLM, the following z/OS PPT entry is required. A sample of the required entry is shown below and can be found in the IMS.INSTALIB data set. Refer to **Appendix B, “IVP JOBs and TASKs,” on page 195** for the correct entry titled "Update SCHEDxx -- PPT Entries."

```c
/* IRLM - RESOURCE LOCK MANAGER */
PPT PGNAME(DXRRLM00)
  /* PROGRAM NAME = DXRRLM00 */
  CANCEL /* PROGRAM CAN BE CANCELLED */
  KEY(7) /* PROTECT KEY ASSIGNED IS 7 */
  NOSWAP /* PROGRAM IS NOT-SWAPPABLE */
  NOPRIV /* PROGRAM IS NOT PRIVILEGED */
  SYST /* PROGRAM IS A SYSTEM TASK */
  DSI /* DOES REQUIRE DATA SET INTEGRITY */
  PASS /* PASSWORD PROTECTION ACTIVE */
  AFF(NONE) /* NO CPU AFFINITY */
  NOPREF /* NO PREFERRED STORAGE FRAMES */
```

The PPT Entry for program DXRRLM00 must specify NOSWAP as shown.

**CQS Entry**

If you are using CQS, the following z/OS PPT entry is required. A sample of the required entry is shown below and can be found in the IMS.INSTALIB data set. You can find a sample of the BPEIN100 entry in "CSL Entry” on page 68. Refer to **Appendix B, “IVP JOBs and TASKs,” on page 195** for the correct entry titled "Update SCHEDxx -- PPT Entries."

```c
/* CQS - COMMON QUEUE SERVER */
PPT PGNAME(CQSINIT0)
  /* PROGRAM NAME = CQSINIT0 */
  CANCEL /* PROGRAM CAN BE CANCELLED */
  KEY(7) /* PROTECT KEY ASSIGNED IS 7 */
  NOSWAP /* PROGRAM IS NOT-SWAPPABLE */
  NOPRIV /* PROGRAM IS NOT PRIVILEGED */
  SYST /* PROGRAM IS A SYSTEM TASK */
  DSI /* DOES REQUIRE DATA SET INTEGRITY */
```
PASS /* PASSWORD PROTECTION ACTIVE */
AFF(NONE) /* NO CPU AFFINITY */
NOPREF /* NO PREFERRED STORAGE FRAMES */

The PPT Entry for program CQSINIT0 must specify NOSWAP as shown.

**CSL Entry**
The Common Service Layer (CSL), comprised of address spaces operations manager (OM), resource manager (RM), and structured call interface (SCI), requires an entry in the PPT. Only one entry is necessary for the CSL.

To make this entry, edit the SCHEDxx member of the SYS1.PARMLIB data set. Add the following entry to the SCHEDxx member:

PPT PGMNAME(BPEINI00) /* PROGRAM NAME = BPEINI00 */
CANCEL /* PROGRAM CAN BE CANCELLED */
KEY(7) /* PROTECT KEY ASSIGNED IS 7 */
NOSWAP /* PROGRAM IS NOT-SWAPPABLE */
NOPRIV /* PROGRAM IS NOT PRIVILEGED */
DSI /* REQUIRES DATA SET INTEGRITY */
PASS /* CANNOT BYPASS PASSWORD PROTECTION */
SYST /* PROGRAM IS A SYSTEM TASK */
AFF(NONE) /* NO CPU AFFINITY */
NOPREF /* NO PREFERRED STORAGE FRAMES */

To make the SCHEDxx changes effective, take one of the following actions:
- Restart the z/OS system.
- Issue the z/OS SET SCH= command.

**Installing z/OS PPT Entries**

**Note:** Please refer to the IVP information supplied in the IMS.INSTALIB data set for the most current form of any of these z/OS PPT entries. Unless you have deleted it, z/OS preconditioning has already defined a DFSMVRC0 PPT entry for IMS.

**Related Reading:** For information on updating the PPT, see z/OS MVS Initialization and Tuning Reference.

1. Edit the SCHEDxx member of the SYS1.PARMLIB data set.
2. Add the required entry or entries to the SCHEDxx member.
3. To make the SCHEDxx changes effective, take one of the following actions:
   - Restart the z/OS system.
   - Issue the z/OS SET SCH= command.

**Installing Required IMS Links to z/OS**

Stage 2 of IMS system definition might make the following modifications:

- Binds the following modules into IMS.SDFSRESL:
  - Type 2 SVC routine
  - DBRC Type 4 SVC routine
  - CTC Channel-end Appendage routine (if the MSC with the CTC option is defined)
  - Abend Formatting routine
- Copies cataloged procedures into IMS.PROCLIB

You must install these modules and procedures on your z/OS system.
Table 12 provides an overview of the actions needed in order for your IMS system to run under z/OS.

Table 12. Steps Required to Run under z/OS Depending on the IMS Environment

<table>
<thead>
<tr>
<th>Action</th>
<th>DB Batch System</th>
<th>DBCTL System</th>
<th>DB/DC System</th>
<th>DCCTL System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bind the Type 2 SVC with the z/OS nucleus</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Load the Type 2 SVC from SYS1.NUCLEUS using one of the following methods:</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• The Nucleus Module Loader facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• A SYS1.IPLPARM member, NUCLSTxx</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• A SYS1.PARMLIB member, NUCLSTxx</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Bind the following modules into LPALIB (or, optionally, into an MLPALIB library):</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2a. DBRC Type 4 SVC module</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2b. CTC channel-end appendage (if your system has MSC with the CTC option)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2c. Abend Formatting routine</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 13 shows the modules that are required by the z/OS interface. The table shows the module name in its distribution library (IMS.ADFSLOAD) and the load module name in its target library (IMS.SDFSRESL) after the module is bound.

Table 13. z/OS Interface Modules

<table>
<thead>
<tr>
<th>IMS.ADFSLOAD</th>
<th>IMS.SDFSRESL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSVC200 $^2$</td>
<td>IGCiii $^2$</td>
<td>Type 2 SVC Vector routine $^3$</td>
</tr>
<tr>
<td>DSP00MVS</td>
<td>IGC00nnn$^1$</td>
<td>DBRC Type 4 SVC routine $^3$</td>
</tr>
<tr>
<td>DFSCMC10</td>
<td>IGG01zz$^1$</td>
<td>CTC channel-end appendage $^3$</td>
</tr>
<tr>
<td>DFSAFMD0$^1$</td>
<td>DFSAFMD0$^1$</td>
<td>Formatted dump</td>
</tr>
</tbody>
</table>

Notes:

$^i$ Specifies the Type 2 SVC number

$^nnn$ Indicates the signed decimal Type 4 SVC number, for example, SVC 255 is 25E

$^zz$ Indicates the channel-end appendage number specified on the IMSCTF macro

$^1$ These modules must be bound with the RENT and REFAR attributes.

$^2$ This module must be bound with the RENT, REFAR, and SCTR Binder options. The modules are placed in SYS1.NUCLEUS.

$^3$ These modules are bound by SYSGEN.

IMS SVC Modules

IMS uses a Type 2 supervisor call (SVC), in the range of 200-255, for batch, DBCTL, DCCTL, and DB/DC IMS control program functions. IMS uses a Type 4 supervisor call (SVC), in the range of 200-255, for DBRC functions. Specify these routines in IMS system definition.

If you are installing different release levels of IMS in the same z/OS system, note that the Type 2 SVC and Type 4 SVC are downward compatible. The IMS Version 9
level of the SVC can be used by Versions 7, and 8. However, the IMS Version 7 level cannot be used by IMS Versions 8 and 9, and the IMS Version 8 level cannot be used by IMS Version 9.

IMS system definition creates the SVC routines using the IMSCTF macro-defined user-specified numbers, or the IMS-provided default numbers. IMS system definition copies the load modules representing the SVC routine into IMS.SDFSRESL.

**Defining IMS SVCs to z/OS**

When you define the IMS and DBRC SVCs to z/OS, follow this format:

**Example:**

```
SVCPARM 254,REPLACE,TYPE(2)  
SVCPARM 255,REPLACE,TYPE(4)  
```

**Related Reading:** Refer to z/OS MVS Initialization and Tuning Reference for information on defining SVCs to z/OS.

**Installing the Type 2 SVC Module**

The IMS Type 2 SVC must be incorporated into the z/OS nucleus. You can do this in one of the following ways:

- Bind the Type 2 SVC with the z/OS nucleus.
- Load the Type 2 SVC from SYS1.NUCLEUS using the Nucleus Module Loader facilities.
- Load the Type 2 SVC from SYS1.NUCLEUS using a SYS1.IPLPARM member, NUCLSTxx.
- Load the Type 2 SVC from SYS1.NUCLEUS using a SYS1.PARMLIB member, NUCLSTxx.

**Attention:** The SYS1.NUCLEUS must not have secondary extents. z/OS cannot recognize secondary extents.

**Binding the Type 2 SVC with the z/OS nucleus**

You can bind the Type 2 SVC with the z/OS nucleus by:

- Invoking the Binder utility through a batch job
- Creating and then performing a RECEIVE and APPLY for an SMP/E USERMOD

**Loading the Type 2 SVC from SYS1.NUCLEUS using the Nucleus Module Loader facilities**

Perform the following steps to load the Type 2 SVC:

1. Create a Nucleus Module List (NML) that contains the list of IMS SVCs that you want loaded into the z/OS nucleus. IMS uses the IEANS001 NML.
2. Assemble and bind the Type 2 SVC into SYS1.NUCLEUS.

This method is included as an example in the IVP materials.

**Loading the Type 2 SVC from SYS1.NUCLEUS using a SYS1.IPLPARM member, NUCLSTxx**

Perform the following steps to load the Type 2 SVC:

1. Bind the IMS SVCs from IMS.SDFSRESL into SYS1.NUCLEUS.
Attention: Determine, from the z/OS systems programmer, the appropriate NUCLSTxx member to use. Note that the LOADxx member and its associated NUCLSTxx member must both reside in SYS1.IPLPARM. If the 2 members are not in this library, IMS will enter a Disabled Wait state and the IPL process stops.

2. Define an INCLUDE statement for the IMS SVC in the NUCLSTxx member of SYS1.IPLPARM.

**Loading the Type 2 SVC from SYS1.NUCLEUS using a SYS1.PARMLIB member, NUCLSTxx**

Perform the following steps to load the Type 2 SVC:

1. Bind the IMS SVCs from IMS.SDFSRESL into SYS1.NUCLEUS.

   **Attention:** Determine, from the z/OS systems programmer, the appropriate NUCLSTxx member to use. Note that the LOADxx member and its associated NUCLSTxx member must both reside in SYS1.PARMLIB. If the 2 members are not in this library, IMS will enter a Disabled Wait state and the IPL process stops.

2. Define an INCLUDE statement for the IMS SVC in the NUCLSTxx member of SYS1.PARMLIB.

**Binding the Channel-to-Channel (CTC) Channel-End Appendage**

If you define multiple systems coupling (MSC) with the CTC option, bind the CTC channel-end appendage named IGG019zz, where zz is the CTC appendage number.

**Installing the Resource Clean-up Module**

In IMS Version 8 and earlier, you must install the IMS module DFSMRCL0 in the host z/OS system as a static resource cleanup module. You are required to bind DFSMRCL0 into SYS1.LPALIB or an MLPA library. The module name DFSMRCL0 must be added to the IEAVTRML CSECT of z/OS module IGC0001C in SYS1.LPALIB.

In IMS Version 9 and later, IMS uses a dynamic resource cleanup module (DFSMRC20). No user setup is required; you do not need to install the static resource cleanup module (DFSMRCL0) on the host z/OS system.

The most recent version of the DFSMRCL0 module must be installed on all pre-V9 IMS systems. For example, if you are running IMS V7, V8, and V9, you must install the module that was distributed with IMS V8.

**Recommendation:** Do not uninstall DFSMRCL0 from releases of IMS earlier than IMS Version 9 until your migration to IMS Version 9 is complete and there is no possibility that you will run an earlier release of IMS. DFSMRCL0 and the dynamic resource cleanup module (DFSMRC20) can coexist on the same system.

Although DFSMRCL0 is not required for IMS Version 9 or later, this module is provided to support users who point to DFSMRCL0 directly in the IMS library. DFSMRCL0 from IMS Version 9 or later can also be used to provide resource cleanup for IMS Version 8 and earlier.
Uninstalling DFSMRCL0

When you have completely migrated to IMS Version 9 or later and there is no possibility of running an earlier release of IMS (both IMS control and IMS batch jobs), you can remove DFSMRCL0 from the host z/OS system by performing the following steps:

1. Remove the name DFSMRCL0 from the IEAVTRML CSECT of module IGC0001C in SYS1.LPALIB. Removing this name prevents the operating system from installing DFSMRCL0 as a Static Resource Cleanup routine at the next IPL.
2. Remove module DFSMRCL0 from SYS1.LPALIB or the MLPA library where DFSMRCL0 was bound.
3. Restart with CLPA to enable these changes.

**Important:** You must perform these tasks in the order specified. If you do not remove the name DFSMRCL0 from IEAVTRML before you delete module DFSMRCL0 from SYS1.LPALIB, your z/OS system will not start.

If you previously used the AMASpzAP utility to zap DFSMRCL0 into the IEAVTRML CSECT (as is done in the IMS IVP), you must use the AMASpzAP utility to remove the name DFSMRCL0 from IEAVTRML. IEAVTRML is a table of 12-byte entries. The first 8 bytes of each entry is the name of the Resource Cleanup routine; the last 4 bytes must be zero. The last entry in the table must be all zeros, to indicate the end of the table. If DFSMRCL0 is not the last entry in the table, then in addition to removing the DFSMRCL0 entry, you must move any subsequent entries to ensure that no all-zero entries exist before the end of the table.

The following example shows how to remove DFSMRCL0 from IEAVTRML.
1. Use the AMASpzAP utility to dump the current contents of IEAVTRML:

```plaintext
//DMPVTRML JOB ...
//STEP001 EXEC PGM=AMASpzAP
//SYSLIB DD DSN=SYS1.LPALIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
DUMP IGC0001C IEAVTRML
/*
```

2. Examine the contents of IEAVTRML from the AMASpzAP dump job output. Locate the entry containing DFSMRCL0 (in hex: X’C4C6E2D4D9C3D3F0’):

```plaintext
**CHHDR- 03C3000517 RECORD LENGTH- 000F38 MEMBER NAME IGC0001C CSECT NAME IEAVTRML
000000 C4C6E2D4 09C3D3F0 00000000 D4E5D7E3 E3D904D3 00000000 C3C1D9F2 09E2C3F0
000020 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
000040 00000000 00000000
```

3. Use the AMASpzAP utility to replace the entry containing DFSMRCL0 with zeros. In the example output above, DFSMRCL0 is the first entry in IEAVTRML, and there are two other entries following it. To remove DFSMRCL0, entries 2 and 3 must be moved to become entries 1 and 2, and entry 3 must be zapped to be all zeros, as shown:

```plaintext
//DMPVTRML JOB ...
//STEP001 EXEC PGM=AMASpzAP
//SYSLIB DD DSN=SYS1.LPALIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
NAME IGC0001C IEAVTRML
VER 0000 C4C6E2D4D9C3D3F0
VER 000C D4E5D7E3E3D904D3
VER 0018 C3C1D9F2D9E2C3F0
```
Related Reading: For additional information, refer to z/OS MV5 Programming: Authorized Assembler Services Guide.

Binding the Abend Formatting Routine

Bind the abend formatting module DFSAFMD0 into SYS1.LPALIB or an MLPA library as CSECT DFSAFMD0, load module DFSAFMD0. Also add the DFSAFMD0 load module name to IEAVADFM CSECT of module IGC0805A in SYS1.LPALIB.

DFSAFMD0 is downward compatible. Upward compatibility is not supported. The most current version of this module must be used.

Related Reading: For additional information, see z/OS MVS Installation Exits.

Adding the Offline Dump Formatting Routine to the Print Dump Exit Control Table

Add the offline dump formatting module name to the Print Dump Exit Control Table in SYS1.PARMLIB member BLSCECT.

The entry must contain:
- Module name DFSOFMD0
- Exit flag 0
- User verb IMSDUMP

An IMS Interactive Dump Formatter is also available from the component analysis section of the IPCS dialogs (IPCS ISPF selection 2.6).

If SDSFSRESL is not in LNKLSTxx, IPCS users must have SDSFSRESL available in the JOBLIB or STEPLIB concatenation in order to be able to load DFSOFMD0.

Related Reading:
- For a description of the exit control table, see z/OS MVS Initialization and Tuning Reference.
- For more information about installing and using the Offline Dump Formatter, see IMS Version 9: Diagnosis Guide and Reference, IMS Version 9: Utilities Reference: System
- For information about controlling IMS dumping options, see IMS Version 9: Installation Volume 2: System Definition and Tailoring

Binding the DBRC Type 4 SVC

Bind the DBRC Type 4 SVC into an LPALIB or an MLPA library. It is named IGC00nnn, where nnn is the signed decimal SVC number.

Authorizing IMS System Data Sets in the Authorized Program Facility

The following IMS system data sets must be APF authorized:
- IMS.SDXRRESL
- IMS.SDFSRESL
**IMS - z/OS Interface**

- IMS.SDFSJLIB
- IMS.MATRIXA, IMS.MATRIXB
- IMS.MODBLKSA, IMS.MODBLKSB
- DFSESL DD, or the JOBLIB or STEPLIB into which your DB2 modules and tables are loaded

In addition to these data sets, in a DB/DC or DCCTL environment, SYS1.CSSLIB must be APF authorized. This is true regardless of whether you use APPC/z/OS. Even though SYS1.CSSLIB is in LNKLSTxx and LNKLSTxx is authorized, you must also have SYS1.CSSLIB in IEAAPFx, because IMS accesses SYS1.CSSLIB without using the LNKLSTxx concatenation. SYS1.CSSLIB must be explicitly APF-authorized.

**Recommendation:** Do not have the IMS.SDFSRESL in LNKLSTxx when running multiple levels of IMS or when migrating to a new version or release level.

**Related Reading:** Refer to information on IEAAPFx in z/OS MVS Initialization and Tuning Reference.

If you use JOBLIB/STEPLIB with region types of CTL (DB/DC region type), DBC (DCCTL region type), or DCC (DCCTL region type), all concatenations of the JOBLIB/STEPLIB must be APF authorized.

IMS conforms to z/OS rules for data set authorization. If you authorize an IMS job step, authorize all libraries used in that job step. To run an IMS batch region as non-authorized, concatenate a non-authorized library to IMS.SDFSRESL. To make this concatenation, the batch job must contain a DFSRESLB DD statement pointing to IMS.SDFSRESL.

### Updating the APPC / z/OS Administration Dialog

To use the APPC / z/OS Administration Dialog utility with IMS TP Profiles, you must first add “IMS” as a transaction scheduler. To do this, you must add one line to the non-display panel ICQASE00 where the variable QASTSPE is defined. The format of the line is as follows:

```
IMS,DFSTPPE0`
```

You must also change the single quote (’) on the current last line of the assignment to a plus sign (+).

In addition, IMS.SDFSEXEC must be added to the TSO SYSPROC concatenation, and IMS.SDFSPLIB must be added to the TSO ISPPLIB concatenation.

For more information on modifying this panel, see “Customizing the Dialog” in z/OS MVS Planning: APPC/MVS Management.

### Ensuring that DFSMS Macros are Available

The IMS open and close module DFSZD110 (GSAM and BSAM) uses the DFSMS macros EZCTGPL and IEZCTGPL. Beginning with DFSMS 1.5, macros IEZCTGPL and IEZCTGFL are provided on the optional source tape only. If DFSZD110 needs to be assembled, these macros must be available.

**Note:** DFSZD110 does not need to be assembled to process PTFs. It needs to be assembled only when processing any APARs or USERMODs that affect it.
Using RRS

When using the RRS feature, be aware that the optional RRS Archive Log Stream generates large amounts of additional logging to the MVS logger.

If used, RRS Archive Logging should be monitored closely for system logstream performance impact. Neither IMS nor RRS use the RRS Archive Log Stream data for diagnostic purposes, so it is not necessary to use this function.

IRLM

There are many requirements that you must consider and required steps to ensure a complete and correct installation of IRLM on z/OS. These topics describe these requirements and required actions.

The following topics provide additional information:

- "Adding IRLM CTRACE Module to z/OS Link List"
- "Authorizing IRLM in the Authorized Program Facility"
- "Creating IRLM Subsystem Names"
- "Updating the IBM-Supplied Program Properties Tables"
- "Updating the Print Dump Exit Control Table" on page 76

Adding IRLM CTRACE Module to z/OS Link List

The IRLM CTRACE start/stop routine load module, DXRRL183, must reside in the z/OS Link List (LL). This module also contains the automatic restart manager (ARM) support for IRLM.

Related Reading: See z/OS MVS Initialization and Tuning Reference for information on responding to the messages and setting up PARMLIB members to contain trace options and parameters.

Authorizing IRLM in the Authorized Program Facility

The IMS.SDXRRESL system data set must be APF authorized.

Related Reading: Refer to IEAAPFx in z/OS MVS Initialization and Tuning Reference.

Creating IRLM Subsystem Names

Unless you have deleted them, z/OS preconditioning has already defined IRLM and JRLM as subsystems names. You can use these names, or you can define your own. Create a z/OS subsystem name entry for each IRLM to be executed on the z/OS system. When two IRLMs reside in the same z/OS system, each must have a unique z/OS subsystem name.

Related Reading: For information on defining a subsystem to z/OS, see "Naming Your IRLM" on page 78 and also see z/OS MVS Initialization and Tuning Reference.

Updating the IBM-Supplied Program Properties Tables

Unless you have deleted it, z/OS preconditioning has already defined a PPT entry for DXRRLM00.

Related Reading: For information on adding an entry to the PPT, see z/OS MVS Initialization and Tuning Reference.
Updating the Print Dump Exit Control Table

Add the IRLM dump formatting module name to the Print Dump Exit Control Table.

Related Reading: See z/OS MVS Initialization and Tuning Reference.

The entry must contain:
- Module name DXRRLM50
- Exit flag 0
- User verb IRLM

Related Reading: For more information about the dump formatting module, see “IMS Dumping and Dump Formatting Options” in IMS Version 9: Installation Volume 2: System Definition and Tailoring.

Ensure that one of these is true:
- The print dump formatting module DXRRLM50 is in SYS1.LINKLIB.
- The job that prints the dump contains a JOBLIB or STEPLIB statement specifying the library containing the modules.
Chapter 5. VTAM Interface Considerations

If your IMS system requires VTAM, the VTAM mode table must contain entries for all VTAM terminals defined to IMS. You can use the table entry name at logon as any of the following:

- LOGMODE parameter on the VTAM VARY command
- MODE parameter on the /OPNDST command
- Parameter on the other terminal’s INIT SELF command
- MODETBL parameter of the TERMINAL macro

The MODETBL parameter overrides any other entry supplied with the ACF/VTAM LOGON or SCIP exit CINIT. The MODETBL name for all parallel sessions with a given terminal is the same. Do not specify MODETBL for cross-domain resources.

The mode table entry creates the session parameters and thus controls the session established between IMS and the terminal. Except for Inter-System Communication (ISC), IMS does not support user data on the LOGON command, except the CRYPTO and PACING operands, or on the CINIT or BIND operand.

**Related Reading:** For a list of the BIND parameters for VTAM logical units, refer to [IMS Version 9: Administration Guide: Transaction Manager](#).

Define all of the following terminals:

- 3600, 3614, and SLU P as LUTYPE=0
- SLU 1 as LUTYPE=1
- SLU 2 as LUTYPE=2
- LU 6 as LUTYPE=6

A 3770P or 3790 terminal defined as SLUTYPE1 must be defined as unattended in its mode table entry. You can define a SLU 1 terminal as an exception or definite response for the secondary terminal. For terminals defined as SLUTYPEP, no options are allowed in the first 7 bytes of the BIND command.

**Related Reading:** For additional information, refer to [IMS Version 9: Administration Guide: Transaction Manager](#).

When you specify PARSESS=NO in the VTAM APPL macro for IMS, VTAM parallel session support is not included. In this case, IMS counts as ‘1’ within the MAXAPPL keyword of the VTAM START parameter.

When you specify PARSESS=YES in the VTAM APPL macro for IMS, VTAM parallel session support is included in the system. IMS counts as ‘2’ within the MAXAPPL keyword of the VTAM START parameters.

**Related Reading:** For information on IMS support for parallel sessions, see [IMS Version 9: Administration Guide: Transaction Manager](#). For more information on VTAM and Remote Site Recovery, see [IMS Version 9: Installation Volume 2: System Definition and Tailoring](#).
VTAM Considerations

**Important**: After the z/OS and VTAM interface steps are completed, you must start z/OS and specify either CLPA or MLPA=xx, or both.

The following topics provide additional information:
- “Setting the Network Control Program (NCP) Delay”
- “Naming Your IRLM”

### Setting the Network Control Program (NCP) Delay

**Recommendation**: Set the value of the DELAY parameter on the HOST macro to 0 or as low as possible considering the other work in your system.

### Naming Your IRLM

Each message that the IRLM issues includes the IRLM z/OS subsystem name (IRLMNM on the start procedure) concatenated with the ID (IRLMID on the start procedure). A naming convention that allows easy identification of which IRLM issued a specific message is recommended. The following IRLM command displays all of the IRLM names and IDs associated with this IRLM or sharing group.

**Example:**

```
F irlmproc,STATUS,ALLI
```
Chapter 6. IMS Service Considerations

This chapter describes how IMS service is delivered to you and recommends a strategy for maintaining IMS, and describes how to obtain and install IMS service. This chapter also provides information to help prevent potential maintenance problems. These topics also provide information to help prevent potential maintenance problems.

The following topics provide additional information:
- “Service SYSMODs”
- “Program Temporary Fixes (PTFs)”
- “Authorized Program Analysis Reports (APARs)”
- “USERMODs”
- “Service SYSMOD Packaging” on page 80
- “Maintenance Recommendations” on page 81
- “Obtaining IMS Service” on page 83
- “Installing IMS Service” on page 83
- “Common Installation and Maintenance Issues” on page 88

Service SYSMODs

IMS provides maintenance packaged in SMP/E format. IMS maintenance is packaged as one of three types of SMP/E SYSMODs:
- “Program Temporary Fixes (PTFs)”
- “Authorized Program Analysis Reports (APARs)”
- “USERMODs”

Program Temporary Fixes (PTFs)

Program Temporary Fixes (PTFs) are considered preventative service. PTFs contain solutions for valid problems and are distributed with the source changes, object modules, or both in machine-readable format. The PTF is considered the final solution for a problem for the release of IMS for which it is provided.

For modules that supersede a previous level of a module, the source changes are the cumulative delta source changes for the module. If a PTF has a prerequisite, the source changes included in the PTF are not cumulative, but reflect only the code changed for the PTF.

Authorized Program Analysis Reports (APARs)

Authorized Program Analysis Report (APAR) fixes are considered corrective service. APARs contain solutions for valid problems and are distributed with the source changes, object modules, or both in machine-readable format. The APAR is considered an interim solution, or temporary solution, for a problem. The final solution is the corresponding PTF or PTFs created at the end of the APAR process. One APAR can become one or more PTFs.

USERMODs

IMS provides USERMODS in the following situations:
- As an APAR fixtest, to ensure that the problem reported by an APAR is corrected or to provide relief until the APAR or PTF is available
• As a circumvention to a problem, to provide relief until the final APAR or PTF is available
• As a trap (or specialized code) to obtain additional documentation or information (such as a dump) necessary to analyze and understand a problem

USERMODs provided by IMS define as prerequisites (PRE, IFREQ, and so on) only those SYSMODs for which the USERMOD has code dependencies. USERMODs list the corresponding APARs, not PTFs, as prerequisites. In this way, USERMODS are like APARs. Whenever IMS USERMODS are processed by SMP/E, regression messages might be encountered. These messages must be analyzed to ensure that no regression is actually taking place. If needed, contact IBM Software Support for assistance.

USERMODs provided by IMS are not superseded (SUP) by a corresponding APAR or PTF. When the final fix is available, you must RESTORE the USERMOD from the system. The ++HOLD information provided with each USERMOD indicates that you must RESTORE the USERMOD and contains instructions on how to do so.

Important: The SMP/E ACCEPT command should not be processed for USERMODs.

Related Reading: For more detailed SMP/E information, see SMP/E for z/OS and OS/390 Reference.

Service SYSMOD Packaging

The IMS service process normally makes APARs available as soon as they are completed, which is normally a few weeks before the corresponding PTF or PTFs are completed. In situations in which a fix is urgently needed after the APAR is completed, but before the PTF is available, using the APAR might be the best short-term solution.

APARs provided by IMS define as prerequisites (PRE, IFREQ, and so on) only those SYSMODS for which the APAR has code dependencies. The APARs list other APARs, not PTFs, as prerequisites.

PTFs contain as requisites (PRE, IFREQ, and so on) all prior PTFs affecting the same elements. Processing a PTF might require the processing of many additional SYSMODS, while processing an APAR might not. In emergency situations where a problem exists and a solution must be implemented quickly, the APAR might be the best short-term solution as it might require the least amount of change. However, you must always use the PTF as the final fix.

When processing APARs, encountering regression messages from SMP/E is normal. These messages must be analyzed to ensure that no regression will occur. If needed, contact IBM Software Support for assistance.

PTFs supersede (SUP) their corresponding APARs. Therefore, removing the APAR prior to processing the PTF is not required.

Important: APAR fixes should not be processed using the SMP/E ACCEPT command. The corresponding PTF or PTFs should be processed as the final fix.
Maintenance Recommendations

Maintaining your IMS systems can be a challenge in today’s complex environments. The recommendations outlined in this section are designed to assist you in developing a maintenance strategy that works in your environment. Before you apply any maintenance you need to determine your readiness. This involves a careful risk assessment. This same principle applies to developing a maintenance strategy.

The following topics provide additional information:

- “Assessing Your Readiness to Apply Maintenance”
- “General Maintenance Recommendations for a Production System”
- “General Maintenance Recommendations for IMS Service Distributed After Testing Cycle Begins” on page 82
- “Sample Implementation of Maintenance Recommendations” on page 82

Assessing Your Readiness to Apply Maintenance

Numerous factors are involved in assessing your readiness to apply maintenance. Some of those factors are:

- Quality of the local test environment
- Business cycle

**Quality of the local test environment:** Several factors affect the quality of the test environment. Some questions to consider are these:

- Are closely related software products such as RACF, DFP, or z/OS DFSMS installed?

- Do you have a tool, such as Teleprocessing Network Simulator (TPNS), that enables you to perform stress tests to simulate peek production activity?

- To what extent does the hardware used in your test environment match the production environment?

- To what extent does the application software used in your test environment match the production environment?

- Are test results closely monitored?

These and other factors need to be considered to evaluate the quality of the test environment.

**Business cycle:** You must do everything you can during a critical business cycle, to ensure that IMS remains available. Therefore, avoid applying maintenance to a production system during a critical business cycle.

General Maintenance Recommendations for a Production System

**Attention:** SYSMODs in APPLY-only status could be regressed by an IMS system definition. See “Preventing Regression of SYSMODs in APPLY-only Status by an IMS System Definition” on page 88 for instructions about preventing this.

If you are starting with a base implementation service level of an IMS production system, take the following actions:

1. Install service levels 6 months behind the current ESO or CBPDO level for a planned migration.

2. Install all HIPER PTFs fixes 3 months behind the planned migration date.
3. Resolve PEs.
4. Conduct a 3-month test cycle prior to implementing on your production system.

**General Maintenance Recommendations for IMS Service Distributed After Testing Cycle Begins**

IMS maintenance continues to be distributed during the 3-month test cycle. Include the following maintenance items in the initial production base system implementation:

1. Install fully tested fixes for significant software problems encountered.
2. Install fully tested HIPER SYSMODs that are significant and directly apply to your specific environment.
3. Review the IMS PSP bucket UPGRADE for the IMS release level and SUBSET FMIDs; important IMS product information is continually added to these buckets. You might be prompted to take a variety of actions to keep your IMS system in proper working order.

**Sample Implementation of Maintenance Recommendations**

The following is an example of how to implement the maintenance recommendations outlined in "General Maintenance Recommendations for IMS Service Distributed After Testing Cycle Begins" and "General Maintenance Recommendations for a Production System" on page 81.

1. Obtain current service.
   Use your current service delivery method, or use ShopzSeries. ShopzSeries is IBM’s Web-based productivity tool that simplifies the ordering of zSeries® software products, product upgrades, and system maintenance. Go to http://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp for more information about ShopzSeries.

2. Obtain and receive current enhanced HOLDDATA. Go to http://service.software.ibm.com/holddata/390holddata.html for the most current information regarding enhanced HOLDDATA.

3. Use SMP/E to install the service.
   Select RSUyymm SOURCEIDs that are created by CST (Consolidated Service Test). Go to http://www.ibm.com/servers/eserver/zseries/zos/servicest/ for additional information regarding CST. Then resolve both PEs and System HOLDS.

