

# ChangeMan ZMF

## IMS Option Getting Started Guide

8.3

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# 1. About this Guide

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ChangeMan ZMF is a comprehensive, fully integrated software change management solution for z/OS environments.

The IMS Option extends ChangeMan ZMF functions to manage IMS™ components such as DBD, PSB, and MFS.

**Before you begin:** See the *Readme* file for the latest updates and corrections for this manual.

**Objective:** The *ChangeMan ZMF IMS Option Getting Started Guide* provides instructions for installing, configuring, and using the IMS Option of ChangeMan ZMF to manage changes to IMS components.

**Audience:** This document is intended for IMS administrators, configuration change managers, and ChangeMan ZMF users who are responsible for maintaining IMS applications. This document assumes that reader is familiar with basic ChangeMan ZMF functions and architecture, and with IMS.

## Guide to ChangeMan ZMF Documentation

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The following sections provide basic information about ChangeMan ZMF documentation.

### ChangeMan ZMF Documentation Suite

Manual	Description
Administrator's Guide	Describes ChangeMan ZMF features and functions with instructions for choosing options and configuring global and application administration parameters.
Customization Guide	Provides information about ChangeMan ZMF skeletons, exits, and utility programs that will help you to customize the base product to fit your needs.
Db2 Option Getting Started Guide	Describes how to install and use the Db2 Option of ChangeMan ZMF to manage changes to Db2 components.
ERO Concepts	Discusses the concepts of the Enterprise Release Option (ERO) of ChangeMan ZMF for managing releases containing change packages.
ERO Getting Started Guide	Explains how to install and use ChangeMan ZMF ERO to manage releases containing change packages.

<b>Manual</b>	<b>Description</b>
ERO Messages	Describes system messages and codes produced by ChangeMan ZMF ERO.
ERO XML Services User's Guide	Documents ERO functions and services available for general customer use. These services are also known as the "green" services and provide mostly search and query functions.
High-Level Language Exits Getting Started Guide	Explains how to configure and call the high-level language exits.
IMS Option Getting Started Guide	Provides instructions for implementing and using the IMS™ Option of ChangeMan ZMF to manage changes to IMS components.
INFO Option Getting Started Guide	Describes two methods by which ChangeMan ZMF can communicate with other applications: Through a VSAM interface file and through the Tivoli® Information Management for z/OS product from IBM®.
Installation Guide	Provides step-by-step instructions for initial installation of ChangeMan ZMF. Assumes that no prior version is installed or that the installation will overlay the existing version.
Java / zFS Getting Started Guide	Provides information about using ZMF to manage application components stored in USS file systems, especially Java® application components.
Load Balancing Option Getting Started Guide	Explains how to install and use the Load Balancing Option of ChangeMan ZMF to connect to a ZMF instance from another CPU or MVS™ image.
M+R Getting Started Guide	Explains how to install and use the M+R Option of ChangeMan ZMF to consolidate multiple versions of source code and other text components.
M+R Quick Reference	Provides a summary of M+R Option commands in a handy pamphlet format.
Messages	Explains messages issued by ChangeMan ZMF, SERNET, and System Software Manager (SSM) used for the Staging Versions feature of ZMF.
Migration Guide	Gives guidance for upgrading ChangeMan ZMF from versions 7.x and 8.x to version 8.2 Patch 6.
Online Forms Manager (OFM) Option Getting Started Guide	Explains how to install and use the OFM option of ChangeMan ZMF.
REST Services Getting Started Guide	Getting Started Guide for ZMF REST Services.
SER10TY User's Guide	Gives instructions for applying licenses to enable ChangeMan ZMF and its selectable options.
User's Guide	Describes how to use ChangeMan ZMF features and functions to manage changes to application components.

Manual	Description
XML Services User's Guide	Documents the most commonly used features of the XML Services application programming interface to ChangeMan ZMF.
ZMF Quick Reference	Provides a summary of the commands you use to perform the major functions in the ChangeMan ZMF package life cycle.
ZMF Web Services User's Guide	Documents the Web Services application programming interface to ChangeMan ZMF.

## Using the Manuals

Use Adobe® Reader® to view ChangeMan ZMF PDF files. Download the Reader for free at [get.adobe.com/reader/](http://get.adobe.com/reader/).

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

The PDF manuals include the following features:

- **Bookmarks.** All of the manuals contain predefined bookmarks that make it easy for you to quickly jump to a specific topic. By default, the bookmarks appear to the left of each online manual.
- **Links.** Cross-reference links within a manual enable you to jump to other sections within the manual with a single mouse click. These links appear in blue.
- **Comments.** All PDF documentation files that Serena delivers with ChangeMan ZMF have enabled commenting with Adobe Reader. Adobe Reader version 7 and higher has commenting features that enable you to post comments to and modify the contents of PDF documents. You access these features through the Comments item on the menu bar of the Adobe Reader.
- **Printing.** While viewing a manual, you can print the current page, a range of pages, or the entire manual.
- **Advanced search.** Starting with version 6, Adobe Reader includes an advanced search feature that enables you to search across multiple PDF files in a specified directory.

## Searching the ChangeMan ZMF Documentation Suite

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There is no cross-book index for the ChangeMan ZMF documentation suite. You can use the Advanced Search facility in Adobe Acrobat Reader to search the entire ZMF book set for information that you want. The following steps require Adobe Reader 6 or higher.

1. Download the ZMF All Documents Bundle ZIP file and the ZMF Readme to your workstation from the My Downloads tab on the Serena Support website.
2. Unzip the PDF files in the ZMF All Documents Bundle into an empty folder. Add the ZMF Readme to the folder.
3. In Adobe Reader, select Edit | Advanced Search (or press Shift+Ctrl+F).
4. Select the **All PDF Documents** in option and use **Browse for Location** in the drop down menu to select the folder containing the ZMF documentation suite.
5. In the text box, enter the word or phrase that you want to find.
6. Optionally, select one or more of the additional search options, such as **Whole words only** and **Case-Sensitive**.
7. Click **Search**.
8. In the **Results**, expand a listed document to see all occurrences of the search argument in that PDF.
9. Click on any listed occurrence to open the PDF document to the found word or phrase.

## Online Help

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Online help is the primary source of information about ChangeMan ZMF. Online help is available as a tutorial, through Help screens, and in ISPF error messages.

## Online tutorial

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ChangeMan ZMF includes an online tutorial that provides information about features and operations, from high-level descriptions of concepts to detailed descriptions of panel fields.

To view the tutorial table of contents, select option T from the Primary Option Menu, or jump to it from anywhere in ChangeMan ZMF by typing =T and pressing ENTER.

Press PF1 from anywhere in the Tutorial for a complete list of Tutorial navigation commands and PF keys.

## Online Help Screens

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If you have questions about how a ChangeMan ZMF panel works, you can view a help panel by pressing PF1 from anywhere on the screen.