4. Obtain and receive current enhanced HOLDDATA again.
   Run SMP/E REPORT ERRSYSMODS to identify HIPER/PE exposures. Analyze REPORT ERRSYSMODS output and obtain and process the applicable SYSMODs. Use the IMS Support Web site (http://techsupport.services.ibm.com/server/390.psp390) or PSP buckets for APAR descriptions. If you find that some PE SYSMODs are already on the system you can:
   - Remove the PTF in error if it is not already accepted.
   - Leave the PTF in place if the reported PE symptom is not significant.
   - Establish operator procedures to restrict access to reported areas of exposure.
   - Apply a corrective APAR or PTF, if available.
   - Request a FIXTEST from IBM Software Support for the reported problem if the APAR is still open.
5. Review the most current IMS PSP buckets for new service information.
6. Test the new maintenance level.
7. Repeat steps 4, 5, and 6 in an ongoing effort to maintain current maintenance levels.

Obtaining IMS Service

PTFs are available through the following channels:

IBM Software Support
You can request specific PTFs that can be downloaded from IBMLINK, a File Transfer Protocol (FTP) site, or mailed on a cartridge.

Extended Support Offering (ESO)
Cartridges can be sent to licensed users on a monthly basis or when you request them.

Custom Built Product Delivery Offering (CBPDO)
You must request that cartridges be sent to you.

ServerPac
You must request that cartridges be sent to you. These cartridges also include products.

ShopzSeries
Web-based productivity tool that makes it easier for you to order service. Service is sent to you either through the mail or through the Internet.

Installing IMS Service

IMS service can be installed in several ways, including the following SMP/E methods:

- **"RECEIVE/APPLY/ACCEPT (Standard Sequence)"**
- **"ACCEPT without APPLY (Pregeneration Mode)"** on page 84
- **"ACCEPT before APPLY (SYSDEF-Sensitive Service)"** on page 87

Important: Do not ACCEPT APARs or USERMODs.

If you have any questions about these processes, contact IBM Software Support before you begin.

**RECEIVE/APPLY/ACCEPT (Standard Sequence)**

This SMP/E method is the standard method for processing service.

1. Back up the IMS environment.
   - a. Back up the SMP/E data sets (such as Zones, SMPMTS, and SMPPTS).
   - b. Back up IMS product data sets (such as SDFSRESL and ADFSLOAD).
2. Obtain the desired service.
3. Read the documentation accompanying the package:
   - ESO tape documentation
   - CBPDO Memo to Users Extensions
   - Preventative Service Planning (PSP)
4. Run the SMP/E RECEIVE command.
5. Run the SMP/E APPLY CHECK GROUPEXTEND command.

SMP/E Messages GIM43401 and GIM44402 can be received for modules not included in the target system during the APPLY CHECK and APPLY process. You can ignore these messages if they refer to a part that pertains to an IMS function or feature that you are not going to use. Programming exceptions (PEs) need to be resolved to ensure that service is processed to the desired level. If needed, contact IBM Software Support for assistance.

Attention: IMS service frequently includes in-line JCLIN information. For this type of service, SMP/E does not recommend the re-APPLY of service using the REDO parameter. If REDO is used for this type of service (without NOJCLIN), SMP/E RESTORE processing might not work properly.

6. Research the APPLY CHECK reports, making changes as needed.

7. Run the SMP/E APPLY GROUPEXTEND command.

8. Test the corrective service.

If an IMS system definition is done with service in APPLY only status, that service might be partially or completely regressed.

Recommendation: For all SYSMODs in APPLY only status, issue the following SMP/E command after every IMS system definition:

```
APPLY S(xxxx,xxxx) REDO NOJCLIN BYPASS (....)
```

where xxx,xxxx is a list of all SYSMODs in APPLY only status (separated by commas or spaces).

9. Run the SMP/E ACCEPT CHECK GROUPEXTEND command.

10. Research the ACCEPT CHECK reports.

11. Run the SMP/E ACCEPT GROUPEXTEND command.

**ACCEPT without APPLY (Pregeneration Mode)**

**Important:** This information is accurate as of its printing. For the most current and more detailed information, see Information APAR III3024.

This procedure requires that ACCJCLIN was set in the distribution zone when the FMIDs were ACCEPTed.

1. Back up the IMS environment.
   a. Back up the SMP/E data sets (such as Zones, SMPMTS, and SMPPTS).
   b. Back up IMS product data sets (such as SDFSRESL and ADFSLOAD).

2. Obtain the desired service.

3. Read the documentation accompanying the package:
   * ESO tape documentation
   * CBPDO Memo to Users Extensions
   * Preventative Service Planning (PSP)

4. Run the SMP/E RECEIVE command.

5. Run either the SMP/E RESTORE or ACCEPT commands for all outstanding service for all products present in the IMS distribution and IMS target zones.

Use the following sample SMP/E control statements to identify this outstanding service (SYSMODS that have been applied only):

```
//SMPCNTL DD *
SET BDY(targetzonename).
LIST APAR PTF USERMOD NOACCEPT NOSUP.
```

6. Unload the target zone DDDEFs using the SMP/E UNLOAD command. Use the following sample SMP/E control statements and JCL to complete this task:
7. Run the SMP/E LIST command on the target zone to determine the name of the OPTIONS entry. This OPTIONS entry will be used in Step 10. Use the following sample SMP/E control statements to complete this task:

```
//SMPCNTL DD *
    SET BDY(targetzonename).
    LIST TARGETZONE.
```

8. Scratch and reallocate the following data sets:
   - SMPMTS
   - SMPSTS
   - SMPSCDS
   - SMPLTS

   **Note:** The SMP/E CLEANUP command can be used instead of scratching and realocating the SMPPTS, SMPSTS and SMPSCDS data sets. The SMP/E CLEANUP command cannot be used for the SMPLTS data set. You need to scratch and realocate this data set.

   Use the following sample SMP/E control statements to complete this task:

   ```
   //SMPCNTL DD *
   SET BDY(targetzonename).
   CLEANUP.
   ```

9. Delete the SMP/E target zone.
   a. Run the SMP/E ZONEDELETE command for the Target zone. Use the following sample SMP/E control statements to complete this task:

      ```
      //SMPCNTL DD *
      SET BDY(targetzonename).
      ZDEL ZONE(targetzonename).
      ```

   b. If no other SMP/E zones are in the target CSI (the VSAM cluster), run the IDCAMS DELETE and DEFINE commands on the target CSI to improve performance.

      **Attention:** If multiple zones are contained in the same CSI as the target zone, do not delete and redefine the cluster because you will also lose the information for those zones.

10. Re-initialize the new Target zone.
   a. Run the IDCAMS REPR0 command to copy SYS1.MACLIB(GIMZPOOL) into the new CSI.

      **Attention:** If you did not delete and redefine the target CSI as described in Step 9 do not copy GIMZPOOL into the new target zone.

   b. Rebuild the relationship between the old DLIB zone and the new Target zone. Use the following sample SMP/E control statements to complete this task:

      ```
      //SMPCNTL DD *
      SET BDY(GLOBAL).
      UCLIN.
      ADD ZONE ZONEINDEX(
        (targetzonename,target.zone.cluster.name,TARGET)
      ).
      ENDUCL.
      SET BDY(targetzonename).
      ```
UCLIN.
ADD TARGETZONE(targetzonename)
SREL(P115)
RELATED(dlibzonename)
OPTIONS(xxxxxx).
ENDUCL.

Note: Be sure that this new target points to the correct OPTIONS entry. The correct OPTIONS entry can be determined from the output created in step 7 on page 85.

c. Run UCLIN to add the DDDEFs back to the target zone. This step uses the data set created in step 6 on page 84 as input. Use the following SMP/E control statements and JCL to complete this task:

//SMPCNTL DD *
SET BDY(targetzonename).
// DD DSN=IMS.SMPUNLD,DISP=SHR

Note: Return code 4 is expected in this step because DDDEFs are being added instead of being replaced.

Attention: Before processing SMP/E in step 11 RECEIVE the current Enhanced HOLDDATA. Doing so enables you to resolve PEs during SMP/E processing. You can get the most recent HOLDDATA at http://service.boulder.ibm.com/390holddata.html.

11. Run the SMP/E ACCEPT GROUPEXTEND BYPASS(APPLYCHECK) commands for the PTFs to be processed. Use the following sample SMP/E control statements to complete this task:

//SMPCNTL DD *
SET BDY(dlibzonename).
ACCEPT GROUPEXTEND
BYPASS(APPLYCHECK
HOLDCLASS(ERREL,UCLREL)
HOLDSYSTEM
)
SOURCEID(SMCREC,RSU03*,RSU040*,RSU0410,etc)
PTFS.

Attention: After SMP/E processing is complete, using the current enhanced HOLDDATA, run the SMP/E REPORT ERRSYSMODS to identify missing HIPERs and PE exposures.

12. Run the SMP/E ZONEMERGE command specifying CONTENT to merge the distribution zone to the new target zone. Use the following sample SMP/E control statements to complete this task:

//SMPCNTL DD *
SET BDY(targetzonename).
ZONEMERGE(dlibzonename)
INTO(targetzonename)
CONTENT.

13. Run the SMP/E GENERATE command to create the JCL necessary to re-build the target libraries.

Tip: This step requires that ACCJCLIN was set in the distribution zone before the IMS FMIDs were ACCEPTed.

Use the following sample SMP/E control statements and additional JCL to complete this task:

//CNTL DD DSN=yourpds,DISP=SHR
//SMPPUNCH DD DSN=IMS.GENERATE,
// DISP=(,CATLG),UNIT=SYSDA,
// SPACE=(CYL,(25,5),RLSE),
Note: In this example the data set for ddname CNTL must have a member named J, which contains a sample JOB card.

14. Run the JCL that was created in step 13 on page 86

Note: The SMPLTS job will complete with a return code of 4 because of unresolved external references (IEW2454W). All other jobs should complete with a return code of 0.

15. Run an IMS ALL type of system definition (STAGE 1 and STAGE 2).

Requirement: If you are running a large IMS system (LGEN), you need to allocate the IMS.LGENIN and IMS.LGENOUT data sets before running the IMS SYSDEF preprocessor. The preprocessor performs Stage1 for a large system definition.

Attention: Ensure that Stage 2 processing is complete before performing step 16

16. Run SMP/E JCLIN, pointing to the STAGE 2 JCL as input.

Requirement: If you are running a large IMS system, the output from the DFSIVG10 program must be used as input to JCLIN. For assistance with DFSIVG10, refer to IVP job IV_C40IJ.

17. Run the SMP/E APPLY command for any IMS service that was not accepted. This service was identified in step 5 on page 84

18. Run the SMP/E APPLY command for any service for other products that was not accepted. This service was identified in step 5 on page 84

19. Test the new system.

**ACCEPT before APPLY (SYSDEF-Sensitive Service)**

This method is a variation of pregeneration mode that can be useful when you have many products sharing the same SMP/E zones and you need to install a PTF that would normally require an ACCEPT BYPASS(APPLYCHECK) sequence (typically a PTF that affects system definition). This method avoids disturbing other products that have outstanding service (service that has been APPLIED but not ACCEPTed).

1. Back up the IMS environment.
   a. Back up the SMP/E data sets (such as Zones, SMPMTS, and SMPPTS).
   b. Back up IMS product data sets (such as SDSRESLSL and ADFSLOAD).
2. Obtain the desired service.
3. Read the documentation accompanying the package:
   - ESO tape documentation
   - CBPDO Memo to Users Extensions
   - Preventative Service Planning (PSP)
4. Run the SMP/E RECEIVE command.
5. Run the SMP/E ACCEPT or RESTORE commands on outstanding APPLY service for all products sharing the SMP/E zones with IMS.
6. Run the SMP/E ACCEPT CHECK GROUPEXTEND BYPASS(APPLYCHECK) command.
7. Research the ACCEPT CHECK reports, making changes as necessary.
8. Run the SMP/E ACCEPT GROUPEXTEND BYPASS (APPLYCHECK) command.
9. Run an IMS ALL type of system definition (SYSGEN) STAGE 1 and STAGE 2.
Common Installation and Maintenance Issues

You can have a more stable IMS environment by being aware of some of the common installation and maintenance issues that are presented in this section and taking appropriate action.

The following topics provide additional information:

- “Preventing Regression of SYSMODs in APPLY-only Status by an IMS System Definition”
- “Generating JCL to Build Non-System Definition Target Libraries” on page 89
- “Applying Maintenance for the IVP Dialog” on page 89
- “Updating z/OS” on page 89
- “Ensuring Proper SYSLIB Concatenation” on page 90
- “Interpreting Binder Return Codes Properly” on page 90
- “Migrating to a New Version of IMS” on page 91

Preventing Regression of SYSMODs in APPLY-only Status by an IMS System Definition

If an IMS system definition is performed when maintenance is in APPLY status, the maintenance might be regressed. There are two methods of preventing SYSMODs in this status from being regressed by an IMS system definition:

- Before the system definition, ACCEPT all PTFs in Apply-only status.
- After the system definition, reprocess the Apply-only SYSMODs.

Use the following SMP/E statements to list the SYSMODs in Apply-only status:

```smp/e
SET BOUNDARY (targetzone).
LIST APAR PTF USERMOD NOACCEPT NOSUP.
```

**Attention:** Only use the NOJCLIN parameter when processing REDO. Otherwise, you might not be able to RESTORE the service.

Use the following SMP/E statements to reprocess SYSMODs in Apply-only status:

```smp/e
APPLY REDO NOJCLIN SELECT( 
    xxxxxxx 
    xxxxxxx 
    xxxxxxx 
)
```

`xxxxxx` explicitly lists each SYSMOD in Apply-only status. NOJCLIN should only be specified for REDO processing. Some SYSMODs in Apply-only status might have System HOLDs for system definition that require special handling. Follow the instructions in the HOLD statements for those SYSMODs.
Generating JCL to Build Non-System Definition Target Libraries

Some elements of IMS are not included in the IMS system definition (SYSGEN) process. These elements are identified to SMP/E and built during APPLY processing for their FMIDs.

The SMP/E GENERATE command can be used to create JCL that can be used to rebuild these components in their target libraries. SMP/E GENERATE can also be used to create JCL for other products in the IMS distribution zone, such as IRLM. SMP/E GENERATE processing is dependent on the SMP/E parameter ACCJCLIN being set in the distribution zone when the FMID is ACCEPTed.

DFSJCLIN is no longer provided by IMS. Instead, use SMP/E GENERATE if JCL is needed to build the non-sysdef target IMS elements. SMP/E GENERATE can also be used to build JCL to build target elements for other FMIDs. For example, use GENERATE instead of DXRJCLIN for the IRLM.

Applying Maintenance for the IVP Dialog

Service affecting the IVP dialog process can require that special processing to performed.

SMP/E HOLDDATA identifies the required actions, if any needs to be performed.

The following actions might need to be performed, as identified in HOLDDATA:

- Table Merge
  Table Merge is necessary if rows have been added, changed, or deleted in one of the master tables. Table merge causes the changes to be propagated to the user tables in INSTALIB. Default values for variables are not updated for variables that have been changed by dialog processing.

- Variable Gathering
  You can modify the default values for new and changed variables.

- File Tailoring
  You can rerun File Tailoring to add INSTALIB members for new JOBS or TASKs or to update INSTALIB members with new or changed variable values.

- Execution
  You can run or rerun portions of the IVP processes.

Upgrading z/OS

Ensure that you perform the following when upgrading the z/OS system on which IMS is running:

1. Review the z/OS considerations. See Chapter 4, “z/OS Interface Considerations,” on page 65 for more information.

2. Review the VTAM considerations. See Chapter 5, “VTAM Interface Considerations,” on page 77 for more information.

Note: The IVP D series of samples contains examples of all of the z/OS and VTAM interfaces, except for the Channel-to-Channel (CTC) Channel-End Appendage. See “Steps Dx for Interface IMS to z/OS and VTAM” on page 196 for more information.
Ensuring Proper SYSLIB Concatenation

The order in which your macro libraries are concatenated is critical. Otherwise, unpredictable results might occur during assembler processing. Ensure that your libraries are concatenated in the order presented in this section.

SMP/E Apply:
1. IMS.OPTIONS
2. SMPMTS
3. IMS.SDFSMAC
4. MVS Macro Libraries

IMS.OPTIONS
Built during STAGE 2 of system definition and is customized by the specified parameters.

SMPMTS
A target library for macros that exist only in a distribution library. This data set enables the current version of the macros to be used for assemblies during APPLY processing.

IMS.SDFSMAC
Target library for all IMS macros.

MVS Macro Libraries
Consist of the appropriate combination of SYS1.MACLIB (AMACLIB), SYS1.MODGEN (AMODGEN), SYS1.TSOMAC (ATSOMAC), and ASM.SASMMAC2. ASM.SASMMAC2 contains concept 14 macros and comes with the High Level Assembler in the HLASM Toolkit.

SMP/E Accept:
1. IMS.OPTIONS
2. IMS.ADFSMAC
3. MVS Macro Libraries

Note: The noticeable difference from the SMP/E APPLY process is the absence of SMPMTS, and SMP/E pointing to distribution libraries rather than target libraries. SMPMTS contains versions of macros that have not been accepted.

IMS System Definition Stage 1:
1. IMS.ADFSMAC

IMS System Definition Stage 2:
1. IMS.OPTIONS
2. IMS.ADFSMAC
3. MVS Macro Libraries

Interpreting Binder Return Codes Properly

Some binder return codes can be safely ignored while others cannot. Table 14 on page 91 lists the acceptable return codes from the various binder processes:
Table 14. Acceptable return codes from the binder

<table>
<thead>
<tr>
<th>Type of SMP/E processing</th>
<th>Return Code</th>
<th>How to Interpret</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLY</td>
<td>0</td>
<td>Do not ignore unresolved external references. The exception is binds into SMPLTS.</td>
</tr>
<tr>
<td>ACCEPT</td>
<td>4</td>
<td>You can safely ignore unresolved external references.</td>
</tr>
<tr>
<td>System Definition STAGE</td>
<td>0</td>
<td>Do not ignore unresolved external references.</td>
</tr>
</tbody>
</table>

**Recommendation:** Point to a different utility entry in SMP/E for APPLY and ACCEPT processing.

**Migrating to a New Version of IMS**

When migrating to a new version of IMS, there are certain tasks that should be performed regardless of which version you are migrating from. When migrating to a new version of IMS, ensure that you perform the following tasks:

1. Review the Release Planning Guide for the version that you are migrating to. In particular, review the migration and coexistence information.
2. If you are skipping a version, review the Release Planning Guide for those versions you are skipping. In particular, review the migration and coexistence information.
3. Review the PSP bucket for the version that you are migrating to.
4. If you are skipping a version, review the PSP bucket for those versions you are skipping.
Part 2. IVP Information

Chapter 7. Introduction to the Installation Verification Program

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<td>Selecting the Environment Options</td>
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<td>Verifying an Environment Option Change</td>
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<tr>
<td>Selecting Sub-options</td>
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</tr>
<tr>
<td>Requesting a Table Merge</td>
<td>114</td>
</tr>
<tr>
<td>Table Merge in Progress</td>
<td>114</td>
</tr>
<tr>
<td>Table Merge Completed</td>
<td>115</td>
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<tr>
<td>Copying Start-up Variables</td>
<td>115</td>
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<tr>
<td>Selecting a Processing Phase and a Restart Phase</td>
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<td>Gathering Variables</td>
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<td>Variable-Gathering Action Commands</td>
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<td>Variable Gathering—LST Mode</td>
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<td>Exporting and Importing IVP Variables between</td>
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<td>IMS Releases</td>
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<td>Variable Gathering—ENT Mode</td>
<td>125</td>
</tr>
<tr>
<td>Variable Gathering—DOC Action</td>
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<tr>
<td>Variable Gathering—Phase Complete Verification</td>
<td></td>
</tr>
<tr>
<td>Verification</td>
<td>127</td>
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<td>Variable Gathering—Return to Phase Selection</td>
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<tr>
<td>Tailoring Files</td>
<td>129</td>
</tr>
<tr>
<td>File-Tailoring Action Commands</td>
<td>130</td>
</tr>
<tr>
<td>File-Tailoring—ALL Action Request</td>
<td>131</td>
</tr>
<tr>
<td>File-Tailoring in Progress</td>
<td>132</td>
</tr>
<tr>
<td>File-Tailoring—ALL Action Complete</td>
<td>132</td>
</tr>
<tr>
<td>File-Tailoring—LST Mode</td>
<td>132</td>
</tr>
<tr>
<td>File-Tailoring—ENT Mode</td>
<td>133</td>
</tr>
<tr>
<td>File-Tailoring—DOC Action</td>
<td>134</td>
</tr>
<tr>
<td>File-Tailoring—Phase Complete Verification</td>
<td>135</td>
</tr>
<tr>
<td>File-Tailoring—Return to Phase Selection</td>
<td>136</td>
</tr>
</tbody>
</table>
Chapter 7. Introduction to the Installation Verification Program

This chapter introduces the Installation Verification Program (IVP) facility, which you use to verify a new IMS system.

This chapter assumes that you have already installed a new IMS system. The Program Directory for Information Management System Version 9 contains information on installing IMS.

**Definitions:** IVP (Installation Verification Program) is a facility for *initially* verifying (testing) the installation of IMS using a sample IMS system.

Use the IVP dialog to verify the majority of IMS features and functions. Other IMS books contain procedures for running some features and functions not covered by the IVP dialog. See the list of IMS books in “Bibliography” on page 243.

The following topics provide additional information:
- “IVP Process”
- “The IVP Dialog” on page 96
- “Modifying the IVP” on page 99
- “Using the IVP After Verification” on page 99
- “Product Packaging” on page 100

**IVP Process**

The IVP process consists of verifying the installation using a sample IMS system. IVP creates a sample IMS system that exercises a broad scope of IMS functions.

The IVP process includes all of the materials necessary for you to define, prepare, and run a sample IMS system. For example, IVP provides:
- Step-by-step instructions
- Customized JCL
- IMS Stage 1 Input
- Database descriptions (DBDs)
- Program specification blocks (PSBs)
- Message Format Services (MFSs)
- Application programs
- Execution instructions

The following topics provide additional information:
- “INSTALL”
- “IVP” on page 96

**INSTALL**

See the Program Directory for Information Management System Version 9 for information on using System Modification Program/Extended (SMP/E) to install a new IMS system.
IVP

IVP is a sample IMS system. When installing IMS, using the IVP is highly recommended.

IVP is also useful for IMS system programmers who want to maintain an environment for the initial installation and testing of IMS service.

You can use the IVP materials as a set of samples even if you do not want to run the IVP.

The IVP provides guidance for performing a combination of the following jobs and tasks (depending on your environment):

- Allocating data sets
- Performing IMS system definition (SYSDEF)
- Establishing IMS interfaces to z/OS and VTAM
- Preparing the IMS system
- Using IPL z/OS
- Preparing the IVP system and IMS applications
- Initializing the IVP system and runs IMS applications

**Important:** You must perform IMS system definition and you must establish the interface between your IMS system and z/OS and VTAM before you can execute your system using the new IMS release.

**Related Reading:** For the complete details of the jobs and tasks, see Appendix B, “IVP JOBs and TASKs,” on page 195.

See “Steps Cx for System Definition (SYSDEF)” on page 196 through “Steps Ox for Common Service Layer and Common Queue Server Sample Application” on page 205 for a list of the jobs and tasks used by the IVP process.

See Part 3, “IVP Reference Information,” on page 145 for additional information that may be useful during the IVP process.

In the IVP process, you run a combination of jobs and perform a set of tasks to create a fully executable sample IMS system. Then you exercise the system using several sample applications. You must manually submit and verify the jobs and perform the tasks that make up the IVP process (the dialog “EXE” action). You can use SDSF and the split screen capability of ISPF to browse job output while running the IVP.

When the jobs and tasks run successfully, IMS Version 9 is operational.

**The IVP Dialog**

The IVP dialog is an ISPF/PDF dialog that is designed to act as a front-end to the IVP process. Installing IMS also installs the IVP.

IVP verifies the following environments for initial installation:

- **DBB** DB batch environment
- **DBC** DBCTL online environment
- **DBT** DB/DC online environment
XRF  XRF (DB/DC) online environment
DCC  DCCTL online environment

The following sub-options are available, depending on the options selected during
the IMS INSTALL:
• IRLM - Use IRLM in IVP Applications
• FP - Use Fast Path in IVP Applications
• ETO Feature Installed
• CQS - Add CQS to CSL Application

Dialog processing includes:
• Session initialization
• Variable gathering
• File tailoring
• Execution

Perform the following steps to run the IVP dialog:
1. Start the dialog.
2. Perform session initialization:
   a. Select an environment option.
   b. Select sub-options.
   c. Perform table merge (to create the user tables).
   d. Copy startup variables.
3. Perform variable gathering.
   Specify or accept the user variable values that are to be used during file
tailoring to create the IVP materials.
4. Perform file tailoring.
   Create the IVP materials (INSTALIB members) by combining the user variables,
   from the variable-gathering phase, with the IVP file-tailoring skeletons using
   the ISPF file-tailoring facilities.
5. Perform the execution phase.
   Run the jobs and perform the tasks to define, prepare, and run a sample IMS
   system.

The following topics provide additional information:
• “Starting the IVP Dialog”
• “Initializing Sessions” on page 98
• “Gathering Variables” on page 98
• “Tailoring Files” on page 98
• “Executing Jobs and Tasks” on page 99

**Starting the IVP Dialog**

You can start the IVP dialog from within ISPF/PDF (Option 6 recommended) or
the IMS Application Menu. For detailed information, see “Starting the IVP Dialog”
on page 104.
Initializing Sessions

Session initialization occurs each time the dialog is started. It also occurs any time 
an option or sub-option change is made. Session initialization can perform the 
following functions, depending on the options selected during IMS INSTALL:

- Dialog restart/recovery
- Option selection
- Sub-option selection
- Table merge
- Copy startup parameters
- Phase selection (variable gathering, file tailoring, execution)

Gathering Variables

The variable-gathering phase presents the variables used by the file-tailoring phase 
to produce the JCL and other materials to be used by the IVP process. The 
variables presented are specific to the selections made during session initialization. 
Online documentation is provided to describe each variable.

During the variable-gathering phase, you can perform the following functions:

- Modify the value associated with each variable.
- Refresh a variable to its distribution default value.
- View the online descriptions of the variables.
- Print the online documentation for variables to the ISPF list data set.
- Import variables from a previous release of IMS.
- Export variables from an installed release of IMS (IMS Version 9 and later) to the 
  next release of IMS to be installed, to ease migration. For example, if you are 
  currently using IMS Version 9, and want to migrate to the next IMS release, you 
  can export the variables.

See Appendix A, “IVP Variables,” on page 187 for a list of the user variables 
supported by IVP.

Tailoring Files

The file-tailoring phase uses the ISPF file-tailoring services to combine the variables 
from the variable-gathering phase with skeletons from SDFSSLIB to create 
members (JCL and other materials) in INSTALIB.

The JOBs, TASKs, and INDEX items presented during the file-tailoring phase are 
specific to the selections made during session initialization. The JOBs and TASKs 
are presented in the order in which they are to be performed. In addition to 
creating INSTALIB members, this phase serves as a directory for the members of 
INSTALIB, SDFSSLIB, and SDFSISRC. Online documentation is provided to 
describe each item.

While in the file-tailoring phase, you can perform the following functions:

- File tailor all or selected items.
- BROWSE INSTALIB, SDFSSLIB, or SDFSISRC members.
- EDIT INSTALIB members.
- View the online descriptions of the members.
- Print the online documentation for JOBs, TASKs, and INDEX items to the ISPF 
  list data set.
See Appendix B, “IVP JOBS and TASKs,” on page 195 for a list of the JOBS, TASKs, and INDEX items used by the IVP options and sub-options.

## Executing Jobs and Tasks

The execution phase involves a subset of the items that were presented during the file-tailoring phase. Only the JOBS and TASKs specific to the selections made during session initialization are presented. The JOBS and TASKs are presented in the order in which they are to be performed. Online documentation is provided to describe each item.

While in the execution phase, you can perform the following functions:

- BROWSE INSTALIB members.
- EDIT INSTALIB members. JOBS can be submitted for execution from within EDIT.
- Submit INSTALIB members for execution. Successful JOB execution must be manually verified.
- View the online documentation of the JOBS and TASKs.
- Print the online documentation for JOBS and TASKs to the ISPF list data set.
- Perform special processing routine setup for a task.

See Appendix B, “IVP JOBS and TASKs,” on page 195 for a list of the JOBS, TASKs, and supporting materials used by the IVP options and sub-options.

## Modifying the IVP

IBM does not recommend user modifications. However, because all of the IVP jobs are built from ISPF file-tailoring skeletons, you can modify them if necessary (for example, job statement changes) to adjust IVP to fit individual requirements.

**Attention:** If you are going to modify the IVP materials, here are four points to be aware of:

- **Do not** change the contents of an SMP/E controlled library, unless you use the SMP/E USERMOD facility.
- As an alternative to SMP/E USERMODs, the IVP dialog supports delta libraries. **Definition:** Delta libraries are user data sets (PDSs) that the IVP dialog concatenates before the SMP/E-controlled libraries. Delta libraries affect only **IVP dialog functions; they are not used in any of the jobs in the IVP process.** See Chapter 8, “Using the IVP Dialog,” on page 103 for more information.
- **Do not** change the contents of INSTALIB directly unless you are willing to repeat the changes each time you rerun the file-tailoring phase of the IVP dialog (for example, after service is applied). The file-tailoring process of the IVP dialog causes INSTALIB members to be replaced.
- **Do not** modify the JCL in the execution phase. You will lose these changes when you rerun the file-tailoring phase of the IVP dialog.

## Using the IVP After Verification

**Example:** Here are some examples of uses of the IVP after verification:

- Use the IVP system as your first-level test system.
- Use the IVP system as a test system for IMS service.
- Use the IVP system for demonstrations.
- Use the IVP system for training.
Uses for IVP

- Use the IVP system to develop operation and recovery procedures.
- Build or move your own systems onto a copy of the IVP system.
- Experiment with the IVP systems.
- Use DFSDDLT0 (the DL/I Test Program) and the sample databases to experiment with DL/I call sequences.

Product Packaging

This section lists the names and FMIDs of the orderable products, orderable features, and orderable optional source associated with this release.

The following topics provide additional information:

- “Orderable Products—Licensed Program Number 5655–C56”
- “Orderable Features” on page 101
- “Orderable Optional Source” on page 101

Orderable Products—Licensed Program Number 5655–C56

This topic lists the FMIDs that are shipped when you order 5655–C56.

**DB Product**

- FMID HMK9900 SV1 and HMK9900 SV2 - System Services
  - IVP
  - Database Recovery Control (DBRC)
  - Logger
  - IMS Connect
- FMID JMK9901 Database Manager
- FMID HIR2101 - IRLM V2 R1
- FMID HIR2220 - IRLM V2 R2
- FMID JMK9906 - IMS Java
  - DLIModel utility
  - IMS Connector for Java for z/OS

**TM Product**

- FMID HMK9900 SV1 and HMK9900 SV2 - System Services
  - IVP
  - Database Recovery Control (DBRC)
  - Logger
  - IMS Connect
- FMID JMK9902 - Transaction Manager
  - APPC/LU Manager
- FMID JMK9906 - IMS Java
  - DLIModel
  - IMS Connector for Java for z/OS

**TM-DB Product**

- FMID HMK9900 SV1 and HMK9900 SV2 - System Services
  - IVP
  - Database Recovery Control (DBRC)
Orderable Features

This topic lists the features that you can order with 5655–C56.

- “Extended Terminal Option (for the TM Product)”
- “Remote Site Recovery / Recovery-Level Tracking (for all Products)”
- “Remote Site Recovery / Database Level Tracking (for all Products)”

Extended Terminal Option (for the TM Product)
FMID JMK9903

Remote Site Recovery / Recovery-Level Tracking (for all Products)
FMID JMK9904

Remote Site Recovery / Database Level Tracking (for all Products)
FMID JMK9905

Orderable Optional Source

Database
System Services
Summary of IVP Changes
Chapter 8. Using the IVP Dialog

This chapter provides an overview of the IVP dialog using a sample IVP dialog session. The panels in this sample appear in the same sequence as when you run the IVP dialog. A brief explanation accompanies each panel, and additional information is available online through the ISPF HELP command after you start your own dialog session.

The IVP dialog panels appear in the following sequence:

1. Dialog Start-up (described in “Starting the IVP Dialog” on page 104)
   a. Starting the IVP Dialog
   b. Logo Panel
   c. Copyright Panel

2. Session-Initialization Phase (described in “Initializing the IVP” on page 110)
   a. Dialog Option Selection
      1) Option Selection
      2) Option Change Verification
   b. Dialog Sub-Option Selection
   c. Table Merge Request
      1) Table Merge Request
      2) Table Merge In Progress
      3) Table Merge Completed
   d. Copy Start-up Variables
   e. Phase Selection

3. Variable-Gathering Phase (described in “Gathering Variables” on page 117)
   a. LST Mode
   b. ENT Mode
   c. Phase Complete Verification
   d. Return to Phase Selection

4. File-tailoring Phase (described in “Tailoring Files” on page 129)
   a. ALL Action Request
   b. File-tailoring In Progress
   c. ALL Action Complete Notification
   d. LST Mode
   e. ENT Mode
   f. Phase Complete Verification
   g. Return to Phase Selection

5. Execution Phase (described in “Executing Tailored Jobs and Tasks” on page 137)
   a. LST Mode
   b. ENT Mode
   c. Phase Complete Verification
   d. Return to Phase Selection
Dialog Start-up

6. Ending the IVP Dialog Session (described in "Ending the IVP Dialog Session" on page 142)

7. Panel HELP (described in "Panel HELP—Table of Contents" on page 142)
   a. Panel HELP—Table of Contents
   b. Panel HELP—General Information

The panels and information that follow are common to all of the IVP dialog options. Information for the panels that are not presented here can be obtained through the ISPF HELP.

**Important**: This document illustrates a subset of all the ISPF panels in the IVP. The panels shown in this document are samples and, as such, might not completely match the actual panels that appear on your screen. The purpose of the panels here is to help guide you through the IVP process.

As each panel in the dialog is displayed, the position of the cursor is as follows:
- At the input field for selection panels
- At the action command field for entry panels
- At the action command field for the first item on list panels
- At the command line for information panels
- At the command line for HELP panels

To select an option, type the number or letter of the service and press ENTER.

To request an action, type either the complete three-character command or the single-character short form of the command and press ENTER.

You can also enter single-entry selections and action commands for entry panels on the command line. The single digit-entry is the capitalized letter in the command.

If you need further explanation for any panel, press the HELP key or select the HELP pull-down.

The following topics provide additional information:
- "Starting the IVP Dialog"
- "Initializing the IVP" on page 110
- "Gathering Variables" on page 117
- "Tailoring Files" on page 129
- "Executing Tailored Jobs and Tasks" on page 137
- "Ending the IVP Dialog Session" on page 142
- "Getting Help" on page 142

**Starting the IVP Dialog**

The IVP dialog can be started and run from within ISPF/PDF (IBM suggests Option 6), as described in "ISPF/PDF (Option 6)" on page 105. It can also be started from the IMS Application menu, as described in "IMS Application Menu" on page 106.

The following topics provide additional information:
- "ISPF/PDF (Option 6)" on page 105
- "IMS Application Menu" on page 106
ISPF/PDF (Option 6)

The partial command syntax for invoking the IVP dialog is shown in Figure 3.

```
--- TSO COMMAND PROCESSOR ---
ENTER TSO COMMAND OR CLIST BELOW:
  ==> EXEC 'sss.SDFSCLST(DFSIXC01)' 'HLQ(qqq)'
```

*Figure 3. Invoke the IVP Dialog (Partial Syntax)*

The IVP dialog dynamically allocates the data sets needed to support dialog processing; therefore, it is not necessary to put the IMS ISPF data sets in your TSO logon procedure.

The dialog is designed to run from one ISPF logical screen on one terminal. Attempts to run the dialog from multiple logical screens, multiple physical terminals, or multiple logical terminals (sessions) will result in an ISPF error message. However, the ISPF split screen-facility is not disabled, and you can use it for other functions.

The full syntax for the TSO command that is used to invoke the IVP start-up CLIST is:

```
EXEC 'sss.SDFSCLST(DFSIXC01)' 'HLQ(qqq)' HLQIV('iii') HLQDL('ddd') HLQSY('sss') DLTA1('111') DLTA2('222') DLTA3('333') DLTA5('555') DLTA6('666') DLTA7('777')
```

Where:

- **EXEC**: Is a TSO command to run CLISTs and REXX EXECs.
- **HLQ**: Is a keyword that identifies the high-level qualifier for the IVP, system, and distribution libraries.
- **qqq**: Is the data set high-level qualifier for the IVP, system, and distribution libraries.
- **HLQIV**: Is the keyword that identifies the high-level qualifier for the IVP libraries.
- **iii**: Is the high-level qualifier for IVP data sets (INSTALIB and INSTATBL).
  - The default is IVPIVP91.
- **HLQDL**: Is a keyword that identifies the high-level qualifier for the distribution libraries.
<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ddd</td>
<td>Is the high-level qualifier for IMS distribution library (DLB) data sets.</td>
</tr>
<tr>
<td></td>
<td>The default is IVPDLB91.</td>
</tr>
<tr>
<td>HLQSY</td>
<td>Is the keyword that identifies the high-level qualifier for the system libraries.</td>
</tr>
<tr>
<td>sss</td>
<td>Is the high-level qualifier for IMS system (SYS) data sets.</td>
</tr>
<tr>
<td></td>
<td>The default is IVPSYS91.</td>
</tr>
<tr>
<td>DLTAx</td>
<td>Is the keyword that specifies the various delta libraries that contain site-defined data sets for the IVP.</td>
</tr>
<tr>
<td>111</td>
<td>Is the fully qualified DSNAME for the first delta library.</td>
</tr>
<tr>
<td>222</td>
<td>Is the fully qualified DSNAME for the second delta library.</td>
</tr>
<tr>
<td></td>
<td>No default exists.</td>
</tr>
<tr>
<td>333</td>
<td>Is the fully qualified DSNAME for the third delta library.</td>
</tr>
<tr>
<td></td>
<td>No default exists.</td>
</tr>
<tr>
<td>555</td>
<td>Is the fully qualified DSNAME for the fifth delta library.</td>
</tr>
<tr>
<td>666</td>
<td>Is the fully qualified DSNAME for the sixth delta library.</td>
</tr>
<tr>
<td>777</td>
<td>Is the fully qualified DSNAME for the seventh delta library.</td>
</tr>
<tr>
<td>PDF</td>
<td>This keyword is obsolete and is ignored if specified.</td>
</tr>
</tbody>
</table>

If you specify delta libraries, then:
1. Copy the DFSIXC01 CLIST to a user library (for example, INSTALIB).
2. Modify the CLIST to specify the desired defaults.
3. Run the CLIST from the user library.

**IMS Application Menu**

The IMS Application menu provides a common interface to IBM-supplied IMS applications that run on TSO using ISPF, such as:

- Single Point of Control (SPOC)
- Knowledge-Based Log Analysis (KBLA)
- HALDB Partition Definition utility
- IMS Syntax Checker
- Installation Verification Program (IVP)
- IVP Export utility
- IPCS with IMS Dump Formatter (IPCS)

Tip: To provide access to the IMS Application menu, include the IMS.SDFSEXEC data set in the SYSPROC DD concatenation.
Attention: Ensure that IPCS is started before the IMS Application Menu is started. Otherwise, message DFSIX103 is displayed.

Use the DFSAPPL command to start the IMS Application menu. You can either use a TSO command or an EXEC command:

- TSO %DFSAPPL HLQ(myhlq)
- EXEC 'IMS.SDFSEXEC(DFSAPPL)’ ‘HLQ(myhlq)’

```
(1)
-DFSAPPL
  HLQ(myhlq)

  ALTRESL('hlq.data_set_name1','myhlq.data_set_name2')
```

Notes:
1. The HLQ parameter is required the first time you use the command. Thereafter, HLQ is an optional parameter.

Where:
**DFSAPPL**
Command to start the IMS Application menu

**HLQ**
Keyword that enables you to specify the high-level qualifier of the IMS distribution data sets
The HLQ parameter is required the first time you use the command. If you do not specify it, the command uses the most recently specified high-level qualifier. This parameter is optional.

**myhlq**
High-level qualifier of the IMS distribution data sets

**ALTRESL**
Keyword that enables you to specify a list of data set names that contain load modules
If you specify the ALTRESL parameter, you should include SDFSRESL in the list of data set names. If you do not specify the ALTRESL parameter, myhlq.SDFSRESL is used as the ISPLLIB data set.

**myhlq.data_set_name1**
Fully-qualified name of a data set that contains load modules

**Note:** Some applications require an ISPTABL data set. If the ISPTABL data set is allocated, it will continue to be used. If the ISPTABL data set is not in use, a new one is allocated using your TSO prefix or userid as the high-level qualifier.

The IMS Application menu is shown in [Figure 4 on page 108](#)
Using the IMS Application menu, you can start any of the TSO or ISPF applications by selecting the application and pressing the Enter key.

You can also link to the IMS Application menu from your local ISPF option menu. The following panel is an example:

```
)BODY
Local Option Menu
Option ====> _ZCMD
.
.
)PROC
&ZSEL = TRANS(TRUNC(&_ZCMD,','))
  1,_'CMD(%DFSAPPL HLQ(myhlq)) NEWAPPL(DFS) NOCHECK'
  .
  .
)END
```

**Figure 4. IMS Application Menu**

Using the IMS Application menu, you can start any of the TSO or ISPF applications by selecting the application and pressing the Enter key.

You can also link to the IMS Application menu from your local ISPF option menu. The following panel is an example:

```plaintext
)BODY
Local Option Menu
Option ====> _ZCMD
.
.
)PROC
&ZSEL = TRANS(TRUNC(&_ZCMD,','))
  1,_'CMD(%DFSAPPL HLQ(myhlq)) NEWAPPL(DFS) NOCHECK'
  .
  .
)END
```

**IVP Dialog Start-up Messages**

The following messages are issued by CLIST DFSIXC01. Take the appropriate action and rerun.

- **DFSIXC01 - SYSISPF=INACTIVE** - This CLIST must be invoked from within ISPF
  - The IVP Dialog must be invoked from ISPF/PDF Option 6.
- **DFSIXC01 - Input parm HLQ is too long**
  - The HLQ parameter can be a maximum of 26 characters.
- **DFSIXC01 - Input parm HLQIPO is too long**
  - The HLQIPO parameter can be a maximum of 26 characters.
- **DFSIXC01 - Input parm HLQIV is too long**
  - The HLQIV parameter can be a maximum of 26 characters.
- **DFSIXC01 - Input parm HLQDL is too long**
  - The HLQDL parameter can be a maximum of 26 characters.
- **DFSIXC01 - Input parm HLQSY is too long**
  - The HLQSY parameter can be a maximum of 26 characters.
- **DFSIXC01 - Parameter DLTA1, DLTA2, DLTA3, DLTA5, DLTA6, or DLTA7 is too long**
  - The DLTA1, DLTA2, DLTA3, DLTA5, DLTA6, and DLTA7 parameters can be a maximum of 44 characters.
- **DFSIXC01 - Parameter DLTA5 must not be the same as DLTA1, DLTA2, and DLTA3**
The DLTA5 parameter cannot have the same value as DLTA1, DLTA2 or DLTA3.  
- DFSIXC01 - Parameter DLTA6 must not be the same as DLTA1, DLTA2, or DLTA3.  
The DLTA6 parameter cannot have the same value as DLTA1, DLTA2 or DLTA3.  
- DFSIXC01 - Parameter DLTA7 must not be the same as DLTA1, DLTA2, or DLTA3.  
The DLTA7 parameter cannot have the same value as DLTA1, DLTA2 or DLTA3.

IVP Dialog Delta Libraries

The IVP dialog delta libraries facilitate development and service of the IVP dialog.  
This support allows delta libraries to be concatenated in front of the dialog system libraries.  
The delta libraries allow changes to the dialog parts to be tested without affecting the contents of SMP/E-controlled distribution and target libraries.

This support is an alternate method for supporting customer modifications, 
commonly called usermods, of the IVP materials.  You can use delta libraries for the 
replacement of the IVP job statements (DFSSSLIB members DFSIXS05, DFSIXS32, 
and DFSIXS36).  If the proper names are retained, the file-tailoring phase can pick 
up your job statement from the delta libraries.

The delta libraries are specified using the DLTA1, DLTA2, DLTA3, DLTA5, DLTA6, 
and DLTA7 options of the start-up CLIST.  The default for these options is null.  If 
the null default value is used for these options, INSTALIB is used for DLTA1 and 
INSTATBL is used for DLTA5.  DLTA5, DLTA6, and DLTA7 must be unique from 
DLTA1, DLTA2, or DLTA3.

The delta library support provides the dialog delta (DD) concatenations as shown in [Figure 5].

```
DD >>> SYSPROC ISPLLIB ISPPLIB ISPLLIB ISPPLIB INSTATBL  
     ------- ------- ------- ------- -------  
DLTA1 DLTA1 DLTA1 DLTA1 DLTA1  
DLTA2 DLTA2 DLTA2 DLTA2 DLTA2  
DLTA3 DLTA3 DLTA3 DLTA3 DLTA3  
SDFSCST SDFSMLIB SDFSMLIB SDFSMLIB SDFSMLIB  
SDFSEXEC  

DD >>> INSTATBL ISPFFILE SDFSISRC SDFSRTM  
     ------- ------- ------- -------  
DLTA1 DLTA5  
DLTA2 DLTA6  
DLTA3 DLTA7  
INSTATBL INSTATBL SDFSISRC SDFSRTM  
```

Figure 5. Dialog Delta Library Concatenations

Figure Notes:

1. The SDFSISRC concatenation is only used for dialog internal processing.  It is not used within the IMS cataloged procedures or in any of the IVP process jobs.  For example, DBD, PSB, MFS, and PGM assemblies obtain their source from SDFSISRC; the delta libraries are not involved.
2. In the ISPTLIB concatenation, INSTATBL is concatenated in front of the delta libraries.
3. The DD for INSTATBL is used in place of a DD for ISPTABL.
4. DCBs must be consistent within a group of concatenated data sets.
Dialog Start-up

Logo Panel

Figure 6 depicts the logo panel of the IVP dialog. When the logo panel for the IVP dialog is displayed, press ENTER to continue. The logo panel will appear only once for each TSO user ID.

Copyright Panel

Figure 7 depicts the copyright panel of the IVP dialog. When the copyright panel for the IVP dialog is displayed, press Enter to continue. The copyright panel appears only once for each TSO user ID.

Initializing the IVP

The IVP is initialized in the session-initialization phase. You select the installation option and suboption values. Based on this input, the IVP builds customized tables of the specific jobs and tasks that need to be run. These tables are the internal driving force behind the phases that follow. In addition, some variables are initialized in this phase in preparation for the variable-gathering phase.

The following topics provide additional information:

- "Selecting the Environment Options" on page 111
- "Verifying an Environment Option Change" on page 112
- "Selecting Sub-options" on page 112
Session-Initialization Phase

- “Requesting a Table Merge” on page 114
- “Table Merge in Progress” on page 114
- “Table Merge Completed” on page 115
- “Copying Start-up Variables” on page 115
- “Selecting a Processing Phase and a Restart Phase” on page 116

Selecting the Environment Options

Figure 8 depicts the environment options panel of the IVP dialog. This panel is referred to as the primary option menu for the IVP dialog.

<table>
<thead>
<tr>
<th>IVP Command</th>
<th>IVP Environment Options</th>
<th>IMS 9.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSIX023: DFSIXX01 - Prior session completed successfully for &quot;DBB&quot;</td>
<td>Select the desired option and press ENTER</td>
<td>Option . 4</td>
</tr>
<tr>
<td>IVP Environments</td>
<td>DBB - Database Management (Batch)</td>
<td>1. DBB - Database Management (Batch)</td>
</tr>
<tr>
<td></td>
<td>DCCTL - Database Management (DBCTL)</td>
<td>2. DBC - Database Management (DBCTL)</td>
</tr>
<tr>
<td></td>
<td>DBT - Database and Transaction Management (DB/DC)</td>
<td>3. DBT - Database and Transaction Management (DB/DC)</td>
</tr>
<tr>
<td></td>
<td>XRF - DB/DC with Extended Recovery Facility (DB/DC with XRF)</td>
<td>4. XRF - DB/DC with Extended Recovery Facility (DB/DC with XRF)</td>
</tr>
<tr>
<td></td>
<td>DCC - Transaction Management (DCCTL)</td>
<td>5. DCC - Transaction Management (DCCTL)</td>
</tr>
</tbody>
</table>

Figure 8. Environment Options Panel

The environment options dialog panel supports the following primary options:

1. **DBB**— IMS batch environment
   This environment supports batch job access of IMS full-function databases. It can also be used to support DB2 UDB for z/OS applications.

2. **DBC**— IMS DBCTL environment
   This environment supports the online access of IMS full-function databases and DEDBs with batch-oriented BMPs. It can also be used as the basis for supporting CICS/DBCTL, ODBA, DB2, batch, and other applications. This environment includes all of the function of the DBB environment.

3. **DBT**— IMS DB/DC environment
   This environment supports the online access of IMS full-function databases, DEDBs, and MSDBs. IMS DB/DC is a full IMS Transaction and Database Management environment supporting both message-driven and batch-oriented applications. It can also be used for supporting the CICS/DBCTL, ODBA, DB2, batch, and other applications. This environment includes all of the function of the DBC and DBB environments.

4. **XRF**— IMS XRF environment
   This option extends the DBT (DB/DC) environment to include XRF support. A single CPC configuration (active and alternate IMS subsystems on the same CPC) is used. It can also be used to support the TM environment, CICS/DBCTL, ODBA, DB2 UDB for z/OS, and batch applications. This environment includes all of the function of the DBT, DBB, and DBC environments.

5. **DCC**— IMS DCCTL environment
   IMS DCCTL is a full IMS Transaction Management environment supporting both message-driven and batch-oriented applications. It can be used as the basis for supporting DB2 UDB for z/OS applications.

**Note:** Each option in the environment options panel, except option 5, includes the options listed before it. For example, if you select option 3, you are building the
Session-Initialization Phase

IMS batch, DBCTL, and DB/DC IVP environments. Select the highest number representing the system you want to build. Option 5 does not build the environments of options 1, 2, 3, and 4.

Related Reading: If you are using an IMS DBCTL environment to support CICS/DBCTL applications, please see CICS-IMS Database Control Guide for guidance on installing interfaces for and using DBCTL.

The first selection you must make in establishing a dialog session is to select the environment option. In the example on Figure 8 on page 111, you are verifying an XRF system. Enter a 4 in the input field or on the command line.

A DFSIX023 message on the panel long-message line indicates that a previous session was working with a DBB system. In the DFSIX023 message, DFSIXX01 is the name of the function (a REXX EXEC, in this case) issuing the message.

After selecting option 4, press ENTER to continue.

Verifying an Environment Option Change

The environment option change verification panel in Figure 9 is displayed because the option selected, XRF, is not the same as the option that was last active, DBB. The IVP dialog maintains state data about the dialog progress separately for each option.

Help

IWP -- Environment Option Change Verification - XRF--IMS 9.1
COMMAND ==>

The Environment Option you have just chosen is not the same as the Option which was last active:

XRF - Requested Option
DBB - Previous Option

To confirm your change of Options to XRF : Press ENTER
To return to the Environment Option Selection menu: Press END

Figure 9. Environment Option Change Verification Panel

To verify an XRF system, press ENTER to continue. The dialog saves your DBB status and loads your prior XRF status, if any exists. The dialog also reruns session initialization for the new option. This option change panel is displayed because you selected an option that is different from the option that was last active (possibly because you were experimenting with another system).

Selecting Sub-options

The next selection that you must make in establishing a dialog session is to select the sub-options you want to add to your primary option selection. Figure 10 on page 113 depicts the sub-options selection panel of the IVP dialog. Use a slash (/) to indicate that you want a sub-option. The absence of a slash indicates that you do not want that particular sub-option.
Help
-----------------------------------------------------------------------------------
IVP ------ Sub-Option Selection - XRF ------ IMS 9.1
COMMAND ===>

Select the desired Sub-Options and press ENTER
/ IRLM - Use IRLM in IVP Applications
/ FP - Use Fast Path in IVP Applications
/ ETO Feature Installed
CQS - Add CQS to CSL Application

NOTE: Your Sub-Option selection affects the user variables, jobs, and tasks that will be presented. If you later change your selection, you must redo the IVP Table Merge, Variable Gathering, File Tailoring, and Execution processes.

Figure 10. Sub-Option Selection Panel

Note: The sub-option, unless it is the FP sub-option, must have been installed during the SMP/E Install phase. The FP sub-option is different because FP is not a unique FMID.

The supported sub-options are:

1. Use IRLM in IVP Applications
   - The default is to use this sub-option (marked by a slash) for DB batch, DBCTL, DB/DC, and DB/DC with XRF.
   - This sub-option is not available for DCCTL.
   - If you select this sub-option, the IRLM is defined during system definition and the IVP is run using the IRLM for the single-lock manager. If you do not select this sub-option, the IRLM is not used and program isolation (PI) is used as the single-lock manager.
   - Use of IRLM is only required if you plan to use block-level data sharing. (The IVP is configured to support block-level data sharing.) Optionally, you can elect to use the IRLM, instead of PI, as the single-lock manager.
   - If you select IRLM, IVP creates a simulated inter-CPC block-level data sharing configuration using two IRLMs.

2. Use Fast Path in IVP Applications
   - The default is to use this sub-option (marked by a slash) for DBCTL, DCCTL, DB/DC, and DB/DC with XRF. This sub-option is not available for DB batch.

3. ETO Feature Installed
   - For DCCTL, the default is not to use this sub-option (no slash). For DB/DC and DB/DC with XRF, the default is to use this sub-option (marked by a slash).
   - This sub-option is not available for DB batch or DBCTL.

4. Add CQS to CSL Application
   - The default is not to use this sub-option (no slash). If you select this option, the IVP adds the necessary jobs and tasks to the CSL sample application to use CQS.

If you change the selections that are displayed, a sub-option Change verification panel (not pictured) is displayed. The dialog asks you to confirm your request for change because a change of sub-options will require that you rerun the table-merge, variable-gathering, file-tailoring, and execution phases.

After selecting the appropriate sub-options, or to accept the default sub-options that are displayed, press ENTER.
Session-Initialization Phase

Requesting a Table Merge

After you have selected an environment option and sub-options, the dialog gives you the option of performing the table-merge process, as displayed in Figure 11. The Table Merge panel is displayed only during dialog initialization. After you respond to this panel, it disappears for the rest of the dialog session.

![Table Merge Request Panel]

The IVP Dialog is driven from a set of ISPF tables which contain information about the variables, JOBs, TASKs, and sequence of presentation you will need to perform your specific installation.

Since the tables will be updated by the dialog, working copies must be made the first time you use the dialog.

If service is applied to your IMS system, or if you decide to use the IVP dialog to verify a different environment, then either the existing copies must be updated or new copies created.

Please indicate whether you wish to perform Table Merge/Create:

1 1 YES - Create / Update working tables from master tables.
2 NO - Use existing tables.

Figure 11. Table Merge Request Panel

The IVP dialog logic depends upon the information contained within several ISPF Tables. Master tables are shipped in the IMS distribution libraries. Because the dialog updates these tables during its processing, the master tables must be copied into a user data set, INSTATBL. The table-merge process performs this copy for the variable-gathering, file-tailoring, and execution tables.

The table-merge process is also used to update the INSTATBL copies with PTF service. The PTF contains a ++HOLD action when you need to rerun the table-merge process.

Requirements: The table-merge process:
• Must be run the first time an option is selected.
• Must be run whenever the installation of service requires it.
• Can be run to reset the ! indicator that is displayed on the phase panels (as shown in Figure 33 on page 139 for example).
• Can be run any time you want.
• Does not change variable values that have been changed by the copy-startup-variables process (explained in “Copying Start-up Variables” on page 115) or by the CHG action in the variable-gathering phase (explained in “Gathering Variables” on page 117).

Because the option selection has changed, accept the default value of 1 (for YES) and press ENTER to continue.

Table Merge in Progress

The table-merge process is a long-running process. While the table-merge process is taking place, a panel with the message “Please do not interrupt this process” is
displayed. Figure 12 depicts the table merge process indicator. This panel is updated frequently as the tables are processed. There are three distinct phases and the “Percent Complete” value is updated to indicate the progress of the table merge.

![Figure 12. Table Merge Progress Indicator Panel](image)

### Table Merge Completed

Figure 13 depicts the panel that is displayed when the table-merge process has completed. This panel serves as a reminder of the processing implications of the table-merge process. Press ENTER to continue.

![Figure 13. Table Merge Completed Panel](image)

### Copying Start-up Variables

After the table-merge process is complete (or bypassed), the dialog compares the start-up variables in this section with their corresponding table values. If the table
value is different and has not been changed by a prior copy-startup-variables process or by the CHG action in the variable-gathering phase, the table value is updated with the start-up value. This process is provided so you don’t need to enter the same information several times.

The variables affected by this process are:
- The IVP data set HLQ passed to the start-up CLIST
- The DLB data set HLQ passed to the start-up CLIST
- The SYS data set HLQ passed to the start-up CLIST
- The current TSO user ID

This user ID is used for the USER and NOTIFY job statement parameters. When you enter the variable-gathering phase, you need to either supply a value for the PASSWORD job statement parameter or change the USER value back to blanks.

All variables that are changed by the copy-startup-variables process (or by the CHG action in the variable-gathering phase) are marked with either an asterisk (*) or an at sign (@) indicator in their action field. If errors are encountered, the character string ERR is displayed in the action field.

Selecting a Processing Phase and a Restart Phase

The next selection that you must make to establish a dialog session is a processing phase and a restart phase. Figure 14 depicts the IVP phase selection panel of the IVP dialog. Because you have changed the environment option, the dialog has preselected 1 (VG1) for you. This is the same selection that would have been made if you had selected the XRF option for the first time.

---

The IVP phases must be run in the following sequence:

1. Variable gathering

   The user-modifiable variables that you use during customization (file-tailoring) of the installation materials are presented for review and modification.

2. File-tailoring

   The jobs and other materials that you use during the installation of the selected option are customized using the file-tailoring facilities of ISPF.
3. Execution

The jobs and tasks that make up the IVP process for the selected option are presented for execution.

As you exit from each phase, you return to this panel so that you can select the next phase or return to a prior phase. The dialog always preselects a default. You can override the dialog’s selection with your own. Frequent reasons for overriding the default are to:

- Return to a prior phase.
- Choose a different positioning option.
  - 1 (VG1), 3 (FT1), and 6 (EX1) take you to the first item (the beginning) of a phase.
  - 2 (VG2), 4 (FT2), and 7 (EX2) take you to the last known item within a phase. The dialog saves separate position information for each phase (for each option).
  - 5 (FT3) and 8 (EX3) take you to the first item (the beginning) of a step. (The jobs and tasks that are presented in the file-tailoring and execution phases are grouped into steps). A panel is displayed, which allows you to select the desired step.

If you make an invalid phase selection, a notification panel (not shown) is displayed to inform you of the error. Because it is always permissible to back up to a prior phase, the only invalid selection that can be made is to try to progress forward out of sequence. Pressing ENTER on this panel returns you to the Phase Selection panel (in which case the appropriate default value is restored).

After selecting 1 (VG1), press ENTER to continue.

Gathering Variables

In the variable-gathering phase, the IVP panel displays the variables that are used by the file-tailoring phase to customize IVP JCL to your environment. The variables that are displayed are specific to the selections made in the Environment Options panel (Figure 8 on page 111) and the Sub-Option Selection panel (Figure 10 on page 113). Enter or modify the variables to fit your environment. You can import variables from a previous release of IMS using the IVP Variable Gathering Export and Import facilities.

The following topics provide additional information:

- “Variable-Gathering Action Commands”
- “Variable Gathering—LST Mode” on page 119
- “Exporting and Importing IVP Variables between IMS Releases” on page 120
- “Variable Gathering—ENT Mode” on page 125
- “Variable Gathering—DOC Action” on page 126
- “Variable Gathering—Phase Complete Verification” on page 127
- “Variable Gathering—Return to Phase Selection” on page 128

Variable-Gathering Action Commands

Two modes are used to display the variables:

LST  Variables are presented as a scrollable list of items. One or more items may be modified at a time, but minimal information is displayed for each item. LST is the default.
Variable-Gathering Phase

ENT  Variables are presented one at a time. Scrollable descriptive information is provided for each variable.

Action commands are provided to support the IVP dialog during the variable-gathering phase. Action commands are also referred to as action verbs.

Table 15 contains the action commands, accepted modes, and command descriptions. Mode indicates whether the commands are accepted in:

<table>
<thead>
<tr>
<th>Action</th>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chg</td>
<td>Both</td>
<td>Changes information in an item. The dialog performs basic validity checking for the new value. If an item is modified, CHG is the default. It is not necessary to use CHG in the action field.</td>
</tr>
<tr>
<td>Doc</td>
<td>Both</td>
<td>Prints variables documentation to the ISPF LIST data set. The DOC action prints all variables, not just the variable where the DOC action is requested.</td>
</tr>
<tr>
<td>eNt</td>
<td>LST</td>
<td>Switches to ENT mode. ENT mode presents items one at a time on a formatted screen.</td>
</tr>
<tr>
<td>Lst</td>
<td>ENT</td>
<td>Switches to LST mode. LST mode presents a scrollable list of items. Within ENT Mode, the ISPF END command is also interpreted as the LST action.</td>
</tr>
<tr>
<td>Nxt</td>
<td>ENT</td>
<td>Moves forward to the next item.</td>
</tr>
<tr>
<td>Prv</td>
<td>ENT</td>
<td>Moves backward to the previous item.</td>
</tr>
<tr>
<td>Rfr</td>
<td>Both</td>
<td>Refreshes a variable value from the IVP master table.</td>
</tr>
<tr>
<td>Imp</td>
<td>Both</td>
<td>Imports the IVP variables. See &quot;Importing Variables Using the Import (Imp) Action Command&quot; on page 123 for more information.</td>
</tr>
<tr>
<td>Exp</td>
<td>Both</td>
<td>Exports the IVP variables. See &quot;Exporting Variables Using the Export (Exp) Action Command&quot; on page 123 for more information.</td>
</tr>
</tbody>
</table>

In LST Mode, you can either change one item at a time or make changes to many items before pressing ENTER. Whenever two or more changes are made before pressing ENTER, the dialog attempts to process all change requests before returning control.

If errors occur during the variable-gathering phase, the item is updated with the supplied information and the character string ERR is placed into the action field. If errors exist after all requests have been processed, a single error message is displayed and the screen is positioned at the first item containing ERR in the action field. All errors must be corrected before the dialog allows you to enter the file-tailoring or execution phases. If you cannot tell what is wrong with a given
Variable-Gathering Phase

item, type CHG in the action field for that item, and change one item at a time. When you press ENTER, the dialog reruns variable edit for that item and produces an appropriate error message.

Variable Gathering—LST Mode

When you enter the variable-gathering phase, you are in LST Mode. Figure 15 depicts the LST Mode panel of the variable gathering phase. This mode provides the greatest visibility of the variables available for the selected option.

<table>
<thead>
<tr>
<th>Action Codes: Chg Doc eNT Rfr Imp Exp - CHG is the default for a modified item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable = Value........................................</td>
</tr>
<tr>
<td>Var-Title...............................................</td>
</tr>
<tr>
<td>* IXU1VPHQ = IVP1VPQ1</td>
</tr>
<tr>
<td>IVP - High level DSNAMES qualifier for IVP (IVP) data sets</td>
</tr>
<tr>
<td>* IXURLMHOQ = IVPRLM91</td>
</tr>
<tr>
<td>IVP - High level DSNAMES qualifier for the IRLM (RLM) data sets</td>
</tr>
<tr>
<td>* IXUDLHQ = IVP1VPQ1</td>
</tr>
<tr>
<td>IVP - High level DSNAMES qualifier for IMS DLIB (DLB) data sets</td>
</tr>
<tr>
<td>* IXUSYSHQ = IVP1VPQ1</td>
</tr>
<tr>
<td>IVP - High level DSNAMES qualifier for IMS System (SYS) data sets</td>
</tr>
<tr>
<td>* IXUXEHOQ = IVP1VPQ1</td>
</tr>
<tr>
<td>IVP - High level DSNAMES qualifier for Execution (EXE) data sets</td>
</tr>
<tr>
<td>* IXUUTLHQ = IVP1VPQ1</td>
</tr>
<tr>
<td>IVP - High level DSNAMES qualifier for Utility (UTL) data sets</td>
</tr>
<tr>
<td>! IXUSCLS =</td>
</tr>
<tr>
<td>SMS - Storage Class</td>
</tr>
<tr>
<td>! IXUSMCLS =</td>
</tr>
<tr>
<td>SMS - Management Class</td>
</tr>
<tr>
<td>! IXUTAPEU = 3480</td>
</tr>
<tr>
<td>IVP - Tape device type</td>
</tr>
</tbody>
</table>

Figure 15. Variable Gathering (LST Mode) Panel

Recommendation: You should take the time to become familiar with all of the variables. Even if you choose to accept the default value, you might find that you need a different value after you begin the execution phase. It is much easier to return to the variable-gathering phase, change a variable value, and rerun the file-tailoring phase, than to manually change a large number of jobs.

If you are not sure what a variable is, you can use the ENT action to switch to ENT Mode, read the variable description, and use the LST action to return to LST Mode. You can also use the ENT action to switch to ENT Mode, and then progress one at a time through the variables.

Special characters in the action field indicate changes to variables:

! indicates that either a variable has been added to the table (due to service) or that the RFR action has been used to restore the master table default value. You can blank out the ! indicator by rerunning the table-merge process.

* indicates that the variable has been changed, either by the CHG action or by the copy-startup variables process.