## Online Error Messages

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If you make an invalid entry on a ChangeMan ZMF panel, or if you make an invalid request for a function, a short error message is displayed in the upper right corner of the panel.

Press PF1 to display a longer error message that provides details about the error condition.

Remember that the long message does not display automatically. Request the long message by pressing PF1.

## Typographical Conventions

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The following typographical conventions are used in the online manuals and online help. These typographical conventions are used to assist you when using the documentation; they are not meant to contradict or change any standard use of typographical conventions in the various product components or the host operating system.

Convention	Explanation
<i>italics</i>	Introduces new terms that you may not be familiar with and occasionally indicates emphasis.
UPPERCASE	Indicates keys or key combinations that you can use. For example, press ENTER.
<code>monospace</code>	Indicates syntax examples, values that you specify, or results that you receive.
<i>monospace italics</i>	Indicates names that are placeholders for values you specify; for example, <i>filename</i> .
vertical rule	Separates menus and their associated commands. For example, select File

## 2. Introduction

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This chapter provides an overview of the ChangeMan ZMF IMS Option.

### About The IMS Option

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The IMS Option enables programmers to manage IMS DB/DC application development under the control of ChangeMan ZMF.

The IMS Option is integrated seamlessly into ChangeMan ZMF. Most of the differences are additional considerations for the ChangeMan ZMF Administrator to define IMS control regions and IMS libraries and library types. The Administrator must also determine what IMS processes are required and when.

The management of IMS components creates several challenges for an automated change management tool. Most of these challenges stem from the need to process (generate or “gen,” as opposed to copying) components as part of the IMS installation process.

ChangeMan ZMF manages installations to production and promotion (test) IMS regions. Once these components are processed, they must be cycled into the IMS execution environment through IMS utilities.

For ChangeMan ZMF to manage IMS installs, additional information about IMS must be defined. For example, ChangeMan ZMF must know what IMS control regions are called, what site ID names have been given to each site, and what promotion nicknames have been created. [IMS Option Worksheets](#) contains worksheets to help you gather this information.

### Administration Rules

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When defining the IMS system libraries, ChangeMan ZMF assumes that the MFS format libraries and ACB libraries are IMS intermediate or staging libraries used for swapping. Although the IMS Option includes skeletons for performing the swaps, most IMS shops already have jobs to do this. You can incorporate these jobs into the promotion and installation processes as defined by your shop’s standards. The IMS Option does not provide a swapping process for format members and ACBs “in place,” as this might cause problems for shops and their database Administrators.

When defining DBD and PSB overrides, you should be aware of the potential impact of doing this at the global, application and package level.

- Global overrides impact only the installation and baseline ripple remote sites.



- Application overrides impact all remote sites *and* override any global defined overrides.
- Package overrides impact all remote sites *and* override any global or application- defined overrides.
- You must check out a component before you can create a package level override for it.

## Package Creation Rules

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When creating a package, the IMS Option carries forward all active application-defined IMS regions to the package.

## Staging Rules

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When staging DBD, PSB, or MFS components, the IMS Option assumes that they are being staged with parameters configured for production on the site that they are being staged from. The IMS region information is set to this region provided it is defined.

Otherwise, it is set to the first IMS region defined to the application.

## Promotion and Installation Rules

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When promoting or installing a package (installing means production installation and baseline rippling), the IMS Option assumes that the promotion, production or baseline libraries differ from the IMS libraries defined in the region definition. The promotion or installation process is configured to sync up the IMS region libraries and promotion or installation libraries.

- If overrides or GENs are not required, the process copies those members from staging libraries to promotion or installation libraries. Then, it copies those members to the IMS region libraries.
- If overrides or GENs are required, the members are GENed to the IMS region libraries and then copied to the promotion or installation libraries. If multiple region are associated with this process, the last region in the sequence is used for the copy to promotion or installation libraries.

When demoting or backing out a package, the IMS Option adjusts the promotion and installation libraries accordingly, but the IMS region libraries are untouched. This is done because most MVS™ shops already possess a process for backing out IMS changes and an emergency fix is routinely applied (no back out is required). For promotion, this allows the package to be demoted or promoted to another level without affecting the IMS region.

## 3. Configuring the IMS Option

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This chapter explains how to install and configure the ChangeMan ZMF IMS Option.

### Introduction

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ChangeMan ZMF IMS Option components are delivered in the files and libraries that are delivered for the base ZMF product. When you follow the instructions in the *ChangeMan ZMF Installation Guide* to install ZMF base product components, IMS Option components are also installed.

To use the ChangeMan ZMF IMS Option, you must make entries in these areas of ZMF administration:

- ZMF Global Administration
- ZMF Application Administration
- IMS Option Global Administration
- IMS Option Application Administration

For information about the general administration of ChangeMan ZMF, see the *ChangeMan ZMF Administrator's Guide*.

#### Tip

If you are installing ChangeMan ZMF for the first time, you can defer configuring the IMS Option until after your IMS administrator and application developers agree on how they want to manage IMS components with ChangeMan ZMF. The configuration described in this chapter does not play any part in the processing of non-IMS components through the ChangeMan ZMF package life cycle.

## IMS Component Types in ZMF

There are no reserved library types in ChangeMan ZMF for IMS components. IMS component processing is determined by these attributes in library type definitions:

- Selectable Option I specified in the ZMF library type definition.
- IMS Sub-Type specified in the IMS Option library type definitions.

This table shows you what IMS components are supported by ChangeMan ZMF. When you define IMS library types in ZMF administration and in IMS Option administration, use this table to specify the like-type, Selectable Option, and IMS Sub-type.

IMS Component	Like	Target Type	Lang	Compile Procedure	Sel Opt	Sub Typ
PSB Source	S	PSB Load	ASM	CMNPSBGN	I	P
PSB Load	L				I	S
DBD Source	S	DBD Load	ASM	CMNDBDGN	I	D
DBD Load	L				I	B
MFS Source	S	MFS Format	ASM	CMNMFSGN	I	M
MFS Format	L				I	F
MFS Referral	P				I	R

## Apply An IMS Option License

To enable ChangeMan ZMF IMS Option functions, you must apply an IMS Option license.

If you license the IMS Option at the same time that you license ChangeMan ZMF, the license for the option is applied when you apply the license for the base product. You do not have to take further action to enable the IMS Option.

If you license the IMS Option after you apply licenses for ChangeMan ZMF and other selectable options, use the SER10TY™ License Manager to add the IMS Option license. See the *SER10TY User Guide* for instructions on how to apply a license. The load modules, JCL, and other components that you need to run SER10TY are included in the SERCOMC libraries that you installed from the ZMF installer.

After you have applied the license, shut down the SERNET started task where ChangeMan ZMF runs and restart the task.