@ indicates that the variable has been changed, either by the CHG action or by the copy-startup variables process, as the result of propagating the change of a global variable to the affected data set allocation variables.
Variable-Gathering Phase

Try the ENT action for the first item. You must type ENT (or N) into the action field next to the desired item; the command line cannot be used for action commands on LST Mode panels.

To switch modes, press ENTER.

Exporting and Importing IVP Variables between IMS Releases

The IVP variable-gathering phase can contain over 280 variables that you can set. When a new release of IMS is installed, you can save the variables of a previous release and reload them into a new IMS release. To do this, export and import variables during the IVP variable gathering phase.

Follow this procedure to export variables from IMS Version 6, IMS Version 7, or IMS Version 8 and import them into the IVP of IMS Version 9 or later:

1. Launch the IVP Variable Export utility (DFSIVPEX), as described in “Exporting Variables using the IVP Variable Export Utility (DFSIVPEX).”
2. Using this utility, export the variables from IMS Version 6, IMS Version 7, or IMS Version 8 into an export data set that you specify. If the data set does not exist, you can create one using the IVP export data set allocation panel (as shown in Figure 18 on page 122).
3. Issue the import (Imp) action command in the variable gathering panel of the IVP as shown in Figure 15 on page 119 to import these variables into IMS Version 9 or later. See “Importing Variables Using the Import (Imp) Action Command” on page 123 for more information about using this command.

Follow this procedure to export variables from IMS Version 9 or later into the IVP of an IMS of the same release or an IMS of a later release:

1. Issue the export (Exp) action command in the variable gathering (LST mode) panel of the IVP as described in “Exporting Variables Using the Export (Exp) Action Command” on page 123. This command exports the variables into an export data set that you specify.
2. Issue the import (Imp) action command to import the variables to the target IVP, as described in “Importing Variables Using the Import (Imp) Action Command” on page 123.

The following topics provide additional information:

• “Exporting Variables using the IVP Variable Export Utility (DFSIVPEX)”
• “Exporting Variables Using the Export (Exp) Action Command” on page 123
• “Importing Variables Using the Import (Imp) Action Command” on page 123
• “Environment Mismatch When Exporting and Importing Variables Between IMS Releases” on page 124
• “Changing Variables in Mass” on page 125

Exporting Variables using the IVP Variable Export Utility (DFSIVPEX)

Use DFSIVPEX, the IVP Variable Export utility, to export the variables from IMS Version 6, IMS Version 7, or IMS Version 8 into an export data set. You can then import the variables from that data set into the target IVP of the newly installed IMS (IMS Version 9 or later only) using the import (Imp) action command. The import action command is described in “Importing Variables Using the Import (Imp) Action Command” on page 123.

You can invoke the IVP Variable Export utility using one of the following methods:
Variable-Gathering Phase

- Issuing a command from ISPF/PDF (Option 6)
- Using the IMS Application menu

For information about the IMS Application menu, see “IMS Application Menu” on page 106.

Figure 16 shows the command syntax for invoking the IVP Variable Export utility from ISPF/PDF (Option 6). You can use the ISPF split screen capability to invoke the IVP Variable Export utility without exiting the IVP.

```
--- TSO COMMAND PROCESSOR ---
ENTER TSO COMMAND OR CLIST BELOW:  
  
  ===> EXEC 'sss.SDFSEXEC(DFSIVPEX)' 'HLQ(sss)' 
```

**Figure 16. Invoke the IVP Variable Export Utility (Full Syntax)**

The following syntax diagram illustrates how to issue the TSO command shown in Figure 16.

```
EXEC—'sss.SDFSEXEC(DFSIVPEX)—'—HLQ(sss) 
```

Where:

- **EXEC** is a TSO command to run CLISTs and REXX EXECs.
- **sss** is the high-level qualifier for IMS Version 9 system (SYS) libraries. The default is IVPSYS91.
- **HLQ** is a keyword that identifies the high-level qualifier for the system libraries.
- **sss** is the high-level qualifier for IMS Version 9 system (SYS) libraries. The default is IVPSYS91.

Figure 17 shows the IVP Variable Export utility panel.

```
IPvP Variable Export Utility
Command ===>

Enter the following information, then press enter.

1. Select the IVP Environment
   1. DBB - Database Management (Batch)
   2. DBC - Database Management (DBCTL)
   3. DBT - Database and Transaction Management (DB/DC)
   4. XRF - DB/DC with Extended Recovery Facility (DB/DC with XRF)
   5. DCC - Transaction Management (DCCTL)

2. Specify the IVP High Level Qualifier (HLQ) of the INSTATBL data set

3. Specify the export data set. (If the data set does not exist, you will be prompted to create it.)

```
**Figure 17. IVP Variable Export Utility Panel**

Provide the following information in the IVP Variable Export utility panel:
- The IVP environment, which identifies the variables to be exported.
The IVP High Level Qualifier (HLQ), which is used to identify the IVP user table data set IMS.INSTATBL of IMS Version 6, IMS Version 7, or IMS Version 8. Specify the HLQ of the release of IMS from which you are exporting the variables.

- The name of the export data set.
  Enter the export data set name in the TSO data set format. You should use single quotation marks around the data set name. If the data set is a partitioned data set, include the member name. For example, if xxx.yyy.zzz is the partitioned data set and QQQ is the member, enter the following name: 'xxx.yyy.zzz(QQQ)'

If a problem exists with the table data set or member, the panel displays an error message.

Related Reading: See [IMS Version 9: Messages and Codes, Volume 2](#) for more information about the error message.

If the export data set does not exist, the IVP export data set allocation panel shown in [Figure 18](#) displays. Use this panel to create the data set.

![Figure 18. IVP Export Data Set Allocation Panel](#)

**Option 1**
If you select the DSUTIL option, the ISPF DSUTIL (3.2) panel displays. Use this panel to allocate the export data set. This data set has the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSORG</td>
<td>Sequential or partitioned</td>
</tr>
<tr>
<td>RECFM</td>
<td>FB</td>
</tr>
<tr>
<td>LRECL</td>
<td>80</td>
</tr>
<tr>
<td>BLKSIZE</td>
<td>Multiple of 80</td>
</tr>
</tbody>
</table>

Then press the PF3 key (END) to return to the IVP Variable Export utility (DFSIVPEX) panel. The IVP Variable Export utility verifies that the export data set exists. If it does exist, processing continues. If it does not exist, the IVP export data set allocation panel displays again with the following message:

DFSIX093 Export data set exdsn not allocated

**Option 2**
If you select the ALLOC option, the TSO allocate command specified on the panel is issued to TSO to allocate the data set. If the export data set
Variable-Gathering Phase

name includes a member name, the TSO allocate command allocates a PDS data set. You can edit the command on the panel before selecting this option.

If the return code from the TSO allocate command is not 0, the IVP export data set allocation panel displays again with an error message indicating the problem.

If there are no errors, the IVP variables are written to the export data set.

**Exporting Variables Using the Export (Exp) Action Command**

Use the export (Exp) action command to export variables from IMS Version 9 or later only. You export the variables into an export data set. You can then import the variables into the target IVP using the import (Imp) action command described in “Importing Variables Using the Import (Imp) Action Command.” The target IVP must be in an IMS of the same release or an IMS of a later release.

Issue the export (Exp) action command in the action field of any variable in the variable gathering (LST mode) panel as shown in Figure 15 on page 119. This command exports all of the variables in the active variable gathering panel to the IVP export data set; it does not export a specific variable or a subset of the variables. The exported variables are specific to the active IVP environment and sub-options.

Figure 19 shows the IVP export data set name panel that displays when you issue the export (Exp) action command.

<table>
<thead>
<tr>
<th>IVP Export Data Set Name</th>
<th>IMS 9.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVP Command ===&gt;</td>
<td></td>
</tr>
<tr>
<td>Enter the name of the IVP export file, then press enter:</td>
<td></td>
</tr>
<tr>
<td>Export data set:</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 19. IVP Export Data Set Name Panel*

In this panel, enter the name of the export data set to which you want to export the IVP variables. If the data set is a partitioned data set, include the member name.

If the export data set that you specify in this panel does not exist, the IVP export data set allocation panel shown in Figure 18 on page 122 displays. You can use this panel to create the data set. See the description of this panel in “Exporting and Importing IVP Variables between IMS Releases” on page 120.

**Importing Variables Using the Import (Imp) Action Command**

You can use the import action command to import variables from IMS Version 6, IMS Version 7, IMS Version 8, or IMS Version 9 into IMS Version 9 or later.

You must create an export data set and export variables into this data set before you can import the variables into your target IVP:

- If you are exporting variables from IMS Version 7, or IMS Version 8, follow the instructions in “Exporting Variables using the IVP Variable Export Utility (DFSIVPEX)” on page 120.
- If you are exporting variables from IMS Version 9 or later, follow the instructions in “Exporting Variables Using the Export (Exp) Action Command.”
Variable-Gathering Phase

Issue the import action command in the action field of any variable in the variable gathering (LST Mode) panel (as shown in Figure 15 on page 119). This command imports all of the variables from an IVP export data set; it does not import a specific variable. The IVP export data set name panel (as shown in Figure 19 on page 123) displays to prompt you for the name of the IVP export data set.

Enter the export data set name in the TSO data set format. You should use single quotation marks around the data set name. If the data set is a partitioned data set, include the member name. If the export data set does not exist, the IVP export data set name panel (as shown in Figure 19 on page 123) displays again with the following message:

DFSIX095 Export data set exdsn does not exist.

Enter a valid data set name for the export data set or press PF3 to exit the panel and cancel the import process.

Related Reading: See IMS Version 9: Messages and Codes, Volume 2 for more information about this message.

Environment Mismatch When Exporting and Importing Variables Between IMS Releases

The exported variables are associated with their specific IVP environment. If the current IVP environment does not match the environment in which the variables were exported, the IVP import environment mismatch panel (shown in Figure 20) displays.

<table>
<thead>
<tr>
<th>IVP Import Environment Mismatch</th>
<th>IMS 9.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVP Command ===&gt;</td>
<td></td>
</tr>
<tr>
<td>The current IVP environment and the export data set IVP environment do not match.</td>
<td></td>
</tr>
<tr>
<td>Current Environment:</td>
<td></td>
</tr>
<tr>
<td>Export Environment:</td>
<td></td>
</tr>
<tr>
<td>Select an option:</td>
<td></td>
</tr>
<tr>
<td>1. Continue import</td>
<td></td>
</tr>
<tr>
<td>2. Cancel import</td>
<td></td>
</tr>
</tbody>
</table>

Figure 20. IVP Import Environment Mismatch Panel

You can choose to continue the import process or cancel it.

If a mismatch exists between the IVP environments or releases, the following processing occurs:

- Any variable that is not valid in the current IVP release or for the current IVP environment and sub-options being processed is ignored.
- Any variable with a value that is specified in the export data set is replaced with the export value, even if you have modified that variable.
- The value of each of the variables is checked against the valid values for the variable in the release being processed.
- After the import process finishes, any variable with a value not specified in the export data set remains unchanged from its value before the import.
Changing Variables in Mass

If you need to make mass changes to variables (for example, to change "81" to "91") you can make these changes using the export and import process during the variable gathering phase. To make changes to variables before importing them into a new IMS, use the following procedure:

1. Export the variables into an export data set, using the appropriate method as described in one of the following sections:
   - “Exporting Variables using the IVP Variable Export Utility (DFSIVPEX)” on page 120.
   - “Exporting Variables Using the Export (Exp) Action Command” on page 123.

After the export is complete, the contents of the export data set might look like this:

```
000001 <ivpenv>DBT</ivpenv>
000002 <var>IXUMCP2</var> <val>IMSIVP.IVP910,IMSIVP,DFLT,CYL,3</val>
000003 <var>IXUMCP1</var> <val>IMSIVP.IVP910,IMSIVP,DFLT,CYL,3</val>
000004 <var>IXUSPL3</var> <val>IMSIVP.IVP910,IMSIVP,DFLT,CYL,1</val>
000005 <var>IXUSPL2</var> <val>IMSIVP.IVP910,IMSIVP,DFLT,CYL,1</val>
```

In the export data set:

- The text inside the <ivpenv></ivpenv> tags indicates the IVP environment.
- The text inside the <var></var> tags indicates the variable name.
- The text inside the <val></val> tags indicates the variable value.

2. Use the ISPF editor to modify these variables.

3. Import the variables into the target IVP, as described in “Importing Variables Using the Import (Imp) Action Command” on page 123.

Variable Gathering—ENT Mode

Figure 21 on page 126 depicts the ENT Mode panel corresponding to the item you selected in the LST Mode panel.
Variable-Gathering Phase

Figure 21. Variable Gathering (ENT Mode) Panel

ENT Mode provides more information for each variable:

- Whether the variable can be blank.
- Membership in the global variable groups. These fields are blank for all variables except those used for data set allocation.
- A scrollable description of the variable.

You can view all of the items in the variable table by using the NXT and PRV actions.

Use the DOC action to get a printed copy of the online documentation. Type DOC into the action field and press ENTER.

Variable Gathering—DOC Action

Figure 22 on page 127 depicts the DOC action panel for the variable-gathering phase.
In this panel, select the type of output listing you want:

1. LST Mode equivalent
2. ENT Mode equivalent

Then select the variables you want to print. Press ENTER when all selections have been made. The requested documentation will be printed to the ISPF LIST data set. Even though the DOC action is entered against a single item, the resulting documentation is for all of the selected types of items.

For the example in Figure 22, no documentation is printed. Press END twice to return to LST Mode, and then press END again to exit from the variable-gathering phase.

Variable Gathering—Phase Complete Verification

Figure 23 on page 128 depicts the complete verification panel that is displayed whenever you use END to exit from the variable-gathering phase.
Variable-Gathering Phase

You can progress to the file-tailoring phase by pressing ENTER. If you are not yet finished with the variable-gathering phase, press the END key. When you indicate that you have completed the variable-gathering phase, this panel disappears until the table-merge process is rerun.

Press ENTER to continue with the file-tailoring phase described in "Tailoring Files" on page 129.

Variable Gathering—Return to Phase Selection

The dialog always returns to the phase selection panel when you exit a phase. Figure 24 on page 129 depicts this panel. It allows you to return to a prior phase if you choose.
Because you have told the dialog that you have completed the variable-gathering phase, the dialog has preselected a new default for this panel.

Accept the default value of 3 (FT1) and press ENTER to continue with the file-tailoring phase.

**Tailoring Files**

The variables that were presented in the variable-gathering phase are used to prepare the IVP JCL and supporting materials that are to be used during the execution phase. The ISPF file-tailoring facility is used to create these materials. In the file-tailoring phase, you place completed members into the INSTALIB data set. INSTALIB members are named according to the environment option that was chosen:

1. IV1ssnnt - DBB - Batch system
2. IV2ssnnt - DBC - DBCTL system
3. IV3ssnnt - DBT - DB/DC system
4. IV4ssnnt - XRF - XRF system
5. IV9ssnnt - DCC - DCCTL system

Where:
- **ss** Step number
- **nn** JOB/TASK/INDEX item number within the step

The item numbers are not guaranteed to be in ascending sequence. Service changes might disrupt the apparent sequence.

- **t** J for job, T for task, N for miscellaneous materials

**Attention:** The dialog maintains status information for all current options. The dialog will also permit file-tailoring of all options into INSTALIB. However, the concurrent execution of more than one option requires that extreme care be exercised during the variable-gathering phase to ensure that each option will be separate and distinct from each other option.
Two modes are used to display the INSTALIB members:

**LST**  
JOBS, TASKS, and INDX entries are presented as a scrollable list of items. LST is the default.

**ENT**  
JOBS, TASKS, and INDX entries are presented one at a time. Scrollable descriptive information is provided for each item.

In addition to jobs and tasks, the file-tailoring panels serve as an index for the additional members of SDFSSLIB and SDFSISRC, which are used by the jobs.

The following topics provide additional information:

- “File-Tailoring Action Commands”
- “File-Tailoring—ALL Action Request” on page 131
- “File-Tailoring in Progress” on page 132
- “File-Tailoring—ALL Action Complete” on page 132
- “File-Tailoring—LST Mode” on page 132
- “File-Tailoring—ENT Mode” on page 133
- “File-Tailoring—DOC Action” on page 134
- “File-Tailoring—Phase Complete Verification” on page 135
- “File-Tailoring—Return to Phase Selection” on page 136

### File-Tailoring Action Commands

Action commands are provided to support the IVP dialog during the file-tailoring phase. Table 16 contains the action commands, accepted modes, and command descriptions.

In Table 16, the bold-faced letters in the Action column indicate the shortest allowable abbreviation for each command. The entries in the Mode column indicate whether the commands are accepted in:

- **LST** for LST Mode
- **ENT** for ENT Mode
- **Both** for LST Mode and ENT Mode

#### Table 16. File-Tailoring Commands

<table>
<thead>
<tr>
<th>Action</th>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Both</td>
<td>Perform the file-tailoring phase for INSTALIB members, starting with the item for which the request is made.</td>
</tr>
<tr>
<td>brM</td>
<td>Both</td>
<td>Browse an INSTALIB member.</td>
</tr>
<tr>
<td>brS</td>
<td>Both</td>
<td>Browse a SDFSSLIB or SDFSISRC member.</td>
</tr>
<tr>
<td>Doc</td>
<td>Both</td>
<td>Print JOB/TASK/INDEX documentation to the ISPF LIST data set. The DOC action prints all items, not just the item where the DOC action is requested.</td>
</tr>
<tr>
<td>Edm</td>
<td>Both</td>
<td>Edit an INSTALIB member.</td>
</tr>
<tr>
<td>eNt</td>
<td>LST</td>
<td>Switch to ENT mode. ENT mode presents items one at a time on a formatted screen.</td>
</tr>
<tr>
<td>Ftl</td>
<td>Both</td>
<td>Perform the file-tailoring phase for a single INSTALIB member.</td>
</tr>
</tbody>
</table>
**File-Tailoring—ALL Action Request**

Whenever you enter the file-tailoring phase for the first time for an option, you are given the opportunity to have the dialog automatically perform file-tailoring for materials used by the selected option. This panel, depicted in Figure 25, will be presented only once for each option (unless you change sub-options or rerun the table-merge phase). If you reply NO on this panel, you can accomplish the same result by requesting the all action for the first item in the file-tailoring phase LST Mode panel.

![Figure 25. File-Tailoring—ALL Action Request Panel](image)

Accept the default value of 1 (for YES). You must also accept the default the first time you enter the file-tailoring phase for an option or if required by service.

At any other time, override the default and reply 2 (for NO). You are either passing through the file-tailoring phase on the way to the execution phase or you only need to perform file-tailoring on a subset of the installation materials.

You can run the file-tailoring phase at any time. Also, INSTALIB must be compressed periodically (ISPF/PDF facilities can be used).

**Attention:** The file-tailoring phase replaces INSTALIB PDS members. User modifications made directly to INSTALIB members will be lost.

Press ENTER to accept the default.
File-Tailoring Phase

File-Tailoring in Progress

The file-tailoring phase is a long-running process. While file-tailoring is taking
place, a panel with the message Please do not interrupt this process is
displayed and the keyboard is locked. This panel is updated frequently as the table
items are processed. Figure 26 depicts this progress indicator panel.

![Figure 26. File-Tailoring Progress Indicator]

File-Tailoring—ALL Action Complete

Figure 27 depicts the panel that is displayed when processing is complete after the
ALL action is issued against the first item in the file-tailoring table.

![Figure 27. File-Tailoring—ALL Action Complete Panel]

This panel serves as a reminder of the scope of processing performed.

Press ENTER to continue on the file-tailoring LST Mode panel.

File-Tailoring—LST Mode

Figure 28 depicts the LST mode panel of the file-tailoring phase. When
you enter the file-tailoring phase, you are placed in LST Mode. This mode provides
the greatest visibility of the jobs and tasks available for the selected option. Except when you are browsing INDEX items, this mode is the only mode that you need for the file-tailoring phase, because the item descriptions that are displayed in ENT Mode are actually intended for use during the execution phase.

<table>
<thead>
<tr>
<th>Title</th>
<th>Action Codes: All brM brR Doc Edm eNT Ftl</th>
</tr>
</thead>
<tbody>
<tr>
<td>! IV4A001T IVPA001T A0 NOTE - Step Introduction-Dialog Set-up</td>
<td></td>
</tr>
<tr>
<td>! IV4A301N DFSIXSA4 A3 CLIST - Offline Formatted Dump - IVP1/2/3/4</td>
<td></td>
</tr>
<tr>
<td>* IV4A302N DFSIXSA5 A3 CLIST - Offline Dump Formatter - BATCH</td>
<td></td>
</tr>
<tr>
<td>* IV4A303N DFSIXSA6 A3 CNTRL - MDB Load Ctrlr Stmts - DBFSAND0/DBFSA</td>
<td></td>
</tr>
<tr>
<td>! IV4C4001T IVPC4001T C0 NOTE - Step Introduction - System Definition</td>
<td></td>
</tr>
<tr>
<td>* IV4C101J DFSIXSC0 C1 JOB - Alloc SYSDEF Data Sets</td>
<td></td>
</tr>
<tr>
<td>* IV4C201T DFSIXSC1 C2 TASK - Browse the STAGE1 Source Deck</td>
<td></td>
</tr>
<tr>
<td>* IV4C202J DFSIXSC2 C2 JOB - Run SYSDEF Preprocessor</td>
<td></td>
</tr>
<tr>
<td>* IV4C203J DFSIXSC3 C2 JOB - Run SYSDEF STAGE1</td>
<td></td>
</tr>
<tr>
<td>* IV4C301J DFSIXSC4 C3 JOB - Run SYSDEF STAGE2</td>
<td>SEE DESCRIPT</td>
</tr>
<tr>
<td>* IV4C401J DFSIXSC5 C4 JOB - Run SMP/E JCLIN</td>
<td></td>
</tr>
<tr>
<td>! IV4C405T IVPC405T C4 TASK - Edit IMS PROCLIB Members</td>
<td></td>
</tr>
<tr>
<td>! IV4D001T IVPD001T D0 NOTE - Step Introduction - and VTAM Interf</td>
<td></td>
</tr>
<tr>
<td>* IV4D010T DFSIXD0 D1 XMPL - Allocate Interface Data Sets</td>
<td></td>
</tr>
<tr>
<td>* IV4D020T DFSIXD1 D2 XMPL - Update JESx Procedure</td>
<td></td>
</tr>
<tr>
<td>* IV4D030T DFSIXD2 D2 XMPL - Update BLSECTX - DFSOFMOO / DXRRLM50</td>
<td></td>
</tr>
<tr>
<td>* IV4D031T DFSIXD3 D2 XMPL - Update IEAPFxx or PROGxx - Authorized</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 28. File-Tailoring (LST Mode) Panel**

If you scroll towards the bottom of the list, you can see items belonging to the “Z1” steps. These are INDEX entries. The “Z1” items are members of SDFSSLIB (file-tailoring skeletons), which are imbedded by the earlier items. The “Z2” items are members of SDFSISRC (DBDs, PSBs, MFSs, PGMs, for example). Use the BRS action to browse these members.

Special characters are used in the action field as described below:

- ! Indicates that an item has been added to the table (due to service). You can blank out the ! indicator by rerunning the table-merge process.
- * Indicates that the item has been processed by either the ALL action or the FTL action.

Try the ENT action for the first item. You must type ENT (or N) into the action field next to the desired item; the command line cannot be used for action commands on LST Mode panels.

Press ENTER to switch modes.

**File-Tailoring—ENT Mode**

[Figure 29 on page 134] depicts the ENT Mode panel that corresponds to the item you selected on the LST Mode panel.
File-Tailoring Phase

The only additional information provided by ENT Mode is the scrollable item description. Except for the INDEX items, these descriptions are intended for the execution phase and have no special meaning for the file-tailoring phase.

The NXT and PRV actions can be used to view all of the items in the file-tailoring table.

Use the DOC action to get a printed copy of the online documentation. Type DOC into the action field and press ENTER.

File-Tailoring—DOC Action

Figure 29. File-Tailoring (ENT Mode) Panel

Figure 30 on page 135 depicts the DOC action panel for the file-tailoring phase.
In this panel, select the type of output listing you want:
1. LST Mode equivalent
2. ENT Mode equivalent

Then select which items you want to have printed. Press ENTER when all selections have been made. The requested documentation prints to the ISPF LIST data set.

Even though the DOC action is entered against a single item, the resulting documentation is for all of the selected types of items.

You can print the documentation for jobs and tasks during either the file-tailoring or the execution phase. The documentation for index items only prints from the file-tailoring phase.

For the example in Figure 30, no documentation is printed. Press END twice to return to LST Mode and then press END again to exit from the file-tailoring phase.

File-Tailoring—Phase Complete Verification

Figure 31 on page 136 depicts the phase complete verification panel of the file-tailoring phase. This panel is displayed whenever you use END from the file-tailoring phase.
You can progress to the execution phase after telling the dialog that you have completed the file-tailoring phase by pressing ENTER. If you are not finished with the file-tailoring phase, press END.

Press ENTER and continue to the execution phase. Because you have indicated that you finished the file-tailoring phase, this panel will disappear until the table-merge process is rerun. Also, the File-Tailoring All Request panel will be suppressed if you decide to return to the file-tailoring phase.

**File-Tailoring—Return to Phase Selection**

The dialog always returns to the Phase Selection panel when you exit a phase, as depicted in [Figure 32 on page 137](#). This allows you to return to a prior phase if you choose to do so.
File-Tailoring Phase

| Help | IVP Phase Selection - XRF | IMS 9.1 | COMMAND ===>
|------|---------------------------|---------|-----------------
| IVP  | IVP Phase Selection - XRF | IMS 9.1 | COMMAND ===>
|      |                            |         |                 
|      |                            |         | Select the desired Phase and positioning option and press ENTER |
| 6.   | VG - Variable Gathering-(Define user values for variables) | |  
|      | 1. VG1 Start/Rerun from the beginning of the phase | | 
|      | 2. VG2 Start/Rerun from the last known position within the phase | |  
|      | FT - File Tailoring - (Create customized INSTALIB members) | |  
|      | 3. FT1 Start/Rerun from the beginning of the phase | | 
|      | 4. FT2 Start/Rerun from the last known position within the phase | | 
|      | 5. FT3 Start/Rerun from the beginning of a selected step | |  
|      | EX - Execution - (Run the IVP jobs) | |  
|      | 6. EX1 Start/Rerun from the beginning of the phase | | 
|      | 7. EX2 Start/Rerun from the last known position within the phase | | 
|      | 8. EX3 Start/Rerun from the beginning of a selected step | |  

![Figure 32. Phase/Rerun Position Selection Panel](image)

In this example, the dialog has preselected a new default for this panel because you have told the dialog that you have completed the file-tailoring phase.

Accept the default value of 6 (EX1), and press ENTER to continue with the execution phase.

### Executing Tailored Jobs and Tasks

The IVP jobs and tasks that were prepared by the file-tailoring phase are now presented to you in the order that you need to process them. The execution phase is not automatic. You must process one job or task at a time through the execution phase.

**Jobs:** You can browse, edit, or submit the job. The browse option allows you to review the whole IVP sequence before actually running any jobs. When you are ready to run a job, you can either submit the job using the EXE action or you can edit and submit the job. Each job has a scrollable description associated with it to assist you in running the job.

Some items are meant to be nonexecutable examples. For these examples, the submit action is disabled, but the browse and edit actions are available. You can use ISPF split-screen mode to create an executable version of nonexecutable items.

**Tasks:** You are provided a scrollable description to assist you in performing the task. The browse, edit, and submit actions are disabled for tasks.

Two modes are used to display the jobs and tasks:

- **LST** The items are presented in a scrollable list. Each item represents one job or task. LST is the default.
- **ENT** The job and task members are presented one at a time in sequence. Scrollable information is provided to describe each item.

The following topics provide additional information:

- "Execution Action Commands” on page 138
Execution Phase

- “Execution Phase—LST Mode” on page 139
- “Execution Phase—ENT Mode” on page 139
- “Execution Phase—Phase Complete Verification” on page 140
- “Execution Phase—Return to Phase Selection” on page 141

Execution Action Commands

Action commands are provided to support the IVP dialog during the execution phase. Table 17 contains the action commands, accepted modes, and command descriptions.

In Table 17, the bold-faced, capitalized letters in the action column indicate the shortest allowable abbreviation for each command. The entries in the mode column indicate whether the commands are accepted in:

LST for LST Mode
ENT for ENT Mode
Both for both LST Mode and ENT Mode

**Table 17. Execution Action Commands**

<table>
<thead>
<tr>
<th>Action</th>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>brM</td>
<td>Both</td>
<td>Browse an INSTALIB member.</td>
</tr>
<tr>
<td>Doc</td>
<td>Both</td>
<td>Print job or task documentation to the ISPF LIST data set. The DOC action prints all items, not just the item where the DOC action is requested.</td>
</tr>
<tr>
<td>Edm</td>
<td>Both</td>
<td>Edit an INSTALIB member.</td>
</tr>
<tr>
<td>eNt</td>
<td>LST</td>
<td>Switch to ENT mode. ENT mode presents items one at a time on a formatted screen.</td>
</tr>
<tr>
<td>eXe</td>
<td>Both</td>
<td>Use the TSO SUBMIT command to submit an INSTALIB job for execution. Alternatively, you can issue the TSO SUBMIT command directly while editing an INSTALIB member through the EDM action (see EDM in this table).</td>
</tr>
<tr>
<td>Lst</td>
<td>ENT</td>
<td>Switch to LST mode. LST mode presents a scrollable list of items. Within ENT Mode, the ISPF END command is also interpreted as the LST action.</td>
</tr>
<tr>
<td>Nxt</td>
<td>ENT</td>
<td>Move forward to the next item.</td>
</tr>
<tr>
<td>Prv</td>
<td>ENT</td>
<td>Move backward to the previous item.</td>
</tr>
<tr>
<td>spR</td>
<td>Both</td>
<td>Execute a special processing routine that has been provided to assist with the performance of a task.</td>
</tr>
</tbody>
</table>

Execution Phase—LST Mode

When you enter the execution phase, you are in LST Mode. Figure 33 on page 139 depicts the LST Mode panel of the execution phase.
LST Mode provides the greatest visibility of the items that make up the IVP process. However, only minimal descriptive information is provided. Do not use LST Mode for the execution phase until you are completely familiar with the requirements for each job and task. Use ENT Mode instead.

Special characters in the action field indicate changes to variables:

! Indicates that an item has been added to the table (due to service).

* Indicates that the item has been processed by either the SUB action or EDM action. (The dialog assumes that if you edited an item, you have also submitted that item.)

You can blank out the ! and * indicators by rerunning the table-merge process.

Try the ENT action for the second item. Type ENT (or N) in the action field.

To switch modes, press ENTER.

**Execution Phase—ENT Mode**

Figure 34 on page 140 depicts the ENT Mode panel of the execution phase. The item displayed is the item for which you requested the ENT action on the LST Mode panel.
Execution Phase

The NXT and PRV actions can be used to progress through the items in the execution table.

When you have become familiar with the requirements for each job and task (possibly by browsing the entire process before you actually begin submitting jobs), you can switch back to LST Mode.

For this example, press END to return to LST Mode and then press END again to exit from the execution phase.

Execution Phase—Phase Complete Verification

Figure 35 on page 141 depicts the complete verification panel of the execution phase. This panel is displayed whenever you use END to exit from the execution phase.
If you have completed the execution phase, press ENTER. If you have not completed the execution phase, press END.

Press ENTER and then end the dialog session.

**Execution Phase—Return to Phase Selection**

The dialog always returns to the Phase Selection panel when you exit a phase, as depicted in Figure 36. This allows you to return to a prior phase if you choose to do so.

Because you told the dialog that you completed the execution phase, the dialog preselects a new default for this panel.

You are now ready to end the dialog session.
Ending the Session

Ending the IVP Dialog Session

You can end the dialog session in any of the following ways:

- Press END repeatedly until you have backed all the way out of the dialog.
- Press RETURN to back out of the dialog completely.

The first method is the slowest; the last is the fastest.

These methods can be used to terminate the dialog session from any panel except the “Please do not interrupt this process” panels.

When you reestablish the dialog session, you are prompted (through the preselection of defaults) to return to your last phase position.

Getting Help

Online help is available by pressing F1 or by using the Help menu. The following help menus are available:

- “Panel HELP—Table of Contents”
- “Panel HELP—General Information” on page 143

Panel HELP—Table of Contents

Figure 37 depicts the HELP table of contents panel. This panel is displayed if you type a T in the command line of a HELP panel or if the end of a HELP panel hierarchy (or chain) is reached.

<table>
<thead>
<tr>
<th>Command</th>
<th>HELP - Table of Contents</th>
<th>IMS 9.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>HELP</td>
<td>Table of Contents</td>
<td></td>
</tr>
</tbody>
</table>

The following topics are presented only if selected by number:

1. General Information
2. Primary Options - Initial Installations
3. ' ' - Sub-Option Selection
4. Table Merge Request
5. Copy Startup Variables
6. Dialog Phase Selection
7. Variable Gathering Phase
8. File Tailoring Phase
9. Execution Phase
10. Help Index

Figure 37. HELP—Table of Contents Panel

This panel serves as a table of contents for the panel HELP provided by the IVP dialog. With the exception of the general information topic, the panels that are accessed from this panel are the same panels you see when you request HELP from one of the dialog panels.

Use the command line for input from an IVP HELP panel.

To return to the primary option menu (or the previous dialog panel), press END.
Panel HELP—General Information

Figure 38 depicts the HELP general information panel. This panel is accessed by selecting item ‘1’ from the Panel HELP table of contents.

```
IVP HELP - Dialog General Information      IMS 9.1
Command ===>  
The following topics are presented in sequence or may be selected by number:
1  Dialog Flow
2  Dialog use of ISPF tables
3  Dialog Restart/Recovery
4  Dialog use of PFKs
5  Panel navigation commands
6  Scrolling
7  The Command line
8  JOB and User JESx statements
9  JOBNAME options
10 Reporting Problems and Making Comments
```

Figure 38. HELP—General Information Panel

**Recommendation:** When you start your own dialog session, review all of the General Information topics before you proceed with your first dialog session. These topics contain information that can help you as you get acquainted with the dialog.

To return to the primary option menu (or the previous dialog panel), press END.
General Help
## Part 3. IVP Reference Information

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<td>DBT (DB/DC)</td>
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<td>XRF (DB/DC with XRF)</td>
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<tr>
<td>DCC (DCCTL)</td>
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<td>Type-2 Command Environment Sample Application</td>
<td>183</td>
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<tr>
<td>Syntax Checker Sample Application</td>
<td>183</td>
</tr>
</tbody>
</table>
Chapter 9. The IVP Systems

The IVP supports five initial installation environments, each of which is described in Appendix C, “IVP System Definitions,” on page 215.

The following topics provide additional information:
- “DBB (DB)”
- “DBC (DBCTL)”
- “DBT (DB/DC)”
- “XRF (DB/DC with XRF)” on page 148
- “DCC (DCCTL)” on page 148

DBB (DB)

The IVP uses the following IMS facilities in this environment:
- GSAM
- DB (HISAM, HIDAM, HDAM, PHIDAM)
- Logging
- Database Recovery Control (DBRC)
- Internal Resource Lock Manager (IRLM) (optional)
- Batch applications

DBC (DBCTL)

The IVP uses the following IMS facilities in this environment:
- GSAM
- DB (HISAM, HIDAM, HDAM, PHIDAM, DEDB)
- Logging
- Database Recovery Control (DBRC)
- Internal Resource Lock Manager (IRLM) (optional)
- Batch applications
- Batch-oriented BMP applications
- HALDB sample
- Common Service Layer sample

DBT (DB/DC)

The IVP uses the following IMS facilities in this environment:
- GSAM
- DB (HISAM, HIDAM, HDAM, PHIDAM, DEDB, MSDB)
- Logging
- Database Recovery Control (DBRC)
- Internal Resource Lock Manager (IRLM) (optional)
- TM
- TCO
- Batch applications
Batch-oriented BMP applications
Non-conversational message processing program (MPP) applications
Conversational MPP applications
IFP applications
HALDB sample
Common Service Layer sample

**XRF (DB/DC with XRF)**

The IVP uses the following IMS facilities in this environment:
- GSAM
- DB (HISAM, HIDAM, HDAM, PHIDAM, DEDB, MSDB)
- Logging
- Database Recovery Control (DBRC)
- Internal Resource Lock Manager (IRLM) (optional)
- TM
- MSC/ISC
- Time Control Option (TCO) file
- Batch applications
- Batch-oriented BMP applications
- Non-conversational MPP applications
- Conversational MPP applications
- IFP applications
- HALDB sample
- Common Service Layer sample

**DCC (DCCTL)**

The IVP uses the following IMS facilities in this environment:
- GSAM
- Logging
- Database Recovery Control (DBRC)
- TM
- TCO
- Transaction-driven WFI BMP applications
- Non-conversational MPP applications
- Conversational MPP applications
- IFP applications
- Common Service Layer sample

After you complete the IVP, you can disable the use of features, functions, or facilities that your IMS system does not need.
Chapter 10. IVP Sample Application

The IVP sample application is a simple telephone book application. Each of the application programs performs the same add, change, delete, and display functions.

For information on the IVP partitioning sample application, which demonstrates the conversion of a non-partitioning database to a partitioned database, refer to Chapter 13, “Partitioning Sample Application,” on page 179.

The SDFSISRC target library contains the source for all programs, PSBs, DBDs, and MFSs, and other supporting materials used by this application.

**Note:** The following programs are shipped source only:
- DFSIVA31
- DFSIVA32
- DFSIVA34
- DFSIVA61
- DFSIVA62
- DFSIVA64
- DFSIVG20
- DFSIVG30

These programs perform the same function as their assembler counterparts. They (along with the DFSIVA35 and DFSIVA65 REXX programs) are not used in the IVP. If you want to use these programs, you must have the appropriate compiler. Sample compile and bind JCL is provided, as indicated in the table. Stage 1 support, PSBGEN, ACBGEN, and MFSUTL are included in the IVP.

**Note:** The Java program and the steps necessary to compile and run the IVP sample with a Java application program are described in the IMS Version 9: IMS Java Guide and Reference.

Table 18 provides information on the parts used by the IVP sample application. It includes the language, PSB, MFS, transaction code, DBD, JCL, and description associated with those parts (where applicable).

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Language</th>
<th>PSB</th>
<th>MFS</th>
<th>TRANCD</th>
<th>DBD</th>
<th>Compile and BIND JCL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSIVD1</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD1</td>
<td>n/a</td>
<td>HIDAM/OSAM database.</td>
</tr>
<tr>
<td>DFSIVD1I</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD1I</td>
<td>n/a</td>
<td>HIDAM/OSAM primary index database.</td>
</tr>
<tr>
<td>DFSIVD2</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD2</td>
<td>n/a</td>
<td>HDAM/VSAM database.</td>
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<tr>
<td>DFSIVD3</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD3</td>
<td>n/a</td>
<td>DEDB/VSAM database.</td>
</tr>
<tr>
<td>DFSIVD4</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD4</td>
<td>n/a</td>
<td>MSDB database.</td>
</tr>
</tbody>
</table>
### IVP Sample Application

**Table 18. IVP Sample Application Parts (continued)**

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Language</th>
<th>PSB</th>
<th>MFS</th>
<th>TRANCD</th>
<th>DBD</th>
<th>Compile and BIND JCL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSIVD5</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD5</td>
<td>n/a</td>
<td>GSAM database.</td>
<td></td>
</tr>
<tr>
<td>DFSIVA1</td>
<td>assembler</td>
<td>DPFIP1</td>
<td>DPFIVF1</td>
<td>IVTNO</td>
<td>DFSIVD1</td>
<td>n/a</td>
<td>Non-conv. MPP.</td>
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<tr>
<td>DFSIVA2</td>
<td>assembler</td>
<td>DPFIP2</td>
<td>DPFIVF2</td>
<td>IVTNV</td>
<td>DFSIVD2</td>
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<tr>
<td>DFSIVA3</td>
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<td>DPFIP3</td>
<td>DPFIVF3</td>
<td>IVTCV</td>
<td>DFSIVD2</td>
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<td>Conv. MPP.</td>
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<td>Pascal</td>
<td>DPFIP31</td>
<td>DPFIVF31</td>
<td>IVTCP</td>
<td>DFSIVD2</td>
<td>DFSIVJP3</td>
<td>Conv. MPP.</td>
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<td>C</td>
<td>DPFIP32</td>
<td>DPFIVF32</td>
<td>IVTCC</td>
<td>DFSIVD2</td>
<td>DFSIVJC3</td>
<td>Conv. MPP.</td>
</tr>
<tr>
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<td>Java</td>
<td>DPFIP37</td>
<td>DPFIVF37</td>
<td>IVTCM</td>
<td>DFSIVD2</td>
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<td>Conv. MPP.</td>
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<tr>
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<td>Java</td>
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<td>n/a</td>
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<td>n/a 4</td>
<td>JBP.</td>
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<tr>
<td>DFSIVA4</td>
<td>assembler</td>
<td>DPFIP4</td>
<td>DPFIVF4</td>
<td>IVTFD</td>
<td>DFSIVD3</td>
<td>n/a</td>
<td>Non-conv. IFP (EMH).</td>
</tr>
<tr>
<td>DFSIVA5</td>
<td>assembler</td>
<td>DPFIP5</td>
<td>DPFIVF5</td>
<td>IVTFM</td>
<td>DFSIVD4</td>
<td>n/a</td>
<td>Non-conv. IFP (EMH). Display and Replace only.</td>
</tr>
<tr>
<td>DFSIVA6</td>
<td>assembler</td>
<td>DPFIP6</td>
<td>n/a</td>
<td>DFSIVD1</td>
<td>n/a</td>
<td>DB batch, BMP.</td>
<td></td>
</tr>
<tr>
<td>DFSIVA61</td>
<td>Pascal</td>
<td>DPFIP61</td>
<td>n/a</td>
<td>DFSIVD1</td>
<td>DFSIVJP6</td>
<td>DB batch, BMP.</td>
<td></td>
</tr>
<tr>
<td>DFSIVA62</td>
<td>C</td>
<td>DPFIP62</td>
<td>n/a</td>
<td>DFSIVD1</td>
<td>DFSIVJC6</td>
<td>DB batch, BMP.</td>
<td></td>
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<td>DFSIVA64</td>
<td>COBOL</td>
<td>DPFIP64</td>
<td>n/a</td>
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<td>DFSIVJB6</td>
<td>DB batch, BMP.</td>
<td></td>
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<td>DFSIVD3</td>
<td>n/a</td>
<td>DB batch, BMP.</td>
</tr>
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<td>DPFIP7</td>
<td>n/a</td>
<td>DFSIVD2</td>
<td>n/a</td>
<td>DB batch, BMP.</td>
<td></td>
</tr>
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<td>assembler</td>
<td>DPFIP8</td>
<td>n/a</td>
<td>DFSIVD3</td>
<td>n/a</td>
<td>DB BMP.</td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>DPFIP9</td>
<td>n/a</td>
<td>DFSIVD1</td>
<td>n/a</td>
<td>On-line image copy.</td>
<td></td>
</tr>
<tr>
<td>DFSDDLT0</td>
<td>n/a</td>
<td>DPFIPA</td>
<td>n/a</td>
<td>DFSIVD1</td>
<td>n/a</td>
<td>HIDAM load.</td>
<td></td>
</tr>
<tr>
<td>DFSDDLT0</td>
<td>n/a</td>
<td>DPFIPB</td>
<td>n/a</td>
<td>DFSIVD2</td>
<td>n/a</td>
<td>HDAM load.</td>
<td></td>
</tr>
<tr>
<td>DFSIVAC</td>
<td>assembler</td>
<td>DPFIPC</td>
<td>n/a</td>
<td>DFSIVD3</td>
<td>n/a</td>
<td>DEDB load BMP.</td>
<td></td>
</tr>
<tr>
<td>DFSIVAD</td>
<td>assembler</td>
<td>DPFIPD</td>
<td>DPFIVF</td>
<td>IVTC17</td>
<td>n/a</td>
<td>Message driven WFI BMP.</td>
<td></td>
</tr>
<tr>
<td>DFSIVAE</td>
<td>assembler</td>
<td>DPFIVE</td>
<td>DPFIVE</td>
<td>IVTC27</td>
<td>n/a</td>
<td>Non-conv. MPP. MSG switch to DFSIVAD.</td>
<td></td>
</tr>
<tr>
<td>DFSIVAF</td>
<td>assembler</td>
<td>DPFIPF</td>
<td>DPFIVF</td>
<td>IVTC37</td>
<td>n/a</td>
<td>Conv. MPP. MSG switch to DFSIVAD.</td>
<td></td>
</tr>
<tr>
<td>DFSIVAG</td>
<td>assembler</td>
<td>DPFIVG</td>
<td>DPFIVG</td>
<td>IVTC47</td>
<td>n/a</td>
<td>IFP (EMH). MSG switch to DFSIVAD.</td>
<td></td>
</tr>
<tr>
<td>DFSIVG20</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVJG2</td>
<td>WTOR routine for Pascal.</td>
<td></td>
</tr>
<tr>
<td>DFSIVG30</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVJG3</td>
<td>WTOR routine for C.</td>
<td></td>
</tr>
<tr>
<td>DFSIVC04</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Control statements for HD DB load (DFSDDLT0).</td>
<td></td>
</tr>
<tr>
<td>DFSIVC05</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DB batch, BMP GSAM input.</td>
<td></td>
</tr>
</tbody>
</table>
**Program Functions**

The application program action is determined by a process code provided with the input data. The process codes are ADD, DELETE, UPDATE, DISPLAY, and TADD. Except for TADD, the process codes are self-explanatory. TADD causes the application program to add a record to the database and issue a WTOR request. Any character string may be used to reply to the WTOR issued by the TADD process. The database is changed, but the change is not committed. The TADD process code is used during the recovery portions of the IVP scripts.

For the EMH program that accesses the main storage database (MSDB), a TUPD process code is used instead of the TADD.

The online transactions are executed through an MFS block. For example, the DFSIVP1 program is executed by entering /F0R IVTNO at an IMS user terminal, and then entering a process code and data on the formatted screen. For more information on the application screen formats, see the screen format description.

When processing for the DFSIVP1 program is finished, press the Clear key and enter a new FORMAT command to execute a different application program.

The batch/BMP programs execute using JCL. In the DCCTL environment, the IVP database is simulated through the use of a data area within program DFSIVAD (a message-driven WFI BMP). Programs DFSIVAE, DFSIVAE, and DFSIVAG perform message switches to send their transaction input to DFSIVAD for processing.
DFSIVAD processes its input under the control of extended checkpoint/restart and returns its output to the originating terminal.

Screen Format

The MFS (message format service) blocks for some of the application programs use a screen format similar to that shown in Figure 39. To display or delete a record, only the process code and the last name field are required input. To add or replace a record, all input fields are required.

Figure 39. IVP Screen Format

Databases

In the DCCTL environment, the IVP database is simulated through the use of a data area within program DFSIVAD.

Each of four root-only databases in the IVP contains the same six records. Table 19 displays the contents (last name, first name, extension number, and zip code) of these records.

Table 19. Contents of IVP Root-only Database Records

<table>
<thead>
<tr>
<th>Record number</th>
<th>Last Name</th>
<th>First Name</th>
<th>Ext. number</th>
<th>Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LAST1</td>
<td>FIRST1</td>
<td>8-111-1111</td>
<td>D01/R01</td>
</tr>
<tr>
<td>2</td>
<td>LAST2</td>
<td>FIRST2</td>
<td>8-111-2222</td>
<td>D01/R02</td>
</tr>
<tr>
<td>3</td>
<td>LAST3</td>
<td>FIRST3</td>
<td>8-111-3333</td>
<td>D01/R03</td>
</tr>
<tr>
<td>4</td>
<td>LAST4</td>
<td>FIRST4</td>
<td>8-111-4444</td>
<td>D02/R04</td>
</tr>
<tr>
<td>5</td>
<td>LAST5</td>
<td>FIRST5</td>
<td>8-111-5555</td>
<td>D02/R05</td>
</tr>
<tr>
<td>6</td>
<td>LAST6</td>
<td>FIRST6</td>
<td>8-111-6666</td>
<td>D03/R06</td>
</tr>
</tbody>
</table>

The following topics provide additional information:
- “DFSIVD1 - HIDAM/OSAM” on page 153
- “DFSIVD2 - HDAM/VSAM” on page 153
- “DFSIVD3 - DEDB/VSAM” on page 153
DFSIVD1 - HIDAM/OSAM

- Database Description
  - Database Name: IVPDB1
  - Segment Name: A1111111
  - Segment Length: 40
  - Key Field Name: A1111111
  - Key Field Length: 10

- Database Record Format: See Table 20

<table>
<thead>
<tr>
<th>OFFSET</th>
<th>LENGTH</th>
<th>FIELD NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>A1111111</td>
<td>Last Name</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>N/A</td>
<td>First Name</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>N/A</td>
<td>Extension Number</td>
</tr>
<tr>
<td>30</td>
<td>7</td>
<td>N/A</td>
<td>Internal Zip Code</td>
</tr>
<tr>
<td>37</td>
<td>3</td>
<td>N/A</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

DFSIVD2 - HDAM/VSAM

- Database Description
  - Database Name: IVPDB2
  - Segment Name: A1111111
  - Segment Length: 40
  - Key Field Name: A1111111
  - Key Field Length: 10

- Database Record Format: See Table 21

<table>
<thead>
<tr>
<th>OFFSET</th>
<th>LENGTH</th>
<th>FIELD NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>A1111111</td>
<td>Last Name</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>N/A</td>
<td>First Name</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>N/A</td>
<td>Extension Number</td>
</tr>
<tr>
<td>30</td>
<td>7</td>
<td>N/A</td>
<td>Internal Zip Code</td>
</tr>
<tr>
<td>37</td>
<td>3</td>
<td>N/A</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

DFSIVD3 - DEDB/VSAM

- Database Description
  - Database Name: IVPDB3
  - Segment Name: A1111111
  - Segment Length: 42
Databases

Key Field Name: A1111111
Key Field Length: 10
- Database Record Format: See Table 22

Table 22. Database Record Format of DFSIVD3

<table>
<thead>
<tr>
<th>OFFSET</th>
<th>LENGTH</th>
<th>FIELD NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>N/A</td>
<td>Segment Length</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>A1111111</td>
<td>Last Name</td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>N/A</td>
<td>First Name</td>
</tr>
<tr>
<td>22</td>
<td>10</td>
<td>N/A</td>
<td>Extension Number</td>
</tr>
<tr>
<td>32</td>
<td>7</td>
<td>N/A</td>
<td>Internal Zip Code</td>
</tr>
<tr>
<td>39</td>
<td>3</td>
<td>N/A</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

DFSIVD4 - MSDB
- Database Description
  - Database Name: IVPDB4
  - Segment Name: A1111111
  - Segment Length: 40
  - Key Field Name: A1111111
  - Key Field Length: 10
- Database Record Format: See Table 23

Table 23. Database Record Format of DFSIVD4

<table>
<thead>
<tr>
<th>OFFSET</th>
<th>LENGTH</th>
<th>FIELD NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>A1111111</td>
<td>Last Name</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>N/A</td>
<td>First Name</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>N/A</td>
<td>Extension Number</td>
</tr>
<tr>
<td>30</td>
<td>7</td>
<td>N/A</td>
<td>Internal Zip Code</td>
</tr>
<tr>
<td>37</td>
<td>3</td>
<td>N/A</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

DFSIVD5 - GSAM/BSAM
- Database Description
  - Database Name: IVPDB5
  - RECFM: F
  - RECORD: 80
Chapter 11. IMS Sample Application

The ADFSISRC target library contains the source for all programs, PSBs, DBDs, and MFSs, and other supporting materials used by this application.

Table 24 provides information on the parts used by the IMS sample application. It includes the language, PSB, transaction code, DBD, and description associated with those parts (where applicable).

Table 24. IMS Sample Application Parts

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Language</th>
<th>PSB</th>
<th>TRANCD</th>
<th>DBD</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DI21PART</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>DI21PART</td>
<td>HISAM/VSAM database</td>
</tr>
<tr>
<td>DFSSAM01</td>
<td>REXX</td>
<td>DFSSAM11</td>
<td>n/a</td>
<td>DI21PART</td>
<td>DB batch - Database Load</td>
</tr>
<tr>
<td>DFSSAM02</td>
<td>REXX</td>
<td>DFSSAM12</td>
<td>PART</td>
<td>DI21PART</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td>DFSSAM03</td>
<td>REXX</td>
<td>DFSSAM13</td>
<td>DSPINV</td>
<td>DI21PART</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td>DFSSAM04</td>
<td>REXX</td>
<td>DFSSAM14</td>
<td>ADDPART</td>
<td>DI21PART</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFSSAM05</td>
<td>REXX</td>
<td>DFSSAM15</td>
<td>CLOSE</td>
<td>DI21PART</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td>DFSSAM06</td>
<td>REXX</td>
<td>DFSSAM16</td>
<td>DISBURSE</td>
<td>DI21PART</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td>DFSSAM07</td>
<td>REXX</td>
<td>DFSSAM17</td>
<td>DSPALLI</td>
<td>DI21PART</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td>DFSSAM08</td>
<td>assembler</td>
<td>DFSSAM18</td>
<td>n/a</td>
<td>DI21PART</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td>DFSDDLT0</td>
<td>assembler</td>
<td>DFSSAM19</td>
<td>n/a</td>
<td>DI21PART</td>
<td>DB batch/BMP</td>
</tr>
<tr>
<td>DFSSAMC1</td>
<td>assembler</td>
<td>DFSSAMC1</td>
<td>n/a</td>
<td>DI21PART</td>
<td>CICS PSB DFHSAM04</td>
</tr>
<tr>
<td>DFSSAMC2</td>
<td>assembler</td>
<td>DFSSAMC2</td>
<td>n/a</td>
<td>DI21PART</td>
<td>CICS PSB DFHSAM05</td>
</tr>
<tr>
<td>DFSSAMC3</td>
<td>assembler</td>
<td>DFSSAMC3</td>
<td>n/a</td>
<td>DI21PART</td>
<td>CICS PSB DFHSAM14</td>
</tr>
<tr>
<td>DFSSAMC4</td>
<td>assembler</td>
<td>DFSSAMC4</td>
<td>n/a</td>
<td>DI21PART</td>
<td>CICS PSB DFHSAM24</td>
</tr>
<tr>
<td>DFSSAMC5</td>
<td>assembler</td>
<td>DFSSAMC5</td>
<td>n/a</td>
<td>DI21PART</td>
<td>CICS PSB DFHSAM15</td>
</tr>
<tr>
<td>DFSSAMC6</td>
<td>assembler</td>
<td>DFSSAMC6</td>
<td>n/a</td>
<td>DI21PART</td>
<td>CICS PSB DFHSAM25</td>
</tr>
<tr>
<td>DFSSUT04</td>
<td>REXX</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Status code subroutine</td>
</tr>
<tr>
<td>MFDFSY5N</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Control statements for database load</td>
</tr>
<tr>
<td>DFSSAMC1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Control statements for database dump (DFSDDLT0)</td>
</tr>
</tbody>
</table>

The following topics provide additional information:

- “Manufacturing Industry Sample Database Organization” on page 156
- “Sample Application” on page 159
- “Sample Transactions” on page 160
- “IMS Sample Application Parts Records” on page 166
Manufacturing Industry Sample Database Organization

The sample application is based on a scenario from the manufacturing industry. It includes the creation, usage, and maintenance of the logical databases associated with the product data. Three logical databases (parts, drawings, and end items) contain the data. The data is related to engineering part numbers, drawings, or product structure.

Figure 40 shows the relationship between the logical and physical databases for each of the three logical databases parts, drawings, and end items.

![Diagram showing logical and physical databases for parts, drawings, and end items.]

The segments comprising the logical “parts” database are divided into two data set groups. Figure 41 on page 157 displays the hierarchy of these segments in the two data set groups (STD data and order control).
The segments comprising the logical database “drawings” are divided into two data set groups. Figure 42 on page 158 displays the hierarchy of these segments in the two data set groups (EDRS system and MAPL/EAPL parts list).
The segments comprising the logical database “end items” are all contained in one data set group. Figure 43 on page 159 displays the hierarchy of these segments in the end item data set group.
Sample Application

The entire three-database structure that is shown in Figure 40 on page 156, Figure 41 on page 157, Figure 42 on page 158, and Figure 43 provides a context for the sample application. The sample application that you are installing and using requires only a few of the total segments.

Figure 44 shows the sample application’s logical view of the “parts” database. The application requires five segments of the “parts” database:

- One part number description segment for each part within the database.
- A standard data segment for each part that provides additional information of a standard nature about the part.
- Inventory stock status segments for each part. The application is designed with multiple inventory locations permissible, and normally required, for any particular part.
- Cycle count segments (from 0 to n).
- Back-order segments for each inventory location of a particular part.
Sample Transactions

In Figure 45, the six message processing programs (MPPs) process the nine transactions (provided by the sample application) using the “parts” database.
The six MPPs and their associated transactions are provided to allow you to perform the following nine online functions:

<table>
<thead>
<tr>
<th>Transaction</th>
<th>Online Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART</td>
<td>Inquire about a part and its description.</td>
</tr>
<tr>
<td>DSPALLI</td>
<td>Inquire about a part’s inventory, cycle count, and back-order information.</td>
</tr>
<tr>
<td>DSPINV</td>
<td>Inquire about a part’s total inventory in all locations or by specific inventory location.</td>
</tr>
<tr>
<td>ADDPART</td>
<td>Add a new part and its description.</td>
</tr>
<tr>
<td>ADDINV</td>
<td>Add part inventory information, by location, to an existing part description.</td>
</tr>
<tr>
<td>DLETINV</td>
<td>Delete part inventory information, by location.</td>
</tr>
<tr>
<td>DLETPART</td>
<td>Delete a part after deletion of all its subordinate part inventory information.</td>
</tr>
<tr>
<td>CLOSE</td>
<td>Close a part order to increase the part inventory at a specific location.</td>
</tr>
</tbody>
</table>
DISBURSE  Disburse a specific quantity of a particular part, on a planned or unplanned basis, at a particular part inventory location, thereby reducing inventory.

Using one of the USER terminals, execute the IMS sample application transactions. The general format of all transactions is:

- TRANSACTION_CODE OPERAND, OPERAND, OPERAND, . . .

One blank must separate the transaction code from the first operand. No blanks can be entered between one operand and another. Most of the transaction codes have been defined as multiple segment transactions and require an EOT (for 2740), or equivalent, to complete input.

This application was originally designed for terminals that support output that is greater than 80 characters wide. As a result, some of the output is wider than 80 characters, resulting in truncation of the output line if your terminal supports a maximum width of 80 characters. Press CLEAR and then PA2. Repeat this sequence until a blank screen is returned. This sequence causes queued-up messages to be displayed. Also use the CLEAR and PA2 combination before each new transaction code.

The nine transactions associated with MPPs are listed below. Examples of the input and output screens for each transaction are also provided.

1. PART

The transaction PART inquires into the part number database for information from the part master and standard information segments of a specific part number. The input format is transaction code, part number entered as shown in Figure 46.

```
part AN960C10
```

**Figure 46. PART Transaction - Entry**

The output or response format is shown in Figure 47.

```
Part...........  AN960C10;  Desc...........  WASHER
Proc Code.......  74;  Inv Code.......  2
Make Dept.......  12-00;  Plan Rev Num...
Make Time.......  63;  Comm Code.......  14
```

**Figure 47. PART Transaction - Output**

2. DSPALLI

The DSPALLI transaction displays all inventory, cycle count, and back-order information for a specific part. The input format is transaction code and part number entered as shown in Figure 48.

```
dspalli AN960C10
```

**Figure 48. DSPALLI Transaction - Entry**

The resulting terminal output is shown in Figure 49.
3. DSPINV

The DSPINV transaction displays inventory information from a specific inventory location. Assume you want to display only the 3rd inventory entry listed in Figure 49. Obtain inventory location key by concatenating AREA, INVDEPT, PROJCD, and DIV. The input format is transaction code, part number, inventory-location-key entered as shown in Figure 50.

```
dspinv AN960C10,28009126
```

**Figure 49. DSPALLI Transaction - Output**

<table>
<thead>
<tr>
<th></th>
<th>Part</th>
<th>Desc</th>
<th>Proc</th>
<th>Area</th>
<th>Inv Dept</th>
<th>Inv Loc</th>
<th>Inv Price</th>
<th>Unit Price</th>
<th>Current</th>
<th>On Order</th>
<th>Total Stock</th>
<th>Disb Planned</th>
<th>Stk Ct Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>AN960C10</td>
<td>WASHER</td>
<td>74</td>
<td>2</td>
<td>80</td>
<td>091</td>
<td>0.000</td>
<td>EACH</td>
<td>630</td>
<td>15</td>
<td>680</td>
<td>1157</td>
<td>0</td>
</tr>
</tbody>
</table>

**Figure 50. DSPINV Transaction - Entry**

The resulting terminal output is shown in Figure 51.

```
Part............  AN960C10;  Desc............  WASHER
Proc.............  74;  Area............  2
Inv Dept........  80;  Prj............  091
Div............  26;  Price............  0.000
Curr Regmts.....  513;  Unit............ EACH
Total Stock.....  680;  Disb Planned...  1053
Disb Unplanned.  104;  Stk Ct Variance  0
```

**Figure 51. DSPINV Transaction - Output**

4. ADDPART

The ADDPART transaction adds a new part and its associated description and procurement code to the database. The input format is transaction code, part number, description, procurement-code entered as shown in Figure 52.

```
addpart AB960C10,RIVET,74
```

**Figure 52. ADDPART Transaction - Entry**

The resulting terminal output is shown in Figure 53.

```
Part Number AB960C10 Added To Data Base
```

**Figure 53. ADDPART Transaction - Output**

5. ADDINV

The ADDINV transaction adds inventory location key information to an existing part in the database. The input format is transaction code, part number, inventory-location-key entered as shown in Figure 54.
addinv A8960C10,80091260

Figure 54. ADDINV Transaction - Entry

The resulting terminal output is shown in Figure 55

Inventory 80091260 Added To Part Number AB960C10

Figure 55. ADDINV Transaction - Output

If you want to display the part’s updated inventory information, enter the command shown in Figure 56

dspinv A8960C10,80091260

Figure 56. DSPINV Transaction - Entry

The resulting terminal output is shown in Figure 57

<table>
<thead>
<tr>
<th>Part..........</th>
<th>AB960C10; Desc.........</th>
<th>RIVET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proc...........</td>
<td>74; Area..............</td>
<td>8</td>
</tr>
<tr>
<td>Inv Dept.......</td>
<td>00; Prj.............</td>
<td>912</td>
</tr>
<tr>
<td>Div............</td>
<td>60 ; Price...........</td>
<td>0.000</td>
</tr>
<tr>
<td>Stk Ct Date....</td>
<td>; Unit.............</td>
<td></td>
</tr>
<tr>
<td>Curr Reqmts....</td>
<td>0; On Order.........</td>
<td>0</td>
</tr>
<tr>
<td>Total Stock....</td>
<td>0; Disp Planned...</td>
<td>0</td>
</tr>
<tr>
<td>Disp Unplanned.</td>
<td>0; Stk Ct Variance</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 57. DSPINV Transaction - Output

6. DLETINV

The DLETINV transaction code deletes a specific inventory item for a specific part. The input format is transaction code, part number, inventory-location-key entered as shown in Figure 58

dletinv A8960C10,80091260

Figure 58. DLETINV Transaction - Entry

The resulting terminal output shown in Figure 59

Inventory 80091260 Deleted From Part Number AB960C10

Figure 59. DLETINV Transaction - Output

7. DLETPART

If all the inventory items are deleted, you can delete a particular part number from the database with the transaction code DLETPART. The input format is transaction code, part number entered as shown in Figure 60

dletpart A8960C10

Figure 60. DLETPART Transaction - Entry
The resulting terminal output is shown in Figure 61.

Part Number AB960C10 Deleted From Data Base

Figure 61. DLETPART Transaction - Output

8. CLOSE

You can close an open order for a specific part in a specific inventory item using the CLOSE transaction code. The input format is transaction code, part number, inventory-location-key, on-order-decrement, total-stock increment. Enter the command as shown in Figure 62.

close AN960C10,28009126,15,15

Figure 62. CLOSE Transaction - Entry

The resulting terminal output is shown in Figure 63.

17:43:38 PN= AN960C10 Invty Key=28009126 Excess Stock On Hand

Figure 63. CLOSE Transaction - Output

Other messages can follow depending upon the sample database update status (you might need to press PA1 first). An example is shown in Figure 64.

Update Complete

Figure 64. CLOSE Transaction - Output (Additional)

To verify the operation of the CLOSE transaction, you can display inventory item 28009126 for part AN960C10. The input format is transaction code, part number, inventory-location-key. Enter the command as shown in Figure 65.

dspinv AN960C10,28009126

Figure 65. DSPINV Transaction - Entry

The resulting terminal output is shown in Figure 66.