**Then, follow these steps to verify that the IMS Option is activated.**

1. Connect to ChangeMan ZMF through ISPF.
2. From the **Primary Option Menu** type =A.G.O on the Option line to display the **Global Selectable Options** panel (CMNGBSOP):

CMNGBSOP	GLOBAL Selectable Options
Option ===>	_____
2 Db2	Maintain Db2 information
3 INFO	Specify Info/Management change rule
4 OFM	Configure Online Forms Manager
5 IMS	Control Region IDs and Library Sub-Type information

If option 5 IMS is highlighted, the activation is successful.

## Update ChangeMan ZMF Global Administration

Follow the instructions in the *ChangeMan ZMF Administrator's Guide* to update global administration with the following for IMS components:

- Library types
- Language names
- Compile procedures

1. Add global library types for IMS components.

- a. Use command =A.G.2 to display the **Global Library Types Part 1 of 2** panel (CMNCGLT0).
- b. Insert lines and create a library type for each kind of IMS component that you will manage with ChangeMan ZMF.

The IMS component library types on the sample panel below correspond to the table of supported IMS components in topic [IMS Component Types in ZMF](#)

CMNCLLT0	IMSA - Library Types Part 1 of 2							Row 1 to 37 of 50
Command ===>	_____							Scroll ===> CSR
Lib type	Description	Order +	Lke	Seq	Defer	Target type	Sel Opt	
...								
_____	DBD	IMS DBD Source	S		Y	DBL	I	
_____	DBL	IMS DBD Load	L		Y		I	
_____	FMT	IMS MFS Load	L		Y		I	
_____	MFR	IMS MFS Referral	P		Y		I	
_____	MFS	IMS MFS Source	S		Y	FMT	I	
_____	PSB	IMS PSB Source	S		Y	PSL	I	
_____	PSL	IMS PSB Load	L		Y		I	

 **Note**

Library types for IMS components must specify I in the Sel. Opt. field. There are no reserved library types for the IMS Option. The Sel. Opt. on this panel and the IMS Sub Type on a subsequent panel invoke special IMS processing for a library type.

- c. On the **Global Library Types Part 2 of 2** panel (CMNCGLT1), use these DCB parameters for the new library types.

Like	DCB Parameters
Like-L	Record Format U Record Length 0
Like-P and Like-S	Record Format FB Record Length 80

2. Add global language ASM.

- a. Use command **=A.G.3** to display the **Global Language Names** panel (CMNGGLNG).
- b. Add language **ASM** for assembler if it is not already defined.

3. Add global procedures for IMS component builds.

- a. Use command **=A.G.4** to display the **Compile Procedure List** panel (CMNPRCNM).
- b. Insert lines and create a language/procedure for each kind of IMS like-source component.

The IMS compile procedures on the sample panel below correspond to the entries in the **Compile Procedures** column in the table of supported IMS components in topic [IMS Component Types in ZMF](#).

CMNPRCNM	Compile Procedure List			Row 1 to 21 of 21
Command ===>	_____			Scroll ===> CSR
	Language	Procedure	Description	Order
...	ASM	CMNDBDGN	IMS DBD Gen	
	ASM	CMNPSBGN	IMS PSB Gen	
	ASM	CMNMFSGN	IMS MFS Gen	
...				

# Update ChangeMan ZMF Application Administration

Follow the instructions in the *ChangeMan ZMF Administrator Guide* to update application administration with the following for IMS components:

- Library types
- Language names
- Compile procedures
- Baseline libraries
- Production libraries
- Promotion libraries

1. Add application library types for IMS components.

a. Use command **=A.A.2** to display the **application - Library Types Part 1 of 2** panel (CMNCLLT0).

b. Insert lines and copy down global IMS library types.

The IMS component library types on the sample panel below correspond to the table of supported IMS components in topic [IMS Component Types in ZMF](#).

CMNCLLT0		IMSA - Library Types Part 1 of 2				Row 1 to 37 of 50	
Command ==>						Scroll ==> CSR	
Lib type	Description	Order +	Lke	Seq	Defer	Target type	Sel Opt
...							
DBD	IMS DBD Source		S		Y	DBL	I
DBL	IMS DBD Load		L		Y		I
FMT	IMS MFS Load		L		Y		I
MFR	IMS MFS Referral		P		Y		I
MFS	IMS MFS Source		S		Y	FMT	I
PSB	IMS PSB Source		S		Y	PSL	I
PSL	IMS PSB Load		L		Y		I

## Notes

- Library types for IMS components must specify I in the Sel. Opt. field.
- There are no reserved library types for the IMS Option. The Sel. Opt. on this panel and the IMS Sub Type on a subsequent panel invoke special IMS processing for a library type.

c. If necessary, adjust the staging library attributes and options for each new library type using the *application* - **Library Types Part 2 Of 2** panel (CMNCLLT1).

2. Add application language ASM.

- a. Use command =A.A.3 to display the *application* - **Language Names** panel (CMNCLLNG).
- b. Insert a line and copy down the global language **ASM** for assembler if it is not already defined.

3. Add application procedures for IMS component builds.

- a. Use command =A.A.4 to display the *application* - **Compile Procedures** panel (CMNCLPRC).
- b. Insert new lines and copy down global IMS gen procedures.

The IMS compile procedures on the sample panel below correspond to the entries in the **Compile Procedures** column in the table of supported IMS components in topic [IMS Component Types in ZMF](#).

CMNCLPRC		IMSA - Compile Procedures		Row 1 to 21 of 21
Command ==> _____			Scroll ==> CSR	
Language	Procedure	Description	Order	
...				
ASM	CMNDBDGN	IMS DBD Gen	0	
ASM	CMNMFSGN	IMS MFS Gen	0	
ASM	CMNPSBGN	IMS PSB Gen	0	

4. Update promotion levels for IMS components.

To populate IMS test libraries with package components, add or modify promotion level definitions and add IMS promotion libraries.

- a. Use command =A.A.7 to display the **application Promotion Site List** panel (CMNLRPMS).
- b. Select an existing **Site Name**, or insert a line, copy an application site name, complete the site definition, and select the new **Site Name**.
- c. On the **application/level - Promotion Levels** (CMNLRPM2) panel, code one of the following in the **Procedure** field for any promotion level that will contain IMS components.
  - CMNIMPRM - Local promotion sites (same LPAR or shared DASD)
  - CMNIMRPM - Remote promotion sites


```

CMNLRPM2          IMSA/S001 - Promotion Levels          Row 1 to 1 of 1
Command ===>_____ Scroll ===> CSR

Nickname  Entity      Level Procedure
____ SYST10  CMNLCADM   10  CMNIMPRM
____ SYST20  CMNLCADM   20  CMNIMPRM
***** Bottom of data *****

```

- d. On the **application/level - Promotion Levels** (CMNLRPM2) panel, select a **Site Nickname**, and on the **application/level - Promotion Libraries** panel (CMNLRPM3), add application IMS library types and IMS test target libraries.