<table>
<thead>
<tr>
<th>Part............</th>
<th>AN960C10; Desc............ WASHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proc.............</td>
<td>74; Area............ 2</td>
</tr>
<tr>
<td>Inv Dept.........</td>
<td>80; Prj............ 091</td>
</tr>
<tr>
<td>Div..............</td>
<td>26; Price........... 0.000</td>
</tr>
<tr>
<td>Stk Ct Date.....</td>
<td>513; Unit............ EACH</td>
</tr>
<tr>
<td>Curr Reqmts....</td>
<td>630; On Order........ 0</td>
</tr>
<tr>
<td>Total Stock.....</td>
<td>695; Disp Planned... 1053</td>
</tr>
<tr>
<td>Disb Unplanned.</td>
<td>104; Stk Ct Variance 0</td>
</tr>
</tbody>
</table>

Figure 66. DSPINV Transaction - Output

Compare the display in Figure 66 with the display in Figure 51 on page 163. Notice that the on-order quantity has been reduced by 15 and the total stock quantity has been increased by 15 to 695.
9. DISBURSE
The DISBURSE transaction code allocates a quantity of a part from an inventory item on a planned or unplanned basis. The input format is transaction code, part number, inventory-location-key, planned or unplanned code, quantity. Enter the command as shown in Figure 67.

```
disburse AN960C10, 28009126, U, 10
```

**Figure 67. DISBURSE Transaction - Entry**

The resulting terminal output is shown in Figure 68.

```
17:47:40 PN= AN960C10 Invty Key=28009126 Excess Stock On Hand
```

**Figure 68. DISBURSE Transaction - Output**

Other messages can follow depending upon the sample database update status (you might need to press PA1 first). An example is shown in Figure 69.

```
Update Complete
```

**Figure 69. DISBURSE Transaction - Output (Additional)**

If you want to display the inventory information for key 28009126 and part number AN960C10, enter the command as shown in Figure 70. The input is transaction code, part number, inventory-location-key:

```
dspin AN960C10, 28009126
```

**Figure 70. DSPINV Transaction - Entry**

The resulting terminal output is shown in Figure 71.

```
   Part.......... AN960C10; Desc.......... WASHER
    Proc.......... 74; Area.........   2
    Inv Dept...... 80; Prj............ 091
    Div............ 26; Price......... 0.000
    Stk Ct Date.... 513; Unit.......... EACH
    Curr Regmts.... 630; On Order...... 0
    Total Stock.... 685; Disb Planned... 1053
    Disb Unplanned. 114; Stk Ct Variance 0
```

**Figure 71. DSPINV Transaction - Output**

**IMS Sample Application Parts Records**

This section lists the available part numbers in the database that you can use for message processing. The part numbers marked with an asterisk (*) have dependent back-order segments. All part numbers have at least one dependent inventory status segment.

Part Numbers:
<table>
<thead>
<tr>
<th>Code</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN960C10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3003806</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>3007228</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3013412</td>
<td></td>
<td></td>
</tr>
<tr>
<td>652799</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IMS Sample Application
Chapter 12. Fast Path Sample Application

The SDFSISRC target library contains the source for all programs, PSBs, DBDs, and MFSs, and other supporting materials used by this application.

Table 25 provides information on the parts used by the Fast Path sample application. It includes the language, PSB, MFS, transaction code, DBD, and description associated with those parts (where applicable).

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Language</th>
<th>PSB</th>
<th>MFS</th>
<th>TRANCD</th>
<th>DBD</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBFSAMD1</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD1</td>
<td>MSDB - General Ledger Database</td>
</tr>
<tr>
<td>DBFSAMD2</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD2</td>
<td>MSDB - Teller Database</td>
</tr>
<tr>
<td>DBFSAMD3</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD3</td>
<td>DEDB/VSAM - Customer Account Database</td>
</tr>
<tr>
<td>DBFSAMD4</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD4</td>
<td>HDAM/VSAM - Loan Database</td>
</tr>
<tr>
<td>DBFSAMA1</td>
<td>assembler</td>
<td>DBFSAMP1</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD3</td>
<td>BMP - DEDB/VSAM load</td>
</tr>
<tr>
<td>DBFSAMA2</td>
<td>assembler</td>
<td>DBFSAMP2</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD4</td>
<td>DB Batch - HDAM/VSAM load</td>
</tr>
<tr>
<td>DBFSAMA3</td>
<td>assembler</td>
<td>DBFSAMP3</td>
<td>DBFSAMP1</td>
<td>FPSAMP1</td>
<td>DBFSAMD1</td>
<td>Non-conversational IFP (EMH)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBFSAMD2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBFSAMD3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBFSAMD4</td>
<td></td>
</tr>
<tr>
<td>DBFSAMA3</td>
<td>assembler</td>
<td>DBFSAMP4</td>
<td>DBFSAMP1</td>
<td>FPSAMP2</td>
<td>DBFSAMD1</td>
<td>Non-conversational MPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBFSAMD2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBFSAMD3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBFSAMD4</td>
<td></td>
</tr>
<tr>
<td>DFSDDLT0</td>
<td>assembler</td>
<td>DBFSAMP5</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD4</td>
<td>DB batch/BMP - HDAM/VSAM</td>
</tr>
<tr>
<td>DFSDDLT0</td>
<td>assembler</td>
<td>DBFSAMP6</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD3</td>
<td>BMP - DEDB/VSAM</td>
</tr>
<tr>
<td>DFSIVC06</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DBFSAMD1</td>
<td>MSDB load control statements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBFSAMD2</td>
<td></td>
</tr>
</tbody>
</table>

The following topics provide additional information:

- “Sample Database Organization” on page 170
- “Sample Application for Fast Path” on page 171
- “Running the Sample Transaction from Your Terminal” on page 173
- “IMS Fast Path Sample Application Customer Account Information” on page 177
Sample Database Organization

The sample application demonstrates a banking application. This sample application creates and uses four databases (two MSDBs, one HDAM, and one DEDB). Data is related to general ledger (MSDB), teller (MSDB), loan (HDAM), and customer account (DEDB) information for each account. DEDB and HDAM databases are loaded offline using IMS supplied utilities. All four databases are processed online using message processing regions (MPP) and Fast Path regions (IFP).

Figure 72 shows the relationship of these four databases as created and used by the Fast Path sample application.

Figure 72. Relationship of the Databases of the Fast Path Sample Application

The general ledger database is a non-terminal-related MSDB. The DBD for the general ledger file contains a segment description consisting of the following items:

- General ledger account number
- General ledger account balance
- Transaction count
- Filler area

The teller database is a terminal-related MSDB. The DBD for the teller file contains a segment description consisting of the following items:

- Withdrawal amount
- Deposit amount
- Loan payment amount
- Teller balance
- Transaction code
- Key to general ledger
- Filler area

The customer account database (a DEDB) includes nine segment types in a three-level hierarchy, as represented in Figure 73 on page 171. The segment types include a root segment type, a sequential dependent segment type, and seven types of direct dependent segments. In addition, subset pointers point to the three account segment types that are represented in the database. This configuration
allows the application to demonstrate the use of multiple SSAs and the use of command codes (including subset pointer references) for a DEDB.

Figure 73. A Hierarchical Diagram of the Customer Account Database (a DEDB)

The second level transactions segment is sequential dependent; all others are direct dependents.

The loan database (HDAM) contains customer identification and transaction information. Transaction information can include all aspects of a banking scenario, including loan information, account numbers, and date and times of transactions.

The hierarchical diagram in Figure 74 displays the segments (customer root and loan) of an HDAM/VSAM loan database.

Sample Application for Fast Path

The sample application consists of programs to perform the following functions:
1. Prepare the two MSDBs used by the transaction processing program. (The loading of the MSDBs is performed at IMS startup.)
2. Perform the initial load of the DEDB account database with an IMS batch message processing program (BMP).
3. Perform the initial load of the HDAM loan database with a batch application program.
4. Process the transaction using the following call sequence:
   a. GU I/O PCB (get message).
   b. If the transaction is a statement request:
      1) GU first account transaction for the requested period (use of multiple SSAs, path call, and subset pointers).
To process the transaction, the sample program acquires a message (representing a statement request, an account transaction, or a loan transaction).

If the transaction is an account transaction, the appropriate account segment is updated by the amount of the transaction, and the transaction is inserted as a dependent segment to the account segment. Depending on the type of account segment, different types of subset pointers are maintained for the transaction segments. An application program is assumed to be there to update the subset pointers in a daily offline run. The “first today, this week, this month, and this quarter” subset pointers are set to 0 at the end of the period. The “first without passbook” subset pointer is set to 0 by the sample application when a passbook is presented.

The transaction is added to the account DEDB as a sequential dependent segment. From an application viewpoint, this data could be used as historical information in an offline process (not included in the sample application).

The transaction is reflected in a general ledger (MSDB 1) item associated with the particular branch by means of a FLD add call.

The (teller) cash counter database (related MSDB-containing segments associated with a specific teller terminal) is updated.

A reply to the teller terminal is generated and inserted to the terminal by an ISRT message call.
Running the Sample Transaction from Your Terminal

Using one of the USER terminals, run the transactions for the Fast Path sample application:

- The Fast Path sample application transactions

There are two transaction codes used in the Fast Path sample application:

- FPSAMP1 - executes in an IFP REGION
- FPSAMP2 - executes in an MPP REGION

The two transaction codes both execute the same application functions. The MOD name of the MFS format used by these transactions is DBFSMOUT. The IMS command /FORMAT DBFSMOUT causes this format to be displayed.

The general format of the input for these transactions is given in Table 26 and in the following example:

### Table 26. Example Input Format for Fast Path Sample Application Transactions

<table>
<thead>
<tr>
<th>Field</th>
<th>Variables</th>
<th>Description</th>
</tr>
</thead>
</table>
| Transaction Code     | aaaaaaaaa | • FMP1 - execute transaction in FP MSG DRIVEN REGION  
|                      |           | • FPSAMP2 - execute transaction in IMS MPP REGION                             |
| Customer Account     | bbbbbbbbc | • bbbbbbb - 8-character customer number  
|                      |           | • cc - 2-character account type                                               |
| Transaction Type     | def       | • d - one of the following four characters:  
|                      |           |   - L - Loan¹  
|                      |           |   - S - Savings account  
|                      |           |   - C - Checking account  
|                      |           |   - U - Current account  
|                      |           | • e - one of the following three characters:  
|                      |           |   - W - Withdrawal  
|                      |           |   - D - Deposit  
|                      |           |   - P - Account statement  
|                      |           | • f - one of the following five characters:  
|                      |           |   - P - Passbook²  
|                      |           |   - 1 - Today³  
|                      |           |   - 2 - This week³  
|                      |           |   - 3 - This month³  
|                      |           |   - 4 - This quarter³  
| Transaction Amount   | eeeeee    | Amount ($3000.00, for example) up to nine characters.                        |

**Notes:**

1. Transaction amount is not required on loan transactions or account statement requests. Loan payment amount is predefined in the database.
2. For savings account deposits and withdrawals with a passbook. If no passbook, leave blank.
3. Valid combinations for statement requests are: SP3, SP4, CP2, CP3, CP4, UP1, UP2, UP3, UP4.
   - INPUT MESSAGE
The transaction input message is entered on the third line of the screen, under the heading, NEW TRAN.

All transactions

NEW TRAN:
AAAAAAA BBBBBBCC DEF GGGGGGGG

Where:

AAAAAAA: Transaction code suffix (0 or 1 depending on which region)
BBBBBBB: Customer account number
CC: Customer account type
DEF: Transaction type
GGGGGGGGG: Transaction amount (free-form up to 9 characters)

- OUTPUT MESSAGE The transaction output messages are displayed beginning on the fourth line of the screen. The various output displays are explained below.

- Customer Account Transaction

CUST. ACCT TRANSACTION:

BRxxxxxxx yyy zzzzzzzzz wwww

TRANS TO BE ENTERED IN PASSBK:

YYDDDD HHMM t aaaaaaaaaa YYDDDD HHMM t aaaaaaaaaa
YYDDDD HHMM t aaaaaaaaaa YYDDDD HHMM t aaaaaaaaaa

END OF PASSBOOK TRANSACTIONS

Where:

xxxxxxx: Customer account number
yyy: Transaction type
zzzzzzzzz: Transaction amount
wwwwwwww: Account balance
YYDDDD: Transaction date
HHMM: Transaction time
t: Transaction type (D or W)
aaaaaaaa: Transaction amount

- Loan Payment Transaction

LOAN PAYMENT DETAILS:

BRxxxxxxx L zzzzzzzzz wwww

Where:

xxxxxxx: Customer account number
L: Transaction type (loan payment)
zzzzzzzzz: Loan payment amount
Account Statement Transaction

**CUST. ACCT REQUEST BALANCE:**

```
BRxxxxxxxx yyy zzzzzzzz
```

**TRANSACTIONS THIS PERIOD:**

```
YYDDD HHMM t aaaaaaaa
YYDDD HHMM t aaaaaaaa
YYDDD HHMM t aaaaaaaa
YYDDD HHMM t aaaaaaaa
END OF TRANSACTIONS
```

Where:

- `xxxxxxxx`: Customer account number
- `yyy`: Transaction type
- `zzzzzzzzz`: Account Balance
- `YYDDD`: Transaction date
- `HHMM`: Transaction time
- `t`: Transaction type (D or W)
- `aaaaaaa`: Transaction amount

**- Error Message Format**

```
REQUEST CAN NOT BE SERVICED:
PROCSG ERROR xx yy zz...
```

Where:

- `xx`: Error code set by application program
- `yy`: PCB status code, if applicable
- `zz`: Input data

**- ERROR CODES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE</td>
<td>Invalid input data</td>
</tr>
<tr>
<td>LM</td>
<td>Missing loan segment (HDAM)</td>
</tr>
<tr>
<td>LU</td>
<td>Error in updating loan segment (HDAM)</td>
</tr>
<tr>
<td>MA</td>
<td>Missing customer account segment (DEDB)</td>
</tr>
<tr>
<td>MR</td>
<td>Missing customer root segment (DEDB)</td>
</tr>
<tr>
<td>MT</td>
<td>Missing teller segment (MSDB)</td>
</tr>
<tr>
<td>MX</td>
<td>Missing transaction segment (DEDB)</td>
</tr>
<tr>
<td>OD</td>
<td>Transaction amount on withdrawal greater than customer account balance</td>
</tr>
<tr>
<td>RB</td>
<td>Error in processing and rollback</td>
</tr>
<tr>
<td>TR</td>
<td>Terminal transmission error on input</td>
</tr>
<tr>
<td>UA</td>
<td>Error in updating account segment (DEDB)</td>
</tr>
</tbody>
</table>
Running the sample transactions from your terminal

1. Press CLEAR and then PA2. Repeat this sequence until a blank screen is returned. This sequence causes queued-up messages to be displayed.

   Enter /FORMAT DBFSMOUT to display the MFS format.

   In the transaction sequence that follows, the terminal input is to be typed below the “AAAAAAA BBBBBBBBCC DEF GGGGGGGG” prompting string in the screen input area.

2. Terminal Input:
   
   FPSAMP1 BR01-H01M1 L

   Terminal Output:
   
   LOAN PAYMENT DETAILS:
   BR01-H01M1 L $482.77 $60,000.00 $59,517.23 0001

3. Terminal Input:
   
   FPSAMP2 BR01-A01S1 SWP 1000.00

   Terminal Output:
   
   CUST. ACCT TRANSACTION:
   BR01-A01S1 SWP $1,000.00 $1000.00
   TRANS TO BE ENTERED IN PASSBK:
   YYDDD HMMM W $1000.00 END OF PASSBOOK TRANSACTIONS

4. Terminal Input:
   
   FPSAMP1 BR02-T02C1 CD 1000.00

   Terminal Output:
   
   CUST. ACCT TRANSACTION:
   BR02-T02C1 CD $1,000.00 $1,900.00

5. Terminal Input:
   
   FPSAMP2 BR01-F01C1 CW 900.00

   Terminal Output:
   
   REQUEST CAN NOT BE SERVICED:
   PROC3G ERROR OD BR01-F01C1 CW $900.00

6. Terminal Input:
   
   FPSAMP2 BR01-F01C1 CP2

   Terminal Output:
   
   CUST. ACCT REQUEST BALANCE:
   BR01-F01C1 CP2 $800.00
   NO TRANSACTIONS THIS PERIOD

7. Terminal Input:
   
   FPSAMP1 BR01-A01S1 SW 500.00

   Terminal Output:
   
   CUST. ACCT TRANSACTION:
   BR01-A01S1 SW $500.00 $500.00

8. Terminal Input:
   
   FPSAMP1 BR01-B01A1 L

   Terminal Output:
   
   LOAN PAYMENT DETAILS:
   BR01-B01A1 L $145.20 $4,500.00 $4,354.80 0001
9. Terminal Input:

   FPSAMP1 BR01-A01S1 SDP 400.00

Terminal Output:

   CUST. ACCT TRANSACTION:
   BR01-A01S1 SDP $400.00 $900.00
   TRANS TO BE ENTERED IN PASSBK:
   YYDDD HHMM W $500.00 YYDDD HHMM D $400.00
   END OF PASSBOOK TRANSACTIONS

10. Terminal Input:

    FPSAMP2 BR01-A01S1 SP3

Terminal Output:

    CUST. ACCT REQUEST BALANCE:
    BR01-A01S1 SP3 $900.00
    TRANSACTIONS THIS PERIOD:
    YYDDD HHMM W $1,000.00 YYDDD HHMM W $500.00
    YYDDD HHMM D $400.00 END OF TRANSACTIONS

11. Terminal Input:

    FPSAMP1 BR02-T01U1 UW 11500.00

Terminal Output:

    CUST. ACCT TRANSACTION:
    BR02-T01U1 UW $11,500.00 $30,000.00

---

**IMS Fast Path Sample Application Customer Account Information**

The transactions shown in “Running the Sample Transaction from Your Terminal” on page 173 can assist you in becoming familiar with the sample databases. Along with the following customer account information, they give you the resources to prepare online training exercises for operators and programmers.

Table 27 shows customer account numbers, loaded into the DEDB, which can be used in running the sample application. It also provides the corresponding customer names, addresses, account types, and account balance.

**Table 27. Customer Savings Account Database – Root Segment (DEDB)**

<table>
<thead>
<tr>
<th>Customer Account Number</th>
<th>Customer Name</th>
<th>Customer Address</th>
<th>Account Type</th>
<th>Account Balance $</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR01-B01S1 C1</td>
<td>Robert Bennett</td>
<td>1601 California Ave. Palo Alto, CA 95432</td>
<td>S JT C TS</td>
<td>4,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,500.00</td>
</tr>
<tr>
<td>BR01-A01S1</td>
<td>Mary Adams</td>
<td>2044 Hamilton Ave. Campbell, CA 95030</td>
<td>S JT</td>
<td>2,000.00</td>
</tr>
<tr>
<td>BR01-F01S1 C1</td>
<td>John Ford</td>
<td>4312 Skyline Road Mt. View, CA 96048</td>
<td>S BA C TR</td>
<td>15,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>800.00</td>
</tr>
<tr>
<td>BR01-H01C1</td>
<td>Betty Hill</td>
<td>7676 Santa Teresa Rd San Jose, CA 97050</td>
<td>C TR</td>
<td>6,000.00</td>
</tr>
<tr>
<td>BR02-B02U1</td>
<td>Samuel Brown</td>
<td>9624 Prospect Ave. San Jose, CA 95129</td>
<td>U UB</td>
<td>13,000.00</td>
</tr>
<tr>
<td>BR02-T01U1</td>
<td>James Taylor</td>
<td>5411 Ocean Dr. Santa Cruz, CA 96080</td>
<td>U UA</td>
<td>41,500.00</td>
</tr>
<tr>
<td>BR02-T02C1</td>
<td>Peter Thomas</td>
<td>1900 Stanford Ave. Palo Alto, CA 95432</td>
<td>C TR</td>
<td>9,000.00</td>
</tr>
</tbody>
</table>

---

Chapter 12. Fast Path Sample Application
Table 28 shows customer account numbers, loaded into the HDAM DB, which can be used in running the sample application. It also provides the corresponding customer names, loan amounts, and monthly payments.

*Table 28. Customer Loan Account Database (HDAM)*

<table>
<thead>
<tr>
<th>Customer Account Number</th>
<th>Customer Name</th>
<th>Loan Amount $</th>
<th>Monthly Payment $</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR01-B01A1</td>
<td>Robert Bennett</td>
<td>4,500.00</td>
<td>145.00</td>
</tr>
<tr>
<td>BR01-A01V1</td>
<td>Mary Adams</td>
<td>1,200.00</td>
<td>106.06</td>
</tr>
<tr>
<td>BR01-F01H1</td>
<td>John Ford</td>
<td>60,000.00</td>
<td>76.01</td>
</tr>
<tr>
<td>BR01-H01M1</td>
<td>Betty Hill</td>
<td>60,000.00</td>
<td>482.77</td>
</tr>
<tr>
<td>BR02-B02P1</td>
<td>Samuel Brown</td>
<td>1,000.00</td>
<td>88.38</td>
</tr>
<tr>
<td>BR02-T01H1</td>
<td>James Taylor</td>
<td>6,000.00</td>
<td>76.01</td>
</tr>
<tr>
<td>BR02-T02A1</td>
<td>Peter Thomas</td>
<td>4,000.00</td>
<td>129.07</td>
</tr>
</tbody>
</table>
Chapter 13. Partitioning Sample Application

The IVP partitioning sample application demonstrates the conversion of a non-partitioning database to a partitioned database. This sample is based on the HIDAM database and applications of the IVP sample application but does not depend on it. Refer to Chapter 10, “IVP Sample Application,” on page 149 for information on the IVP sample application. This partitioning sample application is stand alone; that is, the IVP sample application does not need to be run.

The basic steps of the IVP sample partitioning application are:
1. Create and initialize a nonpartitioned HIDAM database.
2. Unload the database using “Migrate = YES”.
3. Delete the old database from the RECON data sets.
4. Run DBDGEN and ACBGEN for the partitioned database. The IVP places the database definitions (DBDs) into IMS.DBDLIBP and the application control blocks (ACBs) into IMS.ACBLIBP to preserve the integrity of the sample applications.
5. Define the partitioned database using %DFSHALDB.
6. Allocate the partitioned database.
7. Initialize the partitioned database.
8. Re-load the partitioned database.
9. Image copy the partitioned database.
10. Initialize IMS and allow the user to run sample transactions.
11. Terminate IMS and perform clean-up activities.

The SDFSISRC target library contains the source for all programs, PSBs, DBDs, and MFSs, and other supporting materials used by this application.

The parts used by the IVP sample partitioning application are identified in Table 29. These parts are all installed by the IVP.

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Language</th>
<th>PSB</th>
<th>MFS</th>
<th>TRANCD</th>
<th>DBD</th>
<th>Compile and BIND JCL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSIVD1</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD1</td>
<td>n/a</td>
<td>PHIDAM/OSAM database</td>
</tr>
<tr>
<td>DFSIVD1</td>
<td>assembler</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>DFSIVD1I</td>
<td>n/a</td>
<td>PHIDAM/OSAM Primary Index database</td>
</tr>
<tr>
<td>DFSIVA1</td>
<td>assembler</td>
<td>DFSIVP1</td>
<td>DFSIVF1</td>
<td>IVTNO</td>
<td>DFSIVD1</td>
<td>n/a</td>
<td>Non-conv. MPP</td>
</tr>
</tbody>
</table>

The following topics provide additional information:
- “Partitioning Sample Program Functions” on page 180
- “Screen Format” on page 180
- “Databases: DFSIVD1 - HIDAM/OSAM” on page 180
Partitioning Sample Program Functions

The application program action is determined by a process code provided with the input data. The process codes are ADD, DELETE, UPDATE, DISPLAY, and TADD. Except for TADD, the process codes are self-explanatory. TADD causes the application program to add a record to the database and issue a WTOR request. Any character string may be used to reply to the WTOR issued by the TADD process. The database is changed, but the change is not committed. The TADD process code is used during the recovery portions of the IVP scripts.

The online transactions are executed through an MFS block. For example, the DFSIVP1 program is executed by entering /FOR IVTN0 at an IMS user terminal, and then entering a process code and data on the formatted screen. For more information on the application screen formats, see the screen format description.

When processing for the DFSIVP1 program is finished, press the Clear key and enter a new FORMAT command to execute a different application program.