 **Important**

Define promotion libraries for IMS like-source library types. IMS like-source components must be available at promotion sites to apply templates and execute IMS gens.

- 5. Add baseline definitions and libraries for IMS components.
  - a. Use command **=A.A.2** to display the *application - Baseline Configuration Part 1 of 2* panel.
  - b. Insert lines, copy application IMS library types, and specify a baseline library definition for each.


The IMS baseline configuration on the sample panel below correspond to the table of supported IMS components in topic [IMS Component Types in ZMF](#).

```

CMNCBAS1    IMSA - Baseline Configuration Part 1 of 2    Row 1 to 21 of 21
Command ===>_____ Scroll ===> CSR

          Type      Install      Baseline
          Type      Levels in prod  storage
          ...
____ DBD    10      Y          SD
____ DBL     3      Y          P
____ FMT     3      Y          P
____ MFR    10      Y          SD
____ MFS    10      Y          SD
____ PSB    10      Y          SD
____ PSL     3      Y          P
...

```

 **Important**

Set the **Install In Prod** indicator to **Y** for IMS like-source library types. IMS like-source components must be available at production sites to apply templates and execute IMS gens.



- c. On the **Baseline Configuration Part 2 Of 2** panel, allocate new baseline libraries for IMS components, or verify existing libraries that you will use as baseline libraries.
6. Add production libraries for IMS components.
- a. Use command **=A.A.2** to display the on the *application* - **Baseline Configuration Part 1 of 2** panel.
  - b. On the *application* - **Production Libraries** panel, insert application IMS production library types, and specify a set of production libraries for each type.

## Configure IMS Option Global Administration

Global Administration for the ChangeMan ZMF IMS Option defines:

- IMS subsystems that are available to the IMS Option.
- IMS sub-types for global library types used for IMS components. IMS sub-types control automated processing for IMS components at stage, promotion, and install.
- DBD Overrides that can modify DBD at stage, promotion, and install.
- PSB Overrides that can modify PSB at stage, promotion, and install.

Type **=A.G.O.5** on any **Command** or **Option** line and press **Enter** to display the **Global IMS Administration** menu.

```

CMNIGGEN                Global IMS Administration
Option ==> _____

1 Control Reg.  Generate IMS control region information
2 Library Types Generate IMS library sub-types
3 DBD Overrides Generate DBD override statements
4 PSB Overrides Generate PSB override statements

```

### Define Global Control Regions

IMS control region information is configured from Option 1 (Control Region); this is where you set up global control region information.

From the Global IMS Administration panel, select Option 1. The Global Definitions of IMS System Information Part 1 of 2 panel (CMNIGSLB) appears.

```
CMNIGSLB Global IMS System Information Part 1 of 2 Row 1 to 2 of 2
Command ==>_____ Scroll ==> CSR
```

```

IMS Site      Devchar
id name      Active Suffix MFSGEN PSBGEN DBDGEN ACB
__IMSA SERT6P1 Y      A      Y      Y      Y      Y
__IMSA SERT6P2 Y      A      Y      Y      Y      Y
***** Bottom of data *****

```

The following table presents a summary of the fields on the Global Definitions of IMS System Information Part 1 of 2 panel (CMNIGSLB).

Fields	Meaning**
Line Command	Type one of these line commands:
	I - Insert a new line.
	R - Repeat an existing line, repeating retains the information that had been previously keyed in. Use this command for modeling of IMS control regions.
	D - Delete an existing line or IMS system.
	S - Select an IMS control region to add the associated system libraries. This command displays.
IMS ID	A four-character ID assigned to the control region by the system programmer at system generation.
SITE	Enter the site name as defined in ChangeMan ZMF where the IMS subsystem is running. A blank entry to this field defaults to the local ChangeMan ZMF subsystem. You may enter a mask of '*' to display a selection list of the sites defined in this ChangeMan ZMF instance.
ACTIVE (Y/N)	Type Y if this IMS region is active and can be defined at the application level. Type N if this IMS region is not active and cannot be defined at the application administration level.
DEVCHAR Suffix	Type a character or numeric value. This value is appended to an IMS module name DFSUDTOx for the device characteristics of 3270 or SLU2 terminals. This module is invoke when generating MFS source code.
MFSGEN (Y/N)	Type Y to always GEN MFSs when promoting or installing to this IMS region. Type N if you want the system to determine if an MFS GEN is required. If the DEVCHAR is different from that of the defined production IMS region for this ChangeMan ZMF instance then a GEN is required.
PSBGEN (Y/N)	Type Y if you want to always GEN PSBs when promoting or installing to this IMS region. Type N if you want the system to determine if a PSB GEN is required. If it is different than that of the defined production IMS region for this ChangeMan ZMF subsystem then a GEN is required.

Fields	Meaning**
DBDGEN (Y/N)	Type Y if you want to always GEN DBDs when promoting or installing to this IMS region. Type N if you want the system to determine if a DBD GEN is required. If it is different than that of the defined production IMS control region for this ChangeMan ZMF subsystem then a GEN is required.
ACB (Y/N)	Type Y to always create ACB build statements for PSBs during staging. Type N to have the system determine if an ACB build statement is required for a PSB. ACB build statements are always determined for DBDs.

You can identify the IMS control regions, and (in Part 2 of this panel) define the DD and data set names for the IMS system libraries (such as RESLIB, PSBLIB, DBDLIB, and IMSACB) assigned to that region.

To get to Part 2 of this panel, select a control region with the S line command. This panel is very similar to the Definitions of IMS System Information under Application Administration. There is one basic difference: in addition to the SITE shown above, you specify a LOGICAL SITE as well. See [Configure IMS Option](#).

You can also specify whether to default to running GENs for MFS screens, PSBs and DBDs. For instance, if you do not update a PSB (and/or all of your IMS control regions are at the same IMS software level), it is much faster to just copy, rather than GEN it.

#### Note

IMS control regions are logically related to ChangeMan ZMF promotion levels and/ or production or baseline environment.

When an end-user updates an IMS package, this information can also be modified, with optional restrictions through ChangeMan ZMF exit routines. Specifically, ChangeMan ZMF User Exits 1 and 41 are likely to be of interest; this exit allows you to specify select users who can change package information.

For more information on this and other ChangeMan ZMF exit routines, see the *ChangeMan ZMF Administrator's Guide*.

When defining an IMS environment, you must identify the IMS control regions, and define the data set names under that region. The table below defines the purpose of the different choices here.

In general, you will want to automatically GEN if you are going to update a PSB or DBD, but not GEN (and merely copy) if you are not going to do an override. (This assumes that the target control region is at the same IMS software release level as the source control region.)

 **Note**

If you typed Y to any of the GEN options in IMS System information, the IMS Option will reassemble or generate those components into the IMS control region library whenever those component types are promoted, installed or baseline-rippled. The executable module is then synchronized with the promotion, install or baseline library.