Screen Format

The MFS (message format service) blocks for some of the application programs use a screen format similar to that shown in Figure 75. To display or delete a record, only the process code and the last name field are required input. To add or replace a record, all input fields are required.

```
***********************************************************************
* IMS INSTALLATION VERIFICATION PROCEDURE *
***********************************************************************

TRANSACTION TYPE : NON-CONV (VSAM DB)
DATE : mm/dd/yyyy

PROCESS CODE (+1) : ////////// (1) PROCESS CODE
ADD
DELETE
UPDATE
DISPLAY
TADD

LAST NAME : //////////
FIRST NAME : //////////
EXTENSION NUMBER : //////////
INTERNAL ZIP CODE : //////////

input area

SEGMENT# : 0001
message area
system message area

Figure 75. IVP Screen Format

Databases: DFSIVD1 - HIDAM/OSAM

- Database Description
  
<table>
<thead>
<tr>
<th>Database Name</th>
<th>IVPDB1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment Name:</td>
<td>A1111111</td>
</tr>
<tr>
<td>Segment Length:</td>
<td>40</td>
</tr>
<tr>
<td>Key Field Name:</td>
<td>A1111111</td>
</tr>
<tr>
<td>Key Field Length:</td>
<td>10</td>
</tr>
</tbody>
</table>
• Database Record Format: See Table 30

Table 30. Database Record Format of DFSIVD1

<table>
<thead>
<tr>
<th>OFFSET</th>
<th>LENGTH</th>
<th>FIELD NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>A1111111</td>
<td>Last Name</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>N/A</td>
<td>First Name</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>N/A</td>
<td>Extension Number</td>
</tr>
<tr>
<td>30</td>
<td>7</td>
<td>N/A</td>
<td>Internal Zip Code</td>
</tr>
<tr>
<td>37</td>
<td>3</td>
<td>N/A</td>
<td>Reserved</td>
</tr>
</tbody>
</table>
Databases
Chapter 14. Other Sample Applications

The IVP provides sample applications in addition to the ones described in the following topics:

- Chapter 10, “IVP Sample Application,” on page 149
- Chapter 11, “IMS Sample Application,” on page 155
- Chapter 12, “Fast Path Sample Application,” on page 169
- Chapter 13, “Partitioning Sample Application,” on page 179

For more information about each of the samples provided with the IVP, see the help information available in the IVP.

Common Service Layer and Common Queue Server Sample Application

This sample application demonstrates how to use the Operations manager (OM), Resource manager (RM), Structured Call Interface (SCI), TSO single point of control (SPOC), and Common Queue Server (CQS). Specifically, this sample application demonstrates:

- Adding Common Service Layer members OM, RM, and SCI to IMS.PROCLIB to define an IMSplex
- Adding CQS members to IMS.PROCLIB
- Starting and stopping an IMSplex and CQS
- Starting and using the TSO SPOC application, including how to issue IMS type-1 and type-2 commands

The steps for this sample application are described in “Steps Ox for Common Service Layer and Common Queue Server Sample Application” on page 205.

Related Reading:

- For more information about OM, RM, and SCI, see IMS Version 9: Common Service Layer Guide and Reference
- For more information about the TSO SPOC, see IMS Version 9: Operations Guide

Type-2 Command Environment Sample Application

This sample application demonstrates how to use OM, SCI, and the TSO SPOC without RM. Specifically, this sample application demonstrates:

- Adding OM and SCI members to IMS.PROCLIB to define an environment in which RM is not required, and type-2 commands can be issued
- Using the TSO SPOC to issue commands to IMS

The steps for this sample application are described in “Steps Px for Type-2 Command Environment Sample Application” on page 206.

Syntax Checker Sample Application

This sample application demonstrates how to use the Syntax Checker. Specifically, it demonstrates how to migrate an IMS Version 8 DFSPBxxx PROCLIB member to IMS Version 9.
The steps for this sample application are described in “Steps Ex for Prepare IVP Applications and System” on page 197.

Related Reading: For a detailed example of how to use the Syntax Checker, see IMS Version 9: Installation Volume 2: System Definition and Tailoring.
Appendix A. IVP Variables

The listings in this chapter identify the user modifiable variables that the IVP Dialog uses when creating the JOBs and supporting materials used by the IVP process. The variables that are actually presented by the IVP Dialog are determined by your choice of options.

You can print additional documentation for the IVP variables using the DOC action during the variable-gathering phase of the IVP Dialog.

Use the IVP dialog to obtain current information regarding IVP variables.

In the lists in this chapter, the variables are presented in the same sequence in which they are used by the IVP dialog.

The following topics provide additional information:

- "General Variables"
- "Data Set Allocation Variables" on page 190

### General Variables

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IXUIVPHQ</td>
<td>IVP - High level DSNAME qualifier for IVP (IVP) data sets</td>
</tr>
<tr>
<td>IXURLMHQ</td>
<td>IVP - High level DSNAME qualifier for IRLM (RLM) data sets</td>
</tr>
<tr>
<td>IXUDLBHQ</td>
<td>IVP - High level DSNAME qualifier for IMS DLIB (DLB) data sets</td>
</tr>
<tr>
<td>IXUSYSHQ</td>
<td>IVP - High level DSNAME qualifier for IMS System (SYS) data sets</td>
</tr>
<tr>
<td>IXUEXEHQ</td>
<td>IVP - High level DSNAME qualifier for Execution (EXE) data sets</td>
</tr>
<tr>
<td>IXUUTLHQ</td>
<td>IVP - High level DSNAME qualifier for utility (UTL) data sets</td>
</tr>
<tr>
<td>IXUVSMHQ</td>
<td>IVP - High level DSNAME qualifier for VSAM (VSM) data sets</td>
</tr>
<tr>
<td>IXUSSCLS</td>
<td>SMS - Storage Class</td>
</tr>
<tr>
<td>IXUSMCLS</td>
<td>SMS - Management Class</td>
</tr>
<tr>
<td>IXUIVPVS</td>
<td>IVP - VOLSER for IVP (IVP) data sets</td>
</tr>
<tr>
<td>IXUDLBVS</td>
<td>IVP - VOLSER for IMS distribution, DLIB, (DLB) data sets</td>
</tr>
<tr>
<td>IXUSYSVS</td>
<td>IVP - VOLSER for IMS System, (SYS) data sets</td>
</tr>
<tr>
<td>IXUEX1VS</td>
<td>IVP - VOLSER for IMS Execution (EX1) data sets - group 1</td>
</tr>
<tr>
<td>IXUEX2VS</td>
<td>IVP - VOLSER for IMS Execution (EX2) data sets - group 2</td>
</tr>
<tr>
<td>IXUUTLVS</td>
<td>IVP - VOLSER for utility (UTL) data sets - non-VSAM</td>
</tr>
<tr>
<td>IXUUTVVS</td>
<td>IVP - VOLSER for utility (UTL) data sets - VSAM</td>
</tr>
<tr>
<td>IXUIVPDT</td>
<td>IVP - Device type for IVP (IVP) data sets</td>
</tr>
<tr>
<td>IXUDLBDT</td>
<td>IVP - Device type for IMS Distribution (DLB) data sets</td>
</tr>
<tr>
<td>IXUSYSDT</td>
<td>IVP - Device type for IMS System (SYS) data sets</td>
</tr>
<tr>
<td>IXUEX1DT</td>
<td>IVP - Device type for IMS Execution (EX1) data sets</td>
</tr>
</tbody>
</table>
IXUEX2DT  IVP - Device type for IMS Execution (EX2) data sets
IXUUTLDT  IVP - Device type for utility (UTL) data sets - non-VSAM
IXUUTVDT  IVP - Device type for utility (UTL) data sets - VSAM
IXUTEMPU  IVP - Device type for temporary data sets
IXUPDSFB  IVP - BLKSIZE for PDSs with RECFM=FB and LRECL=80 - (PFB)
IXUPDSU0  IVP - BLKSIZE for PDSs with RECFM=U and LRECL=0 - (PU0)
IXUSEQVB  IVP - BLKSIZE for RECFM=VB sequential data sets - (SVB)
IXUOBJFB  IVP - BLKSIZE for OBJDSET (STAGE2 assembly output) (OBJ)
IXURESU0  IVP - BLKSIZE for IMS SDFSRESL (RESLIB)
IXUOLDVB  IVP - BLKSIZE for IMS OLDS (Online Log Data Set) (OLD)
IXULOGVB  IVP - BLKSIZE for IMS MONITOR and Batch Logs data sets (LOG)
IXUTRCSVB IVP - BLKSIZE for IMS External Trace data sets (TRC)
IXUVSAMD  IVP - BLKSIZE for VSAM data CIs (VSD)
IXUGZDSN  SMP - Fully Qualified DSNAME - IMS SMP/E Global Zone
IXUTZONE  SMP - Zone id - IMS SMP/E Target Zone
IXUSPROC  IVP - Fully qualified DSNAME - SYS1.PROCLIB
IXUSMACL  SMP - Fully qualified DSNAME - SYS1.MACLIB (or AMACLIB)
IXUSAMOD  SMP - Fully qualified DSNAME - SYS1.MODGEN (or AMODGEN)
IXUSMACT  SMP - Fully qualified DSNAME - High Level Assembler Toolkit Feature MACLIB
IXUUUMAC1 SMP - Fully qualified DSNAME - User Macro Library #1 >>> See description
IXUUUMAC2 SMP - Fully qualified DSNAME - User Macro Library #2 >>> See description
IXUUUMAC3 SMP - Fully qualified DSNAME - User Macro Library #3 >>> See description
IXULELKD  SMP - Language Environment Library (SCEELKED)
IXULESPC  SMP - Language Environment Resident Library (SCEESPC)
IXUJESTY  JCL - JES VERSION. (JES2 OR JES3)
IXUUPROC  JCL - User PROCLIB ddname (JES2) or ddname suffix (JES3)
IXUJOBNM  JCL - JOBNAME - USE IVP JOBNAME (Y) OR TSO USERID (N)
IXUJACT1  JCL - JOB statement accounting information - Part 1 of 5
IXUJACT2  JCL - JOB statement accounting information - Part 2 of 5
IXUJACT3  JCL - JOB statement accounting information - Part 3 of 5
IXUJACT4  JCL - JOB statement accounting information - Part 4 of 5
IXUJACT5  JCL - JOB statement accounting information - Part 5 of 5
IXUPGMNM  JCL - JOB statement programmer name
IXUJCLAS  JCL - JOB statement CLASS parameter - IVP JOBs
IXUJCLS2  JCL - JOB statement CLASS parameter - SYSDEF STAGE2 JOBs
IXUMCLAS  JCL - JOB statement MSGCLASS parameter
IXUGROUP   JCL - JOB statement GROUP parameter
IXUUSRID    JCL - JOB statement USER parameter
IXUPASWD    JCL - JOB statement PASSWORD parameter
IXUNOTFY    JCL - JOB statement NOTIFY parameter
IXURGNSZ    JCL - JOB statement REGION parameter (4M or larger)
IXUJTIME    JCL - JOB statement TIME parameter
IXUSTIM1    JCL - EXEC statement TIME parameter for SMP/E, STAGE1, STAGE2
IXUSTIM2    JCL - EXEC statement TIME parameter for DL/I Batch and BMP Jobs
IXUSTIM3    JCL - EXEC statement TIME parameter for MPPs, IFPs, and so on
IXUJESC1    JCL - JESx statement - 1 of 5
IXUJESC2    JCL - JESx statement - 2 of 5
IXUJESC3    JCL - JESx statement - 3 of 5
IXUJESC4    JCL - JESx statement - 4 of 5
IXUJESC5    JCL - JESx statement - 5 of 5
IXUIMIDB    GEN - IMSID for Batch >>> See description
IXUIMID1    GEN - IMSID for DB/DC (and DB/DC with XRF) >>> See description
IXUIMID2    GEN - IMSID for DB/DC with XRF >>> See description
IXUIMID3    GEN - IMSID for DBCTL >>> See description
IXUIMID4    GEN - IMSID for DCCTL >>> See description
IXUCRC1     GEN - Command Recognition Character (CRC) for CCTL - IVP1
IXUCRC2     GEN - Command Recognition Character (CRC) for CCTL - IVP2
IXUCRC3     GEN - Command Recognition Character (CRC) for CCTL - IVP3
IXUSVCT2    GEN - IMS Type 2 SVC
IXUSVCT4    GEN - IMS Type 4 SVC (for DBRC)
IXURLSS     IVP - IRLM Subsystem Names
IXURLNM1    IVP - IRLM #1 JOBNAME
IXURLNM2    IVP - IRLM #2 JOBNAME
IXUIMNM1    IVP - IMS DB/DC JOBNAME and PROC name for system IVP1
IXUIMNM2    IVP - IMS DB/DC JOBNAME and PROC name for system IVP2
IXUIMNM3    IVP - IMS DBCTL JOBNAME and PROC name for system IVP3
IXUIMNM4    IVP - IMS DCCTL JOBNAME and PROC name for system IVP4
IXURCNM1    GEN - DBRC procedure name for system IVP1
IXURCNM2    IVP - DBRC procedure name for system IVP2
IXURCNM3    GEN - DBRC procedure name for system IVP3
### Data Set Allocation Variables

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IXURCNM4</td>
<td>GEN - DBRC procedure name for system IVP4</td>
</tr>
<tr>
<td>IXUDLN1</td>
<td>GEN - DLISAS procedure name for system IVP1</td>
</tr>
<tr>
<td>IXUDLN2</td>
<td>IVP - DLISAS procedure name for system IVP2</td>
</tr>
<tr>
<td>IXUDLN3</td>
<td>GEN - DLISAS procedure name for system IVP3</td>
</tr>
<tr>
<td>IXUPRDR1</td>
<td>GEN - IMSRDR procedure name for system IVP1</td>
</tr>
<tr>
<td>IXUPRDR2</td>
<td>IVP - IMSRDR procedure name for system IVP2</td>
</tr>
<tr>
<td>IXUPRDR3</td>
<td>IVP - IMSRDR procedure name for system IVP3</td>
</tr>
<tr>
<td>IXUPRDR4</td>
<td>IVP - IMSRDR procedure name for system IVP4</td>
</tr>
<tr>
<td>IXUMPP11</td>
<td>IVP - MPP #1 - JOBNAME and JOBS member name - IVP1</td>
</tr>
<tr>
<td>IXUMPP21</td>
<td>IVP - MPP #1 - JOBNAME and JOBS member name - IVP2</td>
</tr>
<tr>
<td>IXUMPP41</td>
<td>IVP - MPP #1 - JOBNAME and JOBS member name - IVP4</td>
</tr>
<tr>
<td>IXUIFP11</td>
<td>IVP - IFP #1 - JOBNAME and JOBS member name - IVP1</td>
</tr>
<tr>
<td>IXUIFP21</td>
<td>IVP - IFP #1 - JOBNAME and JOBS member name - IVP2</td>
</tr>
<tr>
<td>IXUIFP41</td>
<td>IVP - IFP #1 - JOBNAME and JOBS member name - IVP4</td>
</tr>
<tr>
<td>IXUIFP12</td>
<td>IVP - IFP #2 - JOBNAME and JOBS member name - IVP1</td>
</tr>
<tr>
<td>IXUIFP22</td>
<td>IVP - IFP #2 - JOBNAME and JOBS member name - IVP2</td>
</tr>
<tr>
<td>IXUIFP13</td>
<td>IVP - IFP #3 - JOBNAME and JOBS member name - IVP1</td>
</tr>
<tr>
<td>IXUVAPL1</td>
<td>GEN - VTAM APPLID for system IVP1</td>
</tr>
<tr>
<td>IXUVAPL2</td>
<td>GEN - VTAM APPLID for system IVP2</td>
</tr>
<tr>
<td>IXUVAPL4</td>
<td>GEN - VTAM APPLID for system IVP4</td>
</tr>
<tr>
<td>IXUVPWD1</td>
<td>GEN - VTAM PASSWORD for system IVP1</td>
</tr>
<tr>
<td>IXUVPWD2</td>
<td>GEN - VTAM PASSWORD for system IVP2</td>
</tr>
<tr>
<td>IXUVPWD4</td>
<td>GEN - VTAM PASSWORD for system IVP4</td>
</tr>
<tr>
<td>IXUVNDP1</td>
<td>GEN - VTAM node name for the Master Terminal - IVP1</td>
</tr>
<tr>
<td>IXUVNDP2</td>
<td>GEN - VTAM node name for the Master Terminal - IVP2</td>
</tr>
<tr>
<td>IXUVNDP4</td>
<td>GEN - VTAM node name for the Master Terminal - IVP4</td>
</tr>
<tr>
<td>IXULTNP1</td>
<td>GEN - LTERM name for the Master Terminal</td>
</tr>
<tr>
<td>IXULTNS1</td>
<td>GEN - LTERM name for the Secondary Master Terminal</td>
</tr>
<tr>
<td>IXUVNDU1</td>
<td>GEN - VTAM node name for IMS User Terminal #1</td>
</tr>
<tr>
<td>IXULTNU1</td>
<td>GEN - LTERM name for IMS User Terminal #1</td>
</tr>
<tr>
<td>IXUVNDU2</td>
<td>GEN - VTAM node name for IMS User Terminal #2</td>
</tr>
<tr>
<td>IXULTNU2</td>
<td>GEN - LTERM name for IMS User Terminal #2</td>
</tr>
<tr>
<td>IXUSUFIX</td>
<td>GEN - Character to be assigned as the IMS Nucleus suffix</td>
</tr>
<tr>
<td>IXURSENM</td>
<td>IVP - IMS RSE name for XRF</td>
</tr>
</tbody>
</table>

---

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Data Set Allocation Variables

- OBJDSET allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- LGENIN allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- LGENOUT allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- PROCLIB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- MODBLKS allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- MODBLKSA allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- MODBLKSB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- MATRIX allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- MATRIXA allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- MATRIXB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- PGMLIB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- PSBLIB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- DBDLIB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- ACBLIB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- ACBLIBA allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- ACBLIBB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- FORMAT allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- FORMATA allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- FORMATB allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- TFORMAT allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- REFERAL allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC, DIR
- MODSTAT allocation parameters - HLQ, VOL, BLK, TYP, PRM
- MODSTAT2 allocation parameters - HLQ, VOL, BLK, TYP, PRM - XRF
- IMSMON allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC
- IMSMON2 allocation parameters - HLQ, VOL, BLK, TYP, PRM, SEC - IVP2
- DFSTRA01 allocation parameters - HLQ, VOL, BLK, TYP, PRM
- DFSTRA02 allocation parameters - HLQ, VOL, BLK, TYP, PRM
### Data Set Allocation Variables

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Data Set Allocation Variables
Appendix B. IVP JOBs and TASKs

The listings in this chapter identify all of the JOBs and TASKs that can be used during the IVP process. The JOBs and TASKs that are actually presented by the IVP dialog are determined by your choice of environment option and distribution media.

The final list in this group, “Steps Zx for Index of Additional PDS Members” on page 207 does not identify JOBs or TASKs in the IVP process. It identifies members of DFSSLIB and DFSISRC that support the IVP process.

Additional documentation for the IVP JOBs and TASKs can be printed using the DOC action during either the File Tailoring phase or the Execution phase of the IVP dialog.

Use the IVP dialog to obtain current information regarding IVP JOBs and TASKs.

In the lists in this chapter, the JOBs and TASKs are presented in the same sequence that is used by the IVP dialog. The naming convention used for JOBs and TASKs is:

IV_ssnnt

Where:

- _ - (underscore) identifies the selected environment option:
  - 1 - DBB - Batch
  - 2 - DBC - DBCTL
  - 3 - DBT - DB/DC
  - 4 - XRF - DB/DC with XRF
  - 5 - DCC - DCCTL
- ss - identifies the IVP step
- nn - a number assigned by IVP that provides a unique name
- t - identifies the item type:
  - J - JOB
    A PDS member with the same name is placed into INSTALIB during the File Tailoring phase. Item types J are intended to be submitted for execution.
  - T - TASK
    TASKs represent items of work that must be prepared by the user. For some TASKs, an example is provided in INSTALIB. These examples are not intended for execution.
  - N - Supporting materials
    INSTALIB can also contain members that support other JOBs (such as CLISTs and control statements).

The following topics provide additional information:

- “Steps Ax for IVP Preparation” on page 196
- “Steps Cx for System Definition (SYSDEF)” on page 196
- “Steps Dx for Interface IMS to z/OS and VTAM” on page 196
- “Steps Ex for Prepare IVP Applications and System” on page 197
Steps Ax

- “Steps Fx for IVP Execution - DBB System (Batch)” on page 198
- “Steps Gx for IVP Execution - DBC System (DBCTL)” on page 199
- “Steps Hx for IVP Execution - DBT System (DB/DC)” on page 200
- “Steps Ix for IVP Execution - DCC System (DCCTL)” on page 201
- “Steps Jx for IVP Execution - DCC System (DCCTL)” on page 202
- “Steps Lx for Execution - IMS Sample Application” on page 203
- “Steps Mx for Execution - Fast Path Sample Application” on page 204
- “Steps Nx for Execution - Partition Database Sample Application” on page 205
- “Steps Ox for Common Service Layer and Common Queue Server Sample Application” on page 206
- “Steps Px for Type-2 Command Environment Sample Application” on page 207

Steps Ax for IVP Preparation

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<td>IV_A302N</td>
<td>CLIST - Offline Dump Formatter - BATCH</td>
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Steps Cx for System Definition (SYSDEF)

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<td>JOB - Alloc SYSDEF Data Sets</td>
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<td>IV_C201T</td>
<td>TASK - Browse the STAGE1 Source Deck</td>
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<td>IV_C202J</td>
<td>JOB - Run SYSDEF Preprocessor</td>
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<td>IV_C203J</td>
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<td>JOB - Run SYSDEF STAGE2 &gt;&gt;&gt; See Desc.</td>
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Steps Dx for Interface IMS to z/OS and VTAM

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<td>XMPL - Update IEAAPFx or PROGxx - Authorized DSN</td>
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<td>XMPL - Update IÆALPAxx - MLPA Modules</td>
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**Steps Ex for Prepare IVP Applications and System**

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<td>JOB - Add Control Statements to IMS.PROCLIB</td>
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### Steps Fx for IVP Execution - DBB System (Batch)

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<tr>
<td>IV_F103J</td>
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<td>z/OS - Stop DBCTL with a MODIFY IMS,DUMP</td>
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IV_G230T  z/OS - Stop IRLM #1 and IRLM #2
IV_G301J  JOB - List RECON data set
IV_G302J  JOB - Print an OLDS with DFDSS
IV_G303J  JOB - Print DC Monitor Reports
IV_G304J  JOB - Offline Formatted Dump utility
IV_G305J  JOB - Print Fast Path Log Analysis
IV_G306J  JOB - Log Recovery utility - PSB Mode
IV_G307J  JOB - File Select and Print utility
IV_G308J  JOB - Program Isolation (PI) Trace Report
IV_G309T  TASK - IPCS Dump Sample
IV_G401J  JOB - Scratch Data Sets

Steps Hx for IVP Execution - DBT System (DB/DC)

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<td>USER - Review User Operator Commands</td>
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<td>Steps Hx for IVP Execution - XRF System (DB/DC with XRF)</td>
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<td>IV I401J</td>
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IV_J102J  JOB - Initialize RECON data set
IV_J103T  z/OS - Clear z/OS DUMPxx Data Sets
IV_J201J  JOB - Start DCCTL Region IVP4
IV_J202T  IVP4 - Cold Start IMS
IV_J203T  IVP4 - Review MTO Operator Commands
IV_J204T  USER - Review User Operator Commands
IV_J205J  JOB - Start the WFI BMP
IV_J206T  USER - BMP/MPP/IFP Transactions
IV_J208T  IVP4 - Stop IMS with a /CHE DUMPQ
IV_J209J  JOB - Start DCCTL Region IVP4
IV_J210T  IVP4 - Warm Start IMS
IV_J211J  JOB - Start the WFI BMP
IV_J212T  USER - BMP TADD Transaction
IV_J214T  IVP4 - Abend the WFI BMP - /STO REGION ABDUMP
IV_J215J  JOB - Restart (XRST) the WFI BMP
IV_J216T  USER - BMP TADD Transaction
IV_J218T  z/OS - Stop IMS with a MODIFY IMS,DUMP
IV_J219J  JOB - Log Recovery utility - CLS/WADS
IV_J220J  JOB - Start DCCTL Region IVP4
IV_J221T  IVP4 - Emergency Restart IMS
IV_J222J  JOB - Restart (XRST) the WFI BMP
IV_J223T  USER - WFI BMP TADD Transaction
IV_J224T  USER - BMP/MPP/IFP Transactions
IV_J225T  IVP4 - Stop IMS with a /CHE FREEZE
IV_J301J  JOB - List RECON data set
IV_J302J  JOB - Print an OLDS with DFDSS
IV_J303J  JOB - Print DC Monitor Reports
IV_J304J  JOB - Offline Formatted Dump utility
IV_J305J  JOB - Print Log Statistics
IV_J306J  JOB - Print Log Transaction Analysis
IV_J307J  JOB - Log Recovery utility - PSB Mode
IV_J308J  JOB - File Select and Print utility
IV_J309T  TASK - IPCS Dump Sample
IV_J401J  JOB - Scratch Data Sets

Steps Jx for Execution - IMS Sample Application

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Appendix B. IVP JOBs and TASKs  203
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<td>IV_L203J</td>
<td>JOB - Dump Data Base (DBBATCH)</td>
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<tr>
<td>IV_L206J</td>
<td>JOB - Dump Data Base using DFSDDLT0 (BMP)</td>
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Appendix C. IVP System Definitions

The IMS SYSDEF Stage 1 input streams appearing in this chapter are generated by the IVP Dialog. This chapter includes one sample for each of the following environments:

- DB batch
- DBCTL
- DB/DC
- DB/DC with XRF
- DCCTL

The samples are not members of SDFSISRC.

The following topics provide additional information:

- “DBB - DB Batch (Batch) Stage 1”
- “DBC - Database Control (DBCTL) Stage 1” on page 217
- “DBT - Database/Transaction Manager (DB/DC) Stage 1” on page 220
- “XRF - Database/Transaction Manager with Extended Recovery Facility (DB/DC with XRF) Stage 1” on page 225
- “DCC - Transaction Manager Control (DCCTL) Stage 1” on page 232

DBB - DB Batch (Batch) Stage 1

*  
***********************************************************************
*  IVP IMS 9.1  
*  SKELETON: DFSIXSC1  
*  FUNCTION: STAGE 1 SOURCE FOR A DBB SYSTEM  
***********************************************************************
*  **********************************************************************************@SCPYRT**
*  *  LICENSED MATERIALS - PROPERTY OF IBM  
*  *  "RESTRICTED MATERIALS OF IBM"  
*  *  5655-C56 (C) COPYRIGHT IBM CORP. 1989,2003  
*  *  ALL RIGHTS RESERVED.  
*  *  US GOVERNMENT USERS RESTRICTED RIGHTS -  
*  *  USE, DUPLICATION OR DISCLOSURE RESTRICTED BY  
*  *  GSA ADP SCHEDULE CONTRACT WITH IBM CORP.  
*  *  **********************************************************************************@ECPYRT**
*  *  IMCTRL MACRO --  
*  *  IMCTRL SYSTEM=(VS/2,(BATCH,DB/DC),390),  
*  X  IRLM=YES,  
X  IRLMN=IRLM,  
X  DBRC=(,YES),  
X  IMSID=IVPB  
*  *  IMCTF MACRO --  

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DBB Stage 1

* IMSCTF SVCNO=(,203,202), X
  LOG=SNGL, X
  PRDR=IVP9IRD1
**********************************************************************
* IVP DATABASES DEFINITION
**********************************************************************
DATABASE DBD=IVPDB1,ACCESS=UP
  HIDAM/OSAM
DATABASE INDEX,DBD=IVPDB1I,ACCESS=UP
  HIDAM/VSAM INDEX
DATABASE DBD=IVPDB2,ACCESS=UP
  HDAM/VSAM
**********************************************************************
* IVP BATCH/BMP APPLICATION DEFINITION
**********************************************************************
SPACE 2
  APPLCTN PSB=DFSIVP6,PGMTYPE=BATCH
  HIDAM/OSAM-ASSEM
SPACE 2
  APPLCTN PSB=DFSIVP61,PGMTYPE=BATCH
  HIDAM/OSAM-PASCAL
SPACE 2
  APPLCTN PSB=DFSIVP62,PGMTYPE=BATCH
  HIDAM/OSAM-C
SPACE 2
  APPLCTN PSB=DFSIVP64,PGMTYPE=BATCH
  HIDAM/OSAM-COBOL
SPACE 2
  APPLCTN PSB=DFSIVP65,PGMTYPE=BATCH
  HIDAM/OSAM-REXX
SPACE 2
  APPLCTN PSB=DFSIVP7,PGMTYPE=BATCH
  HDAM/VSAM
SPACE 2
  APPLCTN PSB=DFSIVP9,PGMTYPE=BATCH
  HIDAM/OSAM OLIC
SPACE 2
  APPLCTN PSB=DFSIVPA,PGMTYPE=BATCH
  HIDAM LOAD
SPACE 2
  APPLCTN PSB=DFSIVPB,PGMTYPE=BATCH
  HDAM LOAD
SPACE 2
**********************************************************************
* IMS SAMPLE DATABASES DEFINITION
**********************************************************************
SPACE 2
  DATABASE DBD=DI21PART,ACCESS=UP
    HISAM/VSAM
EJECT ,
**********************************************************************
* IMS SAMPLE APPLICATION DEFINITION - CICS IVP
**********************************************************************
SPACE 2
  APPLCTN PSB=DFHSAM04,PGMTYPE=BATCH
SPACE 2
  APPLCTN PSB=DFHSAM14,PGMTYPE=BATCH
SPACE 2
  APPLCTN PSB=DFHSAM24,PGMTYPE=BATCH
SPACE 2
  APPLCTN PSB=DFHSAM05,PGMTYPE=BATCH
SPACE 2
  APPLCTN PSB=DFHSAM15,PGMTYPE=BATCH
SPACE 2
  APPLCTN PSB=DFHSAM25,PGMTYPE=BATCH
EJECT ,
**********************************************************************
* IMS SAMPLE APPLICATION DEFINITION
**********************************************************************
SPACE 2
  APPLCTN PSB=DFSSAM01,PGMTYPE=BATCH
SPACE 2
  APPLCTN PSB=DFSSAM08,PGMTYPE=BATCH
SPACE 2
  APPLCTN PSB=DFSSAM09,PGMTYPE=BATCH
   GENERAL PURPOSE
SPACE 2
  *
  *
  IMSGEN MACRO --
  *
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**IMSGEN**

ASM=(HLASM,SYSLIN),ASMRT=OFF,  
LKPR=(XREF,LIST),LKSIE=(880K,63K),LKRGN=900K,  
SURVEY=YES,  
NODE=(IVPXE91,  
IVPSYS91,  
IVPDLB91),  
OBJDSET=IVPSYS91.OBJDSET,  
PROCLIB=YES,  
USERLIB=IVPDLB91.ADFSLOAD,  
UMACD=,  
MACSYS=SYS1.MACLIB,  
MODGEN=SYS1.MODGEN,  
UMAC1=,  
UMAC2=,  
UMAC3=,  
ONEJOB=(YES,YES),  
JCL=(IMSGEN,  
ACTINFO1,  
'PGMRNAME',H,  
(CLASS=A,MSGLEVEL=(1,1),REGION=64M)),  
SCL=(,,(TIME=600)),  
UJCL1=,  
UJCL2=,  
UJCL3=,  
UJCL4=,  
UJCL5=

**END**

*  

**DBC - Database Control (DBCTL) Stage 1**

*  

******************************************************************************

*  

**IVP IMS 9.1**

*  

**SKELETON: DFSIXSC1**

*  

**FUNCTION: STAGE 1 SOURCE FOR A DBC SYSTEM**

******************************************************************************

******************************************************************************@SCPYRT**

*  

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******************************************************************************@ECPYRT**

*  

**IMSCTRL MACRO --**

*  

**IMSCTRL**

SYSTEM=(VS/2,(ALL, DBCTL),390),  
IRLM=YES,  
IRLMNM=IRLM,  
CMDOCHAR=/,  
DBRC=(YES,YES),  
DBRCNM=IVP91RC3,  
DLINM=IVP91DL3,  
IMSID=IVP3,  
NAMECHK=(YES,S1),  
MAXREGN=(005,512K,A,A),

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DBC Stage 1

MCS=(2,7),
DESC=7,
MAXCLAS=016

* IMSCTF MACRO --

* IMSCTF SVCNO=(203,202),
  LOG=SNGL,
  CLOG=500000,
  RDS=(LGDK,4096),
  PROR=IVP91RD3

* FPCTRL MACRO --

* FPCTRL OTHREAD=5,
  BFALLOC=(10,50,2048)

* BUFPOOLS MACRO --

* BUFPOOLS PSB=24000,
  OMB=24000,
  SASPSB=(4000,20000),
  PSBW=12000

* SECURITY MACRO --

* SECURITY TYPE=(AGNEXIT),
  SECNT=2,
  PASSWD=YES,
  TRANCMD=YES

**********************************************************************

** IVP DATABASES DEFINITION**

DATABASE DBD=IVPDB1,ACCESS=UP  HIDAM/OSAM
DATABASE INDEX,DBD=IVPDB1I,ACCESS=UP  HIDAM/VSAM INDEX
DATABASE DBD=IVPDB2,ACCESS=UP  HDAM/VSAM
DATABASE DBD=IVPDB3,ACCESS=UP  DEDB

**********************************************************************

** IVP BATCH/BMP APPLICATION DEFINITION**

SPACE 2
APPLCTN PSB=DFSIVP6,PGMTYPE=BATCH  HIDAM/OSAM-ASSEM
SPACE 2
APPLCTN PSB=DFSIVP61,PGMTYPE=BATCH  HIDAM/OSAM-PASCAL
SPACE 2
APPLCTN PSB=DFSIVP62,PGMTYPE=BATCH  HIDAM/OSAM-C
SPACE 2
APPLCTN PSB=DFSIVP64,PGMTYPE=BATCH  HIDAM/OSAM-COBOL
SPACE 2
APPLCTN PSB=DFSIVP65,PGMTYPE=BATCH  HIDAM/OSAM-REXX
SPACE 2
APPLCTN PSB=DFSIVP7,PGMTYPE=BATCH  HDAM/VSAM
SPACE 2
APPLCTN PSB=DFSIVP9,PGMTYPE=BATCH  HIDAM/OSAM OLIC
SPACE 2
APPLCTN PSB=DFSIVPA,PGMTYPE=BATCH  HIDAM LOAD
SPACE 2
APPLCTN PSB=DFSIVPB,PGMTYPE=BATCH  HDAM LOAD
SPACE 2
APPLCTN PSB=DFSIVPB,PGMTYPE=BATCH  DEDB/VSAM
SPACE 2
APPLCTN PSB=DFSIVPC,PGMTYPE=BATCH  DEDB (DB LOAD)
SPACE 2

**********************************************************************

** IMS SAMPLE DATABASES DEFINITION**
**DBC Stage 1**

**DATABASE** DBD=DI21PART, ACCESS=UP  HISAM/VSAM

**APPLCTN** PSB=DFHSAM01,PGM=DFHSAM01
**APPLCTN** PSB=DFHSAM14,PGM=DFHSAM14
**APPLCTN** PSB=DFHSAM24,PGM=DFHSAM24
**APPLCTN** PSB=DFHSAM05,PGM=DFHSAM05
**APPLCTN** PSB=DFHSAM15,PGM=DFHSAM15
**APPLCTN** PSB=DFHSAM25,PGM=DFHSAM25

**APPLCTN** PSB=DFSSAM01,PGM=DFSSAM01
**APPLCTN** PSB=DFSSAM08,PGM=DFSSAM08
**APPLCTN** PSB=DFSSAM09,PGM=DFSSAM09

**GENERAL PURPOSE**

**IMSGEN MACRO --**

**IMSGEN** ASM=(HLASM,SYSLIN), ASMPRT=OFF,
**LKPRT=(XREF,LIST), LKSZ=(880K,63K), LKRG=900K,
**SUFFIX=I,
**SURVEY=YES,
**NODE=(IVPSEX91, IVPSEX91),
**OBJDSET=IVPSEX91.OBJDSET,
**PROC=IVPSEX91.ADFSLOAD,
**UMAC0=,
**MACSYS=SYS1.MACLIB,
**MODGEN=SYS1.MODGEN,
**UMAC1=,
**UMAC2=,
**UMAC3=,
**ONEJOB=(YES,YE),
**JCL=(IMSGEN,
**ACTINFO1,
**"PGMNAME","H,
**"CLASS=A,MSGLEVEL=(1,1),REGION=64M"),
**SCL=,((TIME=600),
**UJCL1=,
**UJCL2=,
**UJCL3=,
**UJCL4=,
**UJCL5=

**END**, 
DBT - Database/Transaction Manager (DB/DC) Stage 1

* *****************************************************
* IVP IMS 9.1
* * SKELETON: DFSIXSC1
* * FUNCTION: STAGE 1 SOURCE FOR A DBT SYSTEM
* *****************************************************
* *****************************************************
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* *****************************************************
* *****************************************************
* IMSCTRL MACRO --
* IMSCTRL SYSTEM=(VS/2,(ALL, DB/DC),390),
  IRLM=YES,
  IRLMNM=IRLM,
  CMDCHAR=,
  DBRC=(YES,YES),
  DBRCNM=IVP91RC1,
  DLINM=IVP91DL1,
  DCLWA=YES,
  IMSID=IVP1,
  NAMECHK=(YES,S1),
  MAXREGN=(005,512K,A,A),
  MCS=(2,7),
  DESC=7,
  ETOFEAT=(,,ALL),
  MAXCLAS=016
* IMSCTF MACRO --
* IMSCTF SVCNO=(203,202),
  LOG=SNGL,
  CPLOG=500000,
  RDS=(LGDK,4096),
  PRDR=IVP91RD1
* MSGQUEUE MACRO --
* MSGQUEUE DSETS=(LGDK, LGDK, LGDK),
  RECLNG=(336,3360),
  BUFFERS=(5,6720),
  SHUTDWN=100
* FPCTRL MACRO --
* FPCTRL OTHREAD=5,
  BFALLOC=(10,50,2048)
* BUFPOOLS MACRO --
* BUFPOOLS PSB=24000,
SASPSB=(4000,20000),
PSBW=12000,
DMB=24000,
FORMAT=(24000,256),
FRE=30

* SECURITY MACRO --
* SECURITY TYPE=(AGNEXIT,NORACTRM,NOTRANEX,NOSIGNEX),
  SECLVL=(NOTRAN,NOSIGN),
  TERMNL=YES,
  SECCNT=2,
  PASSWD=YES,
  TRANCMD=YES

**********************************************************************
* IVP DATABASES DEFINITION
**********************************************************************
DATABASE DBD=IVPDB1,ACCESS=UP
DATABASE INDEX,DBD=IVPDB1I,ACCESS=UP
DATABASE DBD=IVPDB2,ACCESS=UP
DATABASE DBD=IVPDB3,ACCESS=UP
DATABASE DBD=IVPDB4

**********************************************************************
* IVP BATCH/BMP APPLICATION DEFINITION
**********************************************************************
SPACE 2
APPLCTN PSB=DFSIVP6,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVP61,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVP62,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVP64,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVP65,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVP7,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVP9,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVPA,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVPB,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVPB,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSIVPC,PGMTYPE=BATCH
SPACE 2

**********************************************************************
* IVP NON-CONVERSATIONAL APPLICATIONS DEFINITION FOR DB/DC
**********************************************************************
SPACE 2
APPLCTN PSB=DFSIVP1,PGMTYPE=TP
TRANSACT CODE=IVTN0,MODE=SNGL,
  MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2
APPLCTN PSB=DFSIVP2,PGMTYPE=TP
TRANSACT CODE=IVTNV,MODE=SNGL,
  MSGTYPE=(SNGLSEG,NONRESPONSE,1)

**********************************************************************
* IVP CONVERSATIONAL APPLICATION DEFINITION FOR DB/DC
**********************************************************************
SPACE 2
APPLCTN PSB=DFSIVP3,PGMTYPE=TP
TRANSACT CODE=IVTCV,SPA=(80,),MODE=SNGL,
DBT Stage 1

**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**
**APPLCTN PSB=DFSIVP31, PGMTYPE=TP**
**TRANSACTION CODE=IVTCP, SPA=(80,), MODE=SNGL,**
**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**
**APPLCTN PSB=DFSIVP32, PGMTYPE=TP**
**TRANSACTION CODE=IVTCC, SPA=(80,), MODE=SNGL,**
**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**
**APPLCTN PSB=DFSIVP33, PGMTYPE=TP**
**TRANSACTION CODE=IVTCI, SPA=(80,), MODE=SNGL,**
**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**
**APPLCTN PSB=DFSIVP34, PGMTYPE=TP**
**TRANSACTION CODE=IVTCB, SPA=(80,), MODE=SNGL,**
**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**
**APPLCTN PSB=DFSIVP35, PGMTYPE=TP**
**TRANSACTION CODE=IVTCJ, SPA=(80,), MODE=SNGL,**
**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**
**SPACE 2**
**APPLCTN PSB=DFSIVP37, PGMTYPE=TP**
**TRANSACTION CODE=IVTCM, SPA=(80,), MODE=SNGL,**
**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**

**********************************************************************
* IVP DEBB AND MSDB APPLICATION DEFINITIONS FOR DB/DC
**********************************************************************

**SPACE 2**
**APPLCTN RESIDENT, PSB=DFSIVP4, FPATH=256**
**TRANSACTION CODE=IVTFD, MODE=SNGL,**
**MSGTYPE=(SNGLSEG, RESPONSE, 1)**

**********************************************************************
* IVP APPLICATIONS DEFINITION FOR DB/DC, DCCTL
**********************************************************************

**SPACE 2**
**APPLCTN GPSB=IVPREXX, PGMTYPE=TP, LANG=ASSEM**
**REXX TDLI SAMPLE**
**TRANSACTION CODE=IVPREXX, MODE=SNGL,**
**MSGTYPE=(SNGLSEG, NONRESPONSE, 1)**

**********************************************************************
* IMS SAMPLE DATABASES DEFINITION
**********************************************************************

**SPACE 2**
**DATABASE DBD=DI21PART, ACCESS=UP**
**HISAM/VSAM EJECT**

**********************************************************************
* IMS SAMPLE APPLICATION DEFINITION - CICS IVP
**********************************************************************

**SPACE 2**
**APPLCTN PSB=DFHSAM04, PGMTYPE=BATCH**
**SPACE 2**
**APPLCTN PSB=DFHSAM14, PGMTYPE=BATCH**
**SPACE 2**
**APPLCTN PSB=DFHSAM24, PGMTYPE=BATCH**
**SPACE 2**
**APPLCTN PSB=DFHSAM05, PGMTYPE=BATCH**
**SPACE 2**
**APPLCTN PSB=DFHSAM15, PGMTYPE=BATCH**
**SPACE 2**
**APPLCTN PSB=DFHSAM25, PGMTYPE=BATCH**
**EJECT**

**********************************************************************
* IMS SAMPLE APPLICATION DEFINITION
**********************************************************************

**SPACE 2**
**APPLCTN PSB=DFSSAM01, PGMTYPE=BATCH**
**SPACE 2**
SPACE 2
APPLCTN PSB=DFSSAM02
TRANSACT CODE=PART,PRTY=(7,10,2),INQUIRY=YES,MODE=SNGL
SPACE 2
APPLCTN PSB=DFSSAM03
TRANSACT CODE=DSPINV,PRTY=(7,10,2),INQUIRY=YES,MODE=SNGL
SPACE 2
APPLCTN PSB=DFSSAM04
TRANSACT CODE=ADDPART,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
TRANSACT CODE=ADDINV,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
TRANSACT CODE=DELETEPRT,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
TRANSACT CODE=DELETINV,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
SPACE 2
APPLCTN PSB=DFSSAM05
TRANSACT CODE=CLOSE,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
SPACE 2
APPLCTN PSB=DFSSAM06
TRANSACT CODE=DISBURSE,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
SPACE 2
APPLCTN PSB=DFSSAM07
TRANSACT CODE=DSUPALLI,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
SPACE 2
APPLCTN PSB=DFSSAM08,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSSAM09,PGMTYPE=BATCH

GENERAL PURPOSE

**********************************************************************
*
* FAST PATH SAMPLE DATABASES DEFINITION
**********************************************************************
* DATABASE DBD=DBFSAM01 GENERAL LEDGER - MSDB
DATABASE DBD=DBFSAM02 TELLER - MSDB
DATABASE DBD=DBFSAM03,ACCESS=UP CUSTOMER ACCT - DEDB
DATABASE DBD=DBFSAM04,ACCESS=UP CUSTOMER LOAN - HDAM/VSAM
EJECT ,
**********************************************************************
*
* FAST PATH SAMPLE APPLICATION DEFINITION
**********************************************************************
* APPLCTN PSB=DBFSAMP1,PGMTYPE=BATCH
* DEDB LOAD
SPACE 2
APPLCTN PSB=DBFSAMP3,PGMTYPE=(TP),FPATH=256
TRANSACT CODE=FPSAMP1,MSGTYPE=(SNGLSEG,RESPONSE)
SPACE 2
APPLCTN PSB=DBFSAMP4
TRANSACT CODE=FPSAMP2,MODE=SNGL
SPACE 2
APPLCTN PSB=DBFSAMP6,PGMTYPE=BATCH
SHAPE 2
APPLCTN PSB=DBFSAMP7,PGMTYPE=BATCH
HDAM LOAD
SPACE 2
APPLCTN PSB=DBFSAMP5,PGMTYPE=BATCH
HDAM MISC.
SPACE 2
**********************************************************************
* IVP COMMUNICATIONS NETWORK DEFINITION
**********************************************************************
* THE IVP SYSTEMS
* MAKE USE OF 5 TERMINALS --
* MASTER CONSOLE - IMS LTERM NAME = WTOR
* IMS MASTER CONSOLE - IMS LTERM NAME = PMASTER
* IMS SECONDARY MASTER - IMS LTERM NAME = SMASTER
*
IMS USER TERMINALS - IMS LTERM NAME = USER1
IMS USER TERMINALS - IMS LTERM NAME = USER2

* THE MASTER TERMINAL IS DEFINED AUTOMATICALLY.
* THE SECONDARY MASTER IS DEFINED AS A PRINTER LINE GROUP. (A SPOOL
  LINE GROUP IS ALSO AVAILABLE FOR USE AS A SECONDARY MASTER)
* THE USER MUST MAKE A CHOICE IN THE DEFINITION OF THE OTHER
  TERMINALS. THIS SAMPLE STAGE 1 SOURCE DECK INCLUDES SAMPLE
  TERMINAL DEFINITIONS FOR THE FOLLOWING TERMINAL TYPE --

  VTAM 3270 LOCAL

* THE IVP IS NOT DEPENDENT UPON NODE (LINE/PTERM) NAMES.
* LTERM NAMES AND TRANSACTION CODES ARE USED TO ESTABLISH TERMINAL
  SECURITY.
* THE USER MUST ENSURE THAT THE SELECTED TERMINALS ARE PROPERLY
  DEFINED TO VTAM AND .
* THE MESSAGE FORMAT SERVICES USED BY THE IVP TRANSACTIONS ARE
  DEFINED FOR A DEVICE TYPE OF 3270-A02 (A 24X80 SCREEN SIZE).
  IF THE TERMINALS WHICH ARE SELECTED SPECIFY A DIFFERENT TYPE,
  THEN THE MFS SOURCE WILL HAVE TO BE CHANGED.

**********************************************************************
**   SPACE 2
**   COMM MACRO --
**   THE APPLID OPERAND SPECIFIES VTAM APPLID FOR THE IMS CONTROL
**   REGION.
**   THE PASSWD OPERAND SPECIFIES APPLICATION PASSWORDS.
**   THESE OPERANDS MUST MATCH THE APPLICATION IDENTIFICATION
**   SPECIFIED IN THE VTAM ACB(S) FOR THESE IMS DB/DC
**   SYSTEMS.
COMM RECANY=(5,4095), X
  APPLID=IVP91CR1, X
  PASSWD=IVP91CR1, X
  OPTIONS=(PAGING,TIMESTAMP,MFSTEST,FMTMAST, X
  NOUSEMSG,NOMSPEX,NOMSLEX, X
  VTAMAUTH,BLKREQD), X
  COPYLOG=ALL
EJECT ,
**********************************************************************
**   IVP PRINTER LINE GROUP
**********************************************************************
LINEGRP DDNAME=IVPPRT1,UNITYPE=PRINTER
LINE ADDR=000
TERMINAL NAME (SMASTER,SECONDARY)
  NAME IVPPRT1
EJECT ,
**********************************************************************
**   IVP SPOOL LINE GROUP
**********************************************************************
LINEGRP DDNAME=(IVPSPL1,IVPSPL2,IVPSPL3),UNITYPE=SPOOL
LINE BUFSIZE=166
SPOOL001 TERMINAL FEAT=AUTOSCH
  NAME IVPSPL1
EJECT ,
**********************************************************************
**   IVP VTAM DEFINITIONS
**********************************************************************
**********************************************************************
**   SPACE 2
**********************************************************************

DBT Stage 1
**XRF - Database/Transaction Manager with Extended Recovery Facility**

(DB/DC with XRF) Stage 1

* ****************************
* IVP IMS 9.1
* * SKELETON: DFSIXSC1
* * FUNCTION: STAGE 1 SOURCE FOR A XRF SYSTEM
* ****************************

* ****************************@SCPYRT**
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Appendix C. IVP System Definitions 225
XRF Stage 1

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* *
**********************************************************************
* IMSCtrl MACRO -- *
* IMSCTRL SYSTEM=(VS/2,(ALL,DB/DC),390),
  IRLM=YES,
  IRLMNM=IRLM,
  CMDCHAR=,
  DBRC=(YES,YEs),
  DBRCNM=IVP91RC1,
  DLINM=IVP91DL1,
  DCLWA=YES,
  IMSID=IVP1,
  NAMECHK=(YES,S1),
  MAXREGN=(005,512K,A,A),
  MCS=(2,7),
  DESC=7,
  HSB=YES,
  ETOFEAT=,,ALL),
  MAXCLAS=016
* *
* IMSCTF MACRO -- *
* IMSCTF SVCNO=(,203,202),
  LOG=SNGL,
  CPLOG=50000,0,
  RDS=(LGDK,4096),
  PRDR=IVP91RD1
* *
* MSGQUEUE MACRO -- *
* MSGQUEUE DSETS=(LGDK,LGDK,LGDK),
  RECLNG=(336,3360),
  BUFFERS=(5,6720),
  SHUTDWN=100
* *
* FPCTRL MACRO -- *
* FPCTRL OTHREAD=5,
  BFALLOC=(10,50,2048)
* *
* BUFPOOLS MACRO -- *
* BUFPOOLS PSB=24000,
  SASPSB=(4000,20000),
  PSBW=12000,
  DMB=24000,
  FORMAT=(24000,256),
  FRE=30
* *
* SECURITY MACRO -- *
* SECURITY TYPE=(AGNEXIT,NORACTRM,NOTRANEX,NOSIGNEX),
  SECLVL=(NOTRAN,NOSIGN),
  TERMNL=YES,
  SECCNT=2,
  PASSWD=YES,
  TRANCMD=YES
**********************************************************************
* IVP DATABASES DEFINITION

**********************************************************************

DATABASE  DBD=IVPDB1,ACCESS=UP   HIDAM/OSAM
DATABASE  INDEX, DBD=IVPDB1I,ACCESS=UP   HIDAM/VSAM INDEX
DATABASE  DBD=IVPDB2,ACCESS=UP   HDAM/VSAM
DATABASE  DBD=IVPDB3,ACCESS=UP   DEDB
DATABASE  DBD=IVPDB4   MSDB

**********************************************************************

* IVP BATCH/BMP APPLICATION DEFINITION

**********************************************************************

SPACE 2
APPLCTN PSB=DFSIVP6,PGMTYPE=BATCH   HIDAM/OSAM-ASSEM
SPACE 2
APPLCTN PSB=DFSIVP61,PGMTYPE=BATCH   HIDAM/OSAM-PASCAL
SPACE 2
APPLCTN PSB=DFSIVP62,PGMTYPE=BATCH   HIDAM/OSAM-C
SPACE 2
APPLCTN PSB=DFSIVP64,PGMTYPE=BATCH   HIDAM/OSAM-COBOL
SPACE 2
APPLCTN PSB=DFSIVP65,PGMTYPE=BATCH   HIDAM/OSAM-REXX
SPACE 2
APPLCTN PSB=DFSIVP7,PGMTYPE=BATCH   HDAM/VSAM
SPACE 2
APPLCTN PSB=DFSIVP9,PGMTYPE=BATCH   HIDAM/OSAM OLIC
SPACE 2
APPLCTN PSB=DFSIVPA,PGMTYPE=BATCH   HDAM LOAD
SPACE 2
APPLCTN PSB=DFSIVPB,PGMTYPE=BATCH   HDAM LOAD
SPACE 2
APPLCTN PSB=DFSIVPB,PGMTYPE=BATCH   DEDB/VSAM
SPACE 2
APPLCTN PSB=DFSIVPC,PGMTYPE=BATCH   DEDB (DB LOAD)
SPACE 2

**********************************************************************

* IVP NON-CONVERSATIONAL APPLICATIONS DEFINITION FOR DB/DC

**********************************************************************

SPACE 2
APPLCTN PSB=DFSIVP1,PGMTYPE=TP   HIDAM/OSAM
   TRANSACT CODE=IVTNQ,MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2
APPLCTN PSB=DFSIVP2,PGMTYPE=TP   HDAM/VSAM
   TRANSACT CODE=IVTNV,MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2

**********************************************************************

* IVP CONVERSATIONAL APPLICATION DEFINITION FOR DB/DC

**********************************************************************

SPACE 2
APPLCTN PSB=DFSIVP3,PGMTYPE=TP   HDAM/VSAM-ASSEM
   TRANSACT CODE=IVTCV,SPA=(80,),MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2
APPLCTN PSB=DFSIVP31,PGMTYPE=TP   HDAM/VSAM-PASCAL
   TRANSACT CODE=IVTCP,SPA=(80,),MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2
APPLCTN PSB=DFSIVP32,PGMTYPE=TP   HDAM/VSAM-C
   TRANSACT CODE=IVTCV,SPA=(80,),MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2
APPLCTN PSB=DFSIVP33,PGMTYPE=TP   HDAM/VSAM-JAVA
   TRANSACT CODE=IVTCV,SPA=(80,),MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2
APPLCTN PSB=DFSIVP34,PGMTYPE=TP   HDAM/VSAM-COBOL
   TRANSACT CODE=IVTCV,SPA=(80,),MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
SPACE 2
APPLCTN PSB=DFSIVP35,PGMTYPE=TP   HDAM/VSAM-REXX
   TRANSACT CODE=IVTCV,SPA=(80,),MODE=SNGL,
   MSGTYPE=(SNGLSEG,NONRESPONSE,1)
IVP DECB AND MSDB APPLICATION DEFINITIONS FOR DB/DC

APPLCTN RESIDENT,PSB=DFSIVP4,FPATH=256 DEDB
TRANSACTION CODE=IVTFD,MODE=SNGL,
MSGTYPE=(SNGLSEG,RESPONSE,1)

APPLCTN RESIDENT,PSB=DFSIVP5,FPATH=256 MSDB
TRANSACTION CODE=IVTFM,MODE=SNGL,
MSGTYPE=(SNGLSEG,RESPONSE,1)

IVP APPLICATIONS DEFINITION FOR DB/DC, DCTL

APPLCTN GPSB=IVPREXX,PGMTYPE=TP,LANG=ASSEM
REXX TDLI SAMPLE
TRANSACTION CODE=IVPREXX,MODE=SNGL,
MSGTYPE=(SNGLSEG,NONRESPONSE,1)

IMS SAMPLE DATABASES DEFINITION

DATABASE DBD=DI21PART,ACCESS=UP
HISAM/VSAM EJECT,

IMS SAMPLE APPLICATION DEFINITION - CICS IVP

APPLCTN PSB=DFHSAM04,PGMTYPE=BATCH
APPLCTN PSB=DFHSAM14,PGMTYPE=BATCH
APPLCTN PSB=DFHSAM24,PGMTYPE=BATCH
APPLCTN PSB=DFHSAM05,PGMTYPE=BATCH
APPLCTN PSB=DFHSAM15,PGMTYPE=BATCH
APPLCTN PSB=DFHSAM25,PGMTYPE=BATCH
EJECT,

IMS SAMPLE APPLICATION DEFINITION

APPLCTN PSB=DFSSAM01,PGMTYPE=BATCH
APPLCTN PSB=DFSSAM02
TRANSACTION CODE=PART,PRTY=(7,10,2),INQUIRY=YES,MODE=SNGL
APPLCTN PSB=DFSSAM03
TRANSACTION CODE=DSPIV,PRTY=(7,10,2),INQUIRY=YES,MODE=SNGL
APPLCTN PSB=DFSSAM04
TRANSACTION CODE=ADDPART,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
TRANSACTION CODE=ADDINV,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
TRANSACTION CODE=DLETPART,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
TRANSACTION CODE=DLETINV,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
APPLCTN PSB=DFSSAM05
TRANSACTION CODE=CLOSE,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
APPLCTN PSB=DFSSAM06
TRANSACTION CODE=DISBURSE,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
APPLCTN PSB=DFSSAM07
TRANSACT CODE=DSPALL1,PRTY=(7,10,2),INQUIRY=NO,MODE=SNGL
SPACE 2
APPLCTN PSB=DFSSAM08,PGMTYPE=BATCH
SPACE 2
APPLCTN PSB=DFSSAM09,PGMTYPE=BATCH GENERAL PURPOSE
SPACE 2

**********************************************************************
* FAST PATH SAMPLE DATABASES DEFINITION
**********************************************************************
SPACE 2
DATABASE DBD=DBFSAMD1 GENERAL LEDGER - MSDB
DATABASE DBD=DBFSAMD2 TELLER - MSDB
DATABASE DBD=DBFSAMD3,ACCESS=UP CUSTOMER ACNT - DEDB
DATABASE DBD=DBFSAMD4,ACCESS=UP CUSTOMER LOAN - HDAM/VSAM EJECT,
**********************************************************************
* FAST PATH SAMPLE APPLICATION DEFINITION
**********************************************************************
SPACE 2
APPLCTN PSB=DBFSAMP1,PGMTYPE=BATCH DEDB LOAD
SPACE 2
APPLCTN PSB=DBFSAMP3,PGMTYPE=(TP),FPATH=256
TRANSACT CODE=FPSAMP1,MSGTYPE=(SNGLSEG,RESPONSE)
SPACE 2
APPLCTN PSB=DBFSAMP4
TRANSACT CODE=FPSAMP2,MODE=SNGL
SPACE 2
APPLCTN PSB=DBFSAMP6,PGMTYPE=BATCH DEDB MISC.
SPACE 2
APPLCTN PSB=DBFSAMP2,PGMTYPE=BATCH HDAM LOAD
SPACE 2
APPLCTN PSB=DBFSAMP5,PGMTYPE=BATCH HDAM MISC.
SPACE 2

**********************************************************************
* IVP COMMUNICATIONS NETWORK DEFINITION
**********************************************************************
SPACE 2

* THE IVP SYSTEMS
* MAKE USE OF 5 TERMINALS --
* MASTER CONSOLE - IMS LTERM NAME = WTOR
* IMS MASTER CONSOLE - IMS LTERM NAME = PMASTER
* IMS SECONDARY MASTER - IMS LTERM NAME = SMASTER
* IMS USER TERMINALS - IMS LTERM NAME = USER1
* IMS USER TERMINALS - IMS LTERM NAME = USER2
* THE IMS DB/DC SYSTEM WITH XRF ADDS ONE MORE TERMINAL --
* XRF ISC LINK - IMS LTERM NAME = ISC4XRF
* THE XRF SURVEILLANCE ISC DEFINITION REQUIRES A PAIR OF NODE NAMES
* WHICH MATCH THE VTAM APPLID'S SPECIFIED ON THE COMM MACRO
* FOR THE ACTIVE AND ALTERNATE SYSTEMS. THE IMS PRIMARY MASTER
* TERMINAL DEFINITION IDENTIFIES TWO TERMINALS (ACTIVE AND
* ALTERNATE SYSTEM PRIMARY MASTER TERMINALS).
* THE MASTER TERMINAL IS DEFINED AUTOMATICALLY.
* THE SECONDARY MASTER IS DEFINED AS A PRINTER LINE GROUP. (A SPOOL
* LINE GROUP IS ALSO AVAILABLE FOR USE AS A SECONDARY MASTER)
* THE USER MUST MAKE A CHOICE IN THE DEFINITION OF THE OTHER
**TERMINALS.** This sample stage 1 source deck includes sample terminal definitions for the following terminal type --

- VTAM 3270 local

- The IVP is not dependent upon node (line/pterm) names.

- LTERM names and transaction codes are used to establish terminal security.

- The user must ensure that the selected terminals are properly defined to VTAM and.

- The message format services used by the IVP transactions are defined for a device type of 3270-A02 (a 24x80 screen size).

- If the terminals which are selected specify a different type, then the MFS source will have to be changed.

**************************************************************************************

**SPACE 2**

**COMM MACRO --**

- The APPLID operand specifies VTAM APPLID for the IMS control region.

- The PASSWD operand specifies application passwords.

- These operands must match the application identification specified in the VTAM ACB(s) for these IMS DB/DC systems.

- In an XRF environment, APPLID'S and PASSWORD'S are specified for both the active and alternate systems.