For each IMS ID selected, you must enter global definition information on the Global Definitions of IMS System Information Part 2 of 2 panel (CMNIGSL2).

 **Note**

Although Hi-lev Node Bkup (high-level node backup), IMSGEN Macro Def, and Member Name appear on the panel, presently, they cannot be used.

```
CMNIGSL2          Global IMS System Information          Part 2 of 2
Command ==>_____

          IMS id: IMSA          Site: SERT6P1          Active: Y

Hi-lev Node Bkup . . . CMNTP.IMS.BKUP
IMSGEN Macro Def . . . CMNTP.IMS.MACLIB
Member Name . . . . . IMSGEN

DDNAME          IMS System Libraries
RESLIB . . . . . CMNTP.IMS.RESLIB
MODSTAT . . . . . CMNTP.IMS.MODSTAT
MACLIB . . . . . CMNTP.IMS.MACLIB
PSBLIB . . . . . CMNTP.IMS.PSBLIB
DBDLIB . . . . . CMNTP.IMS.DBDLIB
IMSACB . . . . . CMNTP.IMS.ACBLIB
FORMAT . . . . . CMNTP.IMS.FORMAT
REFERRAL . . . . . CMNTP.IMS.REFERAL
```

The following table describes the information you need to provide on this panel.

Field	Description
Hi-lev Node Bkup	High-level node backup is a variable for the IMS Option ISPF skeletons that are delivered as samples for backing up IMS control region libraries. There are samples for backups; these are provided for promoting, installing and performing a baseline ripple. The high-level node backup is the first node used for backups of the IMS system libraries for PSBs, DBDs, ACBs, format, and referral libraries. The rest of the backup data set name contains:
	xxx.application.remote.imsid where
	xxx - Library type (PSB, DBD, ACB, FMT or REF)
	application - 4 character application name as defined in ChangeMan ZMF
	remote - Remote site as defined in ChangeMan ZMF

Field	Description
	imsid - IMSID assigned to the subsystem
IMSGEN Macro Def	This is the data set that contains the IMS system generation member name.
Member Name	This is the member name that is in the IMSGEN data set. This contains the source code used to generate the IMS control region, databases, programs and terminals. The following table describes the DDNAMEs on the Global Definitions of IMS System Information Part 2 of 2 panel (CMNIGSL2)
RESLIB	This is where you enter the APF authorized IMS system library.
MODSTAT	This is a sequential data set that contains information regarding the active libraries for MODBLKS, IMSACB and FORMAT.
MACLIB	This is a PDS that contains all IMS MACROs used for system, PSB, DBD, ACB, and MFS generations.
PSBLIB	This is the data set that contains all the PSBs and whose DD name is defined to IMS.
DBDLIB	This is the data set that contains all the DBDs and whose DD name is defined to IMS. This data set is normally concatenated with the library for PSBs.
IMSACB	This is the library that contains all pre-built control blocks used by the control region. This must be the IMS Staging Library which is input to the Online Change Utility.
FORMAT	This is the library that contains all DIF/DOF and MID/MOD control blocks used by the control region. This must be the IMS Staging Library that is input to the Online Change Utility.
REFERAL	This is the library that contains the intermediate text block that is output to step I of the MFS GEN Utility and input to step II.

The next step, after setting up the control region information, is to define the global library types for IMS. For this, you would first return to the Global IMS Administration menu (CMNIGGEN).

### IMS Library Subtypes

From the Global IMS Administration menu (CMNIGGEN), select Option 2 to display the

**Global Ims Library Subtypes** panel (CMNIGLT0):

```

CMNIGLT0          Global IMS Library Subtypes          Row 1 to 7 of 7
Command ==>_____ Scroll ==> CSR

Lib               Sub
type             type
DBD              IMS DBD Source                       D
DBL              IMS DBD Load                         B
FMT              IMS MFS Load                         F
MFR              IMS MFS Referral                     R
MFS              IMS MFS Source                       M
PSB              IMS PSB Source                       P
PSL              IMS PSB Load                         S
***** Bottom of data *****

```

The **IMS SUB TYPE** field designates that additional processing is done for these library types during staging, promotion, and installation. This allows you to use any naming convention for library types, but still allows ChangeMan ZMF to handle the special processing required for these types. Press END and the short message should be UPDATE SUCCESSFUL, the long message should be CMN3621I - Global IMS library subtypes updated successfully.

The following tables describes the IMS library types.

Sub Type	Meaning
P	PSB source library type
S	PSB load library type
D	DBD source library type
B	DBD load library type
M	MFS source library type
F	MFS format library type
R	MFS referral library type

**DBD Overrides**

From the Global IMS Administration menu, select Option 3 to display the Global DBD Override Control Statements panel (CMNIGDBD).

```

CMNIGDBD      Global DBD Override Control Statements      Row 1 to 2 of 2
Command ==>_____ Scroll ==> CSR

      DBD      Library IMS      Control
      name     type  id      Site  Statement
____  IMSDBD01  DBD   IMSA   SERT6P1 DATASET
Orig  DEVICE=3380
New   DEVICE=3390
____  IMSDBD01  DBD   IMSA   SERT6P2 DATASET
Orig  DEVICE=3380
New   DEVICE=3390
***** Bottom of data *****

```

This table describes the fields on the **Global Dbd Override Control Statements** panel.

Field	Description
Line Command	Type one of these line commands:
	I Insert
	R Repeat
	D Delete
	* Select
DBD name	Enter the source name of the DBD you want to modify.
Library type	Enter the library type that the DBD source was staged as. This library type must be an IMS DBD source sub-type. Enter an asterisk '*' for a list of valid IMS DBD source sub-types.
IMS id	Enter the four-character ID that is assigned to the package.
Site	Enter the remote site as defined in ChangeMan ZMF where the IMS subsystem is running. A blank entry to this field defaults to the local ChangeMan ZMF subsystem.
Control Statement	Enter the type of DBD control statement that is to have the override. Valid DBD control statements are:
	DATASET
	AREA
	SEGM
	FIELD
	LCHILD
	XDFLD
	DBD
	DBDGEN

Field	Description
Orig	Enter the original DBD source statements that are to be replaced.
New	Enter the new DBD source statements that are to replace the original DBD source statements.

From the Global DBD Override Control Statements panel (CMNIGDBD), you can modify your DBD control statements (this same capability exists for PSB control statements).

From this panel, you can add or delete Global IMS DBD override control statements. Global DBD and PSB overrides can be overridden at the application level. Application level overrides can be overridden at the package level.

Global overrides can only be used at installation time; this is due to the fact that there is no logical level assigned to an IMS region until the application level.

## PSB Overrides

From the Global IMS Administration menu, select Option 4 (PSB Overrides) to display the Global PSB Override Control Statements panel (CMNIGPSB).

```

CMNIGPSB          Global PSB Override Control Statements          Row 1 to 2 of 2
Command ==>>> _____ Scroll ==>>> CSR

      PSB      Library      IMS      Control
      name     type         id  Site  Statement
-----
Orig  DBDNAME= IMSPSB01
New   DBDNAME= IMSGBL01
      IMSPSB01 PSB          IMSA  SERT6P1  PCB
Orig  DBDNAME= IMSPSB01
New   DBDNAME= IMSGBL01
      IMSPSB01 PSB          IMSA  SERT6P2  PCB
Orig  DBDNAME= IMSPSB01
New   DBDNAME= IMSGBL01
***** Bottom of data *****

```

This table describes the fields on the **Global PSB Override Control Statements** panel.

Field	Description
Line Command	Type one of these line commands:
	I Insert
	R Repeat - Use this line command to model a PSB control statement.
	D Delete
	* Select to an IMS region from the Global IMS region list.
PSB name	Type the source name of the PSB for which you want to have the override.



Field	Description
Library type	Type the library type for which the PSB source was staged. This library type must be an IMS PSB source sub-type. Type an asterisk '*' for a list of valid IMS PSB source sub-types.
IMS id	Type the four-character ID assigned to the IMS system.
Site	Type the remote site as defined in ChangeMan ZMF where the IMS subsystem is running. A blank entry to this field defaults to the local ChangeMan ZMF subsystem.
Control Statement	Type the type of PSB control statement that is to have the override. Valid PSB control statements are:
	PSBGEN
	PCB
	SENSEG
	SENFLD
Orig	Type the original PSB source statements that are to be replaced.
New	Type the new PSB source statements that are to replace the original PSB source statements.

The Global PSB Override Control Statements panel (CMNIGPSB) is where the PSB overrides are entered.

Use the R (Repeat) line command to model a PSB control statement. Use the \* (Select) line command to select an IMS region to be added from the Global IMS region list.

From the Global PSB Override Control Statements panel, add or delete Global IMS PSB override control statements. Global IMS PSB control will only be used for package installation not for promotion.

Global DBD and PSB overrides can be overridden at the application level. Application level overrides can be overridden at the package level.

Global overrides can only be used at installation time because there is no logical level assigned to an IMS region until the application level.

## Configure IMS Option Application Administration

Application Administration for the ChangeMan ZMF IMS Option defines:

- IMS subsystems that are available to each application that manages IMS components.
- IMS sub-types for application library types used for IMS components. IMS sub-types control automated processing for IMS components at stage, promotion, and install.
- DBD Overrides that can modify DBD at stage, promotion, and install in each application that manages IMS components.
- PSB Overrides that can modify PSB at stage, promotion, and install in each application that manages IMS components.

Type =A.A.O.5 on any **Command** or **Option** line and press **Enter** to display the **application - IMS Administration** menu.

```
CMNILGEN          IMSA - IMS Administration
Option ===>_____

1 Control Reg.  Generate IMS control region information
2 Library Types Generate IMS library sub-types
3 DBD Overrides Generate DBD override statements
4 PSB Overrides Generate PSB override statements
```

## Application Control Regions

Same as the Global Control Region Definitions. We've customized the IMSQ definitions:

```
CMNILSLB          IMSA - IMS System Information          Part 1 of 2 Row 1 to 2 of 2
Command ===>_____ Scroll ===> CSR

      IMS   Site   Logical      Devchar
      id   name  site name Active  suffix MFSGEN PSBGEN DBDGEN ACB
____ IMSA SERT6P1 S6P1UT   Y      A      Y      Y      Y      Y
____ IMSA SERT6P2 S6P1AT   Y      A      Y      Y      Y      Y
***** Bottom of data *****
```

## Application Library Types for IMS

To obtain an application library types selection panel (Application IMS Library Types panel), from the Application IMS Administration panel (CMNILGEN), select 2. The Application IMS Library Types Part 1 of 2 panel (CMNILLTO) appears.

```

CMNILLT0          IMSA - IMS Library Subtypes          Row 1 to 7 of 7
Command ==>>>_____ Scroll ==>> CSR

Lib Sub
type      Description          type
DBD       IMS DBD Source       D
DBL       IMS DBD Load        B
FMT       IMS MFS Load        F
MFR       IMS MFS Referral     R
MFS       IMS MFS Source       M
PSB       IMS PSB Source       P
PSL       IMS PSB Load        S
***** Bottom of data *****

```

### Application DBD Overrides

This works the same as Global DBD Overrides, except at the Application level. You can get to the application DBD Overrides selection panel (Application DBD Override Control Statements panel), from the Application IMS Administration panel (CMNILGEN), select 3. The Application DBD Override Control Statements panel (CMNILDBD) appears

### Application PSB Overrides

This works the same as Global PSB Overrides, except at the application level. You can display the Application PSB Overrides Selection panel (Application PSB Override Control Statements panel) by selecting 4 from the Application IMS Administration panel (CMNILGEN)

## Customize Exits for the IMS Option

### CMNEX026 for Referral Library

When you stage an MFS like-source component, two components are created:

- MFS load
- MFS Referral

An MFS load staging library is automatically allocated when you specify its library type as the Target Type for the MFS like-source library type in application library type definitions. There are two ways to make an MFR staging library available when you stage an MFS like- source component:

- In the library type definition for MFS referral in application administration, set the Defer flag to N so that an MFS referral staging library is always allocated when you create a package.
- In the MFS referral library type definition, leave the Defer flag set to Y and customize exit program CMNEX026 to allocate an MFS staging library when the first MFS like- source component is staged in a package.

Follow these instructions to customize exit program CMNEX026.

1. If you have *not* already customized exit program CMNEX026:

- a. Copy member CMNEX026 from the delivered CMNZMF ASMSRC library to your custom CMNSRC library.
- b. Edit the program source to activate the exit according to instruction in the program comments.

```

ID SOURCE LINES
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8
*****
*
* Comment (or delete) the following 2 lines to activate this exit.
*
I - *MNX026 CSECT
I - *      DC      Y(2046)      inactive module
D - CMNEX026 CSECT
D -      DC      Y(2046)      inactive module
*****

```

2. Add an entry to table X26@LTYP to allocate a staging library for your IMS referral library type when you stage a component in your MFS like-source library type.

In this code fragment, a new entry is added to table X26@LTYP to allocate an MFR staging library type when an MFS component is staged in any application.

```

ID          SOURCE LINES
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8
X26@LTYP DS    0CL37          library type description table
* Beginnig of first entry
      DC      CL4'* '          application
      DC      CL3'JAV'         staged library type
      DC      CL3'LSH'         library type
      DC      CL27' '          the rest
* Beginnig of second entry
I -      DC      CL4'* '          application SERA only
I -      DC      CL3'MFS'       staged library type (MFS)
I -      DC      CL3'MFR'       library type 1 (MFR)
I -      DC      CL27' '          the rest of them (CL30 - 3)
I - * Beginnig of second entry
      DC      CL4'SERA'         application SERA only
      DC      CL3'JCL'         staged library type (JCL)
      DC      CL3'LSJ'         library type 1 (LSJ)
      DC      CL27' '          the rest of them (CL30 - 3)

```

3. Follow the instructions in the *ChangeMan ZMF Customization Guide* to assemble the program source into a custom LOAD library.

## CMNEX041 IMS Package Update Security

When a change package is created in an application that is configured for the IMS Option, IMS control region information is copied from application administration records into the package records. You can use exit program CMNEX041 to restrict the TSO IDs that are allowed to update the IMS control information stored in the package records.

CMNEX041 is disabled as delivered. If you want to restrict who can update IMS control information at the package level, follow these instructions to customize exit program CMNEX041.

1. If you have *not* already customized exit program CMNEX041:
  - a. Copy member CMNEX041 from the delivered CMNZMF ASMSRC library to your custom CMNSRC library.
  - b. Edit the program source to activate the exit according to instruction in the program comments.

```
ID SOURCE LINES
-----1-----2-----3-----4-----5-----6-----7-----8
*****
*
* Comment (or delete) the following 2 lines to activate this exit.
*
I - *MEX026 CSECT
I - *      DC      Y(2046)      inactive module
D - CMNEX041 CSECT
D -      DC      Y(2046)      inactive module
*****
```

2. Read the program comments that explain how CMNEX041 works, and study the model rules and the sample code that implements those rules.
3. Make your own rules, customize the sample code, or write new code to support your business processes.
4. Follow the instructions in the *ChangeMan ZMF Customization Guide* to assemble the program source into a custom LOAD library.

## Customize Skeletons for IMS

[IMS-Related Skeletons](#) lists all of the skeletons that are file tailored to execute IMS-specific functions in ChangeMan ZMF batch jobs. IMS-related file tailoring variables are listed in member #VARLIST in the ChangeMan ZMF skeleton library.

## Note

When you customize IMS option skeletons, remember to preserve the delivered skeletons. Copy skeleton members from the delivered CMNZMF SKELS library into your CUSTOM SKELS library and edit the skeleton in the CUSTOM library.

## IMS Library Names In Skeletons

Before you can run the IMS Option you must update some IMS library names in skeletons.

This table lists the skeletons you must customize, the DD name where the change must be made, and the low level nodes of the data set name that must be updated.

<b>Skeleton</b>	<b>Function</b>	<b>DDNAME</b>	<b>Library or File</b>
CMN\$\$ACB	Build	COMPCTL	somnode.IMS.PROCLIB(DFSACBCP)
CMN\$\$MFS	Build	STEPLIB REFIN REFRD DUMMY STEPLIB DUMMY	somnode.IMS.RESLIB somnode.IMS.REFERAL somnode.IMS.REFERAL somnode.IMS.PROCLIB(REFCPY) somnode.IMS.RESLIB somnode.IMS.PROCLIB(FMTCPY)
CMN\$\$SYL	Build	&FIRSTDD	somnode.IMS.RESLIB
CMNINACB	Build	COMPCTL	somnode.IMS.PROCLIB(DFSACBCP)
CMNMFSIG	Install	DUMMY DUMMY	somenode.IMS.PROCLIB(REFCPY) somenode.IMS.PROCLIB(FMTCPY)
CMNMFSPG	Promote	DUMMY DUMMY	somnode.IMS.PROCLIB(REFCPY) somnode.IMS.PROCLIB(FMTCPY)
CMNMFSRG	Promote	DUMMY DUMMY	somnode.IMS.PROCLIB(REFCPY) somnode.IMS.PROCLIB(FMTCPY)

You must also add the IMS SDFSMAC library to the assembler SYSLIB concatenation.

```

ID          SOURCE LINES          TYPE LEN N-LN# O-LN#
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8
//          '&COMPOPT' )          00014 00014
//SYSPRINT DD DISP=( ,PASS ),DSN=#####LIST30C&C#C,          00015 00015
//          UNIT=&DEFNVUN,SPACE=(CYL,(5,5),RLSE),          00016 00016
//          DCB=(RECFM=FBM,LRECL=121,BLKSIZE=23474)          00017 00017
)IM CMN$$$SYC          00018 00018
)SEL &IMSLCNS EQ Y          00019 00019
)SEL &CMPSUBT EQ P OR &CMPSUBT EQ D          00020 00020
//          DD DISP=SHR,DSN=&IMMACLB          00021 00021
)ENDSEL &CMPSUBT EQ P OR &CMPSUBT EQ D          00022 00022
)ENDSEL &IMSLCNS EQ Y          00023 00023
I - //          DD DISP=SHR,DSN=somnode. IMS.SDFSMAC          00026
//          DD DISP=SHR,DSN=SYS1.MACLIB          MAT= 25 00027 00024
//          DD DISP=SHR,DSN=SYS1.MODGEN          00028 00025
//SYSUT1          DD UNIT=SYSDA,SPACE=(CYL,(5,5))          00029 00026
//SYSUT2          DD UNIT=SYSDA,SPACE=(CYL,(5,5))          00030 00027
//SYSPUNCH          DD DUMMY,DCB=BLKSIZE=80          00031 00028

```

### IMS Installation Skeletons

When ChangeMan ZMF detects a license for the IMS Option, it automatically substitutes certain IMS Option skeletons to file tailor installation and backout JCL for all packages, even packages in applications that are not set up for IMS components. If there are no IMS components in a package, the generated installation and backout JCL is exactly the same as if no IMS Option license had been applied.

If you want to customize installation and backout jobs, this table shows you the top level skeletons that are used for file tailoring when the IMS Option is enabled.

Standard Skeleton	IMS Option Skeleton	Description
CMN20	CMN20I	Install a package into production libraries
CMN20T	CMN20TI	Install a temporary package
CMN30	CMN30I	Perform baseline ripple of a package
CMN31T	CMN31TI	Cycle (de-install) a temporary package
CMN50	CMN50I	Backout a package from production libraries
CMN50T	CMN50TI	Backout a package from temporary libraries
CMN55	CMN55I	Perform baseline reverse ripple of a package
CMN55T	CMN55TI	Backout a package from temporary libraries

For example, if you license the IMS Option and if you want to modify the baseline ripple process, you must customize skeleton CMN30I instead of CMN30.

## 4. Using the IMS Option

---

With the ChangeMan ZMF IMS Option, IMS programmers are able to update, stage and install packages in the usual way, with IMS-related options only appearing where appropriate.

For the most part, the IMS Option provides very little that is different or new to the experienced ChangeMan ZMF user. These special considerations will be explained in this chapter.

### Using the IMS Option

---

With the ChangeMan ZMF IMS Option, IMS programmers are able to update, stage and install packages in the usual way, with IMS-related options only appearing where appropriate.

For the most part, the IMS Option provides very little that is different or new to the experienced ChangeMan ZMF user. These special considerations will be explained in this chapter.

### Creating a Package with IMS Components

---

Creating a package with IMS components is identical to creating any package with ChangeMan ZMF.

In general, the only effect IMS has during package creation is that the IMS control region information is copied to the package level. Control region data sets can thus be updated by end users at the package level (unless this is disallowed by your ChangeMan ZMF administrator).

The next section discusses the issues in updating a package.

### Package Update

---

Under the Package Update option, Option 2 of the Build Options panel (CMNBUILD), Option I of the Update Package Information panel has been added to allow you to obtain the Update IMS Package Update Options panel (CMNIMUPD) to view or update IMS information at the package level. The ability to make IMS updates is controlled by exit CMNEX041.

To display the Update IMS Package Update Options panel (CMNIMUPD), take the following steps:

1. From the Primary Option *Menu*, select 1 (Build). The Build Options panel (CMNBUILD) displays.
2. From the Build Options panel (CMNBUILD), select 2 (Update). The Update Package Information panel (CMNPGNLO) displays.



```

CMNPGNL0                                UPDATE: Package Information
Option ==> _____
Package . . . . IMSA000083
1 Control      Package control information
2 General      General description
3 Instruction   Installation instructions
4 Dependencies  Job Scheduling dependencies
5 Affected Apps Affected applications
6 Participating Participating packages
7 Install Dates Install date and site information
8 Close Package Close complex/super package
9 Open Package Open complex/super package
D Db2          Db2 package information
E User         Package user information
I IMS          IMS package information
R Release      Package release information

```

3. From the Update Package Information panel (CMNPGNL0), select I (IMS Information). The Update IMS Package Update Options panel (CMNIMUPD) appears.

```

CMNIMUPD                                UPDATE: IMS Package Update Options
Option ==> _____
      Package:  IMSA000083  Status: FRZ      Install Date: 20180707

1 IMS Regions      Add/delete IMS Control Regions
2 ACB Statements   Add/delete/update ACB statements
3 DBD Overrides    Add/delete/update DBD override statements
4 PSB Overrides    Add/delete/update PSB override statements

```

If the change package information that needs updating is in a FRZ (frozen) status, the GENERAL information category must be selectively unfrozen to allow this information to be updated. This category must be selectively refrozen when finished.

#### Note

The updating of any of these options may be restricted through the use of ChangeMan ZMF exits 1 or 41. See the ChangeMan ZMF Customization Guide for information about exits

## IMS Control Regions

Option 1 displays IMS control region information on the Update: IMS System Definitions panel (CMNIMSYS).

```

CMNIMSYS          UPDATE: IMS System Definitions          Row 1 to 1 of 1
Command ==>>>_____ Scroll ==>>> CSR

      Package: IMSA000023      Status: DEV      Install Date: 20180909

IMS      Site      Logical      Active      Devchar      MFSgen      PSBgen      DBDgen      ACB
Id       Name      Site Name   y/n        Suffix      y/n        y/n        y/n        y/n
IMSA     SERT6P1  S6P1UT     Y          A           Y          Y          Y          Y
***** Bottom of data *****

```

From this menu, you can add or delete IMS systems available for your package. Depending on the authority set by the Administrator, you may be able to delete IMS IDs. You may also be able to add IMS IDs, but they must be defined by an Administrator before you will see them under Package Update.

This authority can be controlled through ChangeMan ZMF exits CMNEX001 and CMNEX041. See the chapter titled *User Exits* in the *ChangeMan ZMF Customization Guide*.

You will generally just select or deselect an entire line here. This is because you will just want to update the definitions for one IMS ID at a time.

See Chapter 2 Global Control Region Setup for details.

**ACB Control Statements**

Option 2 gives you information about your ACB control statements. ACB control statements are generated during the stage process and executed during the install process.

```

CMNIMACB          UPDATE: ACB Control Statements          Row 1 to 21 of 21
Command ==>>>_____ Scroll ==>>> CSR

      Package: IMSA000023 Status: DEV Install Date: 20180909

      IMS      Logical ACB      Control      PSB/DBD      PSB/DBD      Library
      Id       Site Site    Type      Statement   Source      Target      Type
      _____
      _____
      _____
      _____
      _____
      _____

```

This screen is populated only with ACB control statements if there are PSBs or DBDs in your package. ChangeMan ZMF determines if ACB GENs may be needed, and fills in this screen accordingly.

With this option, you can add or delete IMS ACB control statements for this package. The fields in this option are discussed in the next sections.

All online PSB GENs (GENs of PSBs that are allocated to an IMS control region) require an ACB generation.

If you change something in the PSB or DBD specifications of your package (a PSB or a DBD override), ChangeMan ZMF will reflect that change here, in the form of “suggested” ACB control information. You can modify that information on this screen, or if you know you don’t need an ACB generation, you can delete it.

The fields in the Update ACB Control Statements panel (CMNIMACB) are described in the following table.

Field	Description
Line Command	Type one of these line commands:
	I Insert
	R Repeat
	D Delete
	* Select
IMS Id	A four-character ID that is assigned by the administrator for the control region.
Site	Type the remote site as defined in ChangeMan ZMF where the IMS subsystem is running. A blank entry to this field defaults to the local ChangeMan ZMF subsystem. You may enter a mask of '*' to display and selection list of the remote sites defined in this ChangeMan ZMF subsystem.
Logical Site	Type the logical site as defined in ChangeMan ZMF where the IMS subsystem is running. A blank entry to this field defaults to a logical site of baseline. Baseline in this case means installation or production. A logical site is either Baseline or a promotion nickname as defined in ChangeMan ZMF. Promotion nicknames can either be local or remote promotion sites. If the field is blank, it defaults to Baseline. If it is a baseline library, then it is either Production or Baseline(0).
ACB Type	Type the IMS type of PSB or DBD for the ACB generation. Only a one character type of P or D is required.
Control Statement	Type the type of ACB control. BUILD or DELETE are the only valid types of control statements. Only a one character type of 'B' or 'D' is required.
PSB/DBD Source	Type the source name of the PSB or DBD you wish to have an ACB generation performed on. The source must reside in the package or be reassembled from baseline.
PSB/DBD Target	Type the load name of the PSB or DBD you wish to have an ACB generation performed on.
Library Type	Type the library type that the PSB or DBD source was staged as. This library type must be an IMS PSB or DBD source sub-type.

## DBD Overrides

For Packages, work just like DBD Overrides at the Global and Application levels. Option 3 displays the Update DBD Override Control Statements panel (CMNIMDBD), which allows you to display the DBD override selections. DBD override statements are generated during the stage process and executed during the install process.

```
CMNIMDBD          UPDATE: DBD Override Control