```
COMM RECANY=(5,4095),
APPLID=(IVP91CR1,IVP91CR2),
PASSWD=(IVP91CR1,IVP91CR2),
OPTIONS=(PAGING,TIMESTAMP,MFSSTEST,FMTMAST,
NOUSEMSG,NOMSPEX,NOMSLEX,
VTAMAUTH,BLKREQD),
COPYLOG=ALL
```

EJECT,

**************************************************************************************

**IVP PRINTER LINE GROUP**

**************************************************************************************

```
LINEGRP DDNAME=IVPPRT1,UNITYPE=PRINTER
LINE ADDR=000
TERMINAL NAME (SMASTER,SECONDARY)
NAME IVP9PRT1
```

EJECT,

**************************************************************************************

**IVP SPOOL LINE GROUP**

**************************************************************************************

```
LINEGRP DDNAME=(IVP8PL1,IVP8PL2,IVP8PL3),UNITYPE=SPOOL
LINE BUFSIZE=166
SPOOL001 TERMINAL FEAT=AUTOSCH
NAME IVP8PL1
```

EJECT,

**************************************************************************************

**IVP VTAM DEFINITIONS**

**************************************************************************************

**SPACE 2**

**IVP 3270 LOCAL - VTAM**

**************************************************************************************

```
SPACE 2
TYPE UNITYPE=(3270,LOCAL),TYPE=3270-A02,SIZE=(24,80)
TERMINAL NAME=(PMASTER1,PMASTER2)
NAME (PMASTER,MASTER)
```
**SPACE 2**

```plaintext
TERMINAL NAME=USER1,OPTIONS=(TRANRESP,NOCOPY)
   NAME USER1
   NAME HOWARD
   USED BY THE IMS SAMPLE APPLICATION

TERMINAL NAME=USER2,OPTIONS=(TRANRESP,NOCOPY)
   NAME USER2
```

**SPACE 2**

********************************************************************************
* IVP LU6 - VTAM
********************************************************************************

**SPACE 2**

* * *

**LU6 (ISC) DEFINITION --**

* THE FOLLOWING ISC LINK IS USED BY XRF AS A SURVEILLANCE LINK BETWEEN THE ACTIVE AND ALTERNATE SYSTEMS.
* THE NAME= OPERAND ON THE TERMINAL MACRO SPECIFIES THE VTAM APPLID'S OF THE ACTIVE AND ALTERNATE SYSTEMS. THESE NAMES MUST MATCH THE NAMES SPECIFIED ON THE COMM MACRO, ABOVE.

* TYPE UNITYPE=LUTYPE6,
   OPTIONS=(TRANRESP,OPNDST,NOMTOMSG,NLTWA,FORCSESS),
   MSGDEL=SYSINFO,
   SESSION=1,
   OUTBUF=256,
   SEGSIZE=256
   TERMINAL NAME=(IVP91CR1,IVP91CR2),
   COMPT1=(SINGLE1,VLVB)
   NAME ISC4XRF,COMPT=1,ICOMPT=1
* *

**IMSGEN MACRO --**

* IMSGEN ASM=(HLASM,SYSLIN),ASMPRT=OFF,
   LKPRT=(XREF,LIST),LKSIZEx=880K, LKRGN=900K,
   SURVEY=YES,
   NODE=(IVPXE91,
         IVPDLE91),
   OBJDSET=IVP91.JOBSET,
   PROCLIB=SYS1.PROCLIB,
   USERLIB=SYS1.USERLIB,
   UMACG=,
   MACSYS=SYS1.MACLIB,
   MODGEN=SYS1.MODGEN,
   UMAC1=,
   UMAC2=,
   UMAC3=,
   UMAC4=,
   ONEJOB=(YES,YES),
   JCL=(IMSGEN,
        'PGMNAME'=
         (CLASS=A,MSGLEVEL=(1,1),REGION=64M)),
   SCL=({,,(TIME=600))},
   UJCL1=,
   UJCL2=,
   UJCL3=,
   UJCL4=,
   UJCL5=  
END  

**XRF Stage 1**
DCC Stage 1

DCC - Transaction Manager Control (DCCTL) Stage 1

* ***********************************************************************
* IVP IMS 9.1
* ************************************************************************* 
* FUNCTION: STAGE 1 SOURCE FOR A DCC SYSTEM
* ************************************************************************* 
* ************************************************************************* 
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* ************************************************************************* 
* IMSCTRL MACRO -- 
* IMSCTRL SYSTEM=(VS/2,(ALL,DCCTL),390), X DBRC=(YES,YES), X DBRCNM=IVP91RC4, X DLCW=YES, X IMSID=IVP4, X NAMECHK=(YES,S1), X MAXREGN=(005,512K,A,A), X MCS=(2,7), X DESC=7, X ETOFEAT=(,,ALL), X MAXCLAS=016
* ************************************************************************* 
* IMSCTF MACRO -- 
* IMSCTF SVCNO=(203,202), X LOG=SNGL, X CPLOG=500000, X RDS=(LGDK,4096), X PRDR=IVP91RD4
* ************************************************************************* 
* MSGQUEUE MACRO -- 
* MSGQUEUE DSETS=(LGDK,LGDK,LGDK), X RECLNG=(336,3360), X BUFFERS=(5,6720), X SHUTDNW=100
* ************************************************************************* 
* FPCTRL MACRO -- 
* ************************************************************************* 
* BUFPOOLS MACRO -- 
* BUFPOOLS PSB=24000, X PSBW=12000, X FORMAT=(24000,256), X FRE=30
* ************************************************************************* 
* SECURITY MACRO -- 

232 Installation Volume 1: Installation Verification
SECURITY TYPE=(AGNEXIT, NORACTRM, NOTRANEX, NOSIGNEX),
SECLVL=(NOTRAN, NOSIGN),
TERMNL=YES,
SECCNT=2,
PASSWD=YES,
TRANCMD=YES

**********************************************************************

**IVP APPLICATIONS DEFINITION FOR DCCTL**

**********************************************************************

SPACE 2
APPLCTN PSB=DFSIVPD, PGMTYPE=BATCH
TRANSACTION CODE=IVTC1, MODE=SGNL,
MSGTYPE=(SNGLSEG, NONRESPONSE, 1), WFI

SPACE 2
APPLCTN PSB=DFSIVPE, PGMTYPE=TP, NON-CONV MPP
TRANSACTION CODE=IVTC2, MODE=SGNL,
MSGTYPE=(SNGLSEG, NONRESPONSE, 1)

SPACE 2
APPLCTN PSB=DFSIVPF, PGMTYPE=TP, CONV MPP
TRANSACTION CODE=IVTC3, SPA=(80,), MODE=SGNL,
MSGTYPE=(SNGLSEG, RESPONSE, 1)

SPACE 2
APPLCTN PSB=DFSIVPG, PGMTYPE=TP, FPATH=256
TRANSACTION CODE=IVTC4, MODE=SGNL,
MSGTYPE=(SNGLSEG, RESPONSE, 1)

**********************************************************************

**IVP APPLICATIONS DEFINITION FOR DB/DC, DCCTL**

**********************************************************************

SPACE 2
APPLCTN GPSB=IVPREXX, PGMTYPE=TP, LANG=ASSEM REXX TDLI SAMPLE
TRANSACTION CODE=IVPREXX, MODE=SGNL,
MSGTYPE=(SNGLSEG, NONRESPONSE, 1)

**********************************************************************

**IVP COMMUNICATIONS NETWORK DEFINITION**

**********************************************************************

SPACE 2

* THE IVP SYSTEMS
* MAKE USE OF 5 TERMINALS --

* MASTER CONSOLE - IMS LTERM NAME = WTOR
* IMS MASTER CONSOLE - IMS LTERM NAME = PMASTER
* IMS SECONDARY MASTER - IMS LTERM NAME = SMASTER
* IMS USER TERMINALS - IMS LTERM NAME = USER1
* IMS USER TERMINALS - IMS LTERM NAME = USER2

* THE MASTER TERMINAL IS DEFINED AUTOMATICALLY.
* THE SECONDARY MASTER IS DEFINED AS A PRINTER LINE GROUP. (A SPOOL LINE GROUP IS ALSO AVAILABLE FOR USE AS A SECONDARY MASTER)
* THE USER MUST MAKE A CHOICE IN THE DEFINITION OF THE OTHER TERMINALS. THIS SAMPLE STAGE 1 SOURCE DECK INCLUDES SAMPLE TERMINAL DEFINITIONS FOR THE FOLLOWING TERMINAL TYPE --
* VTAM 3270 LOCAL
* THE IVP IS NOT DEPENDENT UPON NODE (LINE/PTERM) NAMES.
LTERM NAMES AND TRANSACTION CODES ARE USED TO ESTABLISH TERMINAL SECURITY.

THE USER MUST ENSURE THAT THE SELECTED TERMINALS ARE PROPERLY DEFINED TO VTAM.

THE MESSAGE FORMAT SERVICES USED BY THE IVP TRANSACTIONS ARE DEFINED FOR A DEVICE TYPE OF 3270-A02 (A 24X80 SCREEN SIZE). IF THE TERMINALS WHICH ARE SELECTED SPECIFY A DIFFERENT TYPE, THEN THE MFS SOURCE WILL HAVE TO BE CHANGED.

**********************************************************************

SPACE 2

COMM MACRO --
THE APPLID OPERAND SPECIFIES VTAM APPLID FOR THE IMS CONTROL REGION.
The PASSWD OPERAND SPECIFIES APPLICATION PASSWORDS.
THESE OPERANDS MUST MATCH THE APPLICATION IDENTIFICATION SPECIFIED IN THE VTAM ACB(S) FOR THESE IMS DB/DC SYSTEMS.

COMM RECVAC=(5,4096), X
   APPLID=IVP1CR4, X
   PASSWD=IVP1CR4, X
   OPTIONS=(PAGING,TIMESTAMP,MFSTEST,FMTMAST, X
            NOUSEMSG,NOMSPEX,NOMSLEX, X
            VTAMAUTH,BLKREQD), X
   COPYLOG=ALL EJECT ,

**********************************************************************

** IVP PRINTER LINE GROUP
**********************************************************************

LINEGRP DDNAME=IVPPRT1,UNITYPE=PRINTER
LINE  ADDR=000
TERMINAL NAME (SMASTER,SECONDARY)
     NAME  IVPPRT1
    EJECT ,

**********************************************************************

** IVP SPOOL LINE GROUP
**********************************************************************

LINEGRP DDNAME=(IVPSPL1,IVPSPL2,IVPSPL3),UNITYPE=SPOOL
LINE    BUFSIZE=166
SPOOL001 TERMINAL FEAT=AUTOSCH
     NAME  IVPSPL1
    EJECT ,

**********************************************************************

** IVP VTAM DEFINITIONS
**********************************************************************

SPACE 2
**********************************************************************

** IVP 3270 LOCAL - VTAM
**********************************************************************

SPACE 2

TYPE  UNITYPE=(3270,LOCAL),TYPE=3270-A02,SIZE=(24,80)
TERMINAL NAME=PMASTER4
     NAME  (PMASTER,MASTER)
SPACE 2
TERMINAL NAME=USER1,OPTIONS=(TRANRESP,NOCOPY)
     NAME  USER1
     NAME  HOWARD  USED BY THE IMS SAMPLE APPLICATION
SPACE 2
TERMINAL NAME=USER2,OPTIONS=(TRANRESP,NOCOPY)
     NAME  USER2
SPACE 2

* ** IMSGEN MACRO --
* IMSGEN ASM=(HLASM,SYSLIN),ASMPRT=OFF, X
  LKPR=(XREF,LK),LKSIZ=(880K,63K),LKRGN=900K, X
  SUFFIX=I, X
  SURVEY=YES, X
  NODE=(IVPEX91, X
  IVPSYS91, X
  IVPDLB91), X
  OBJDSET=IVPSYS91.OBJDSET, X
  PROCLIB=YES, X
  USERLIB=IVPDLB91.ADFSLOAD, X
  UMACO=, X
  MACSYS=SYS1.MACLIB, X
  MODGEN=SYS1.MODGEN, X
  UMAC1=, X
  UMAC2=, X
  UMAC3=, X
  ONEJOB=(YES,YE5), X
  JCL=(IMSGEN, X
  ACTINFO1, X
  'PGMRNAME',H, X
  (CLASS=A,MSGLEVEL=(1,1),REGION=64M)), X
  SCL={,,(TIME=600)), X
  UJCL1=, X
  UJCL2=, X
  UJCL3=, X
  UJCL4=, X
  UJCL5=

  END,
DCC Stage 1
Appendix D. SMP/E Assemble and Bind of a Sample Exit Routine

The following example demonstrates a technique that you can use to have SMP/E assemble and bind one of the sample exit routines.

```plaintext
++ USERMOD (XYZUMOD) .
++ VER (P115)
   FMID(HMK8800) .
++ JCLIN.
//INJCLIN JOB . .
//LKED EXEC PGM=IEWL,
 //   PARM='(SIZE=(880K,64K),RENT,REFR,NCAL,LET,XREF,LIST)
//ADFSLOAD DD DSN=IMS.ADFSLOAD,DISP=SHR
//SYSPUNCH DD DSN=IMS.OBJDSET,DISP=SHR
//SYSUT1 DD UNIT=(SYSDA,SEP=(SYSLMOD,SYSLIN)),SPACE=(1024,(200,20))
//SYSPRINT DD SYSOUT=A
//SYSLMOD DD DSN=IMS.SDFSRESL,DISP=SHR
//SYSLIN DD *
   INCLUDE ADFSLOAD(DFSCSI00)
   INCLUDE SYSPUNCH(DFSGMSG0)
   ENTRY DFGMSG0
   NAME DFGMSG0
++ SRC (DFSGMSG0) SYSLIB(SDFSSMPL) DISTLIB(ADFSSMPL) .
DFSGMSG0 TITLE 'DFSGMSG0 -- GREETING MESSAGES user exit routine routine'
...........................................................................
...........................................................................
...........................................................................
```

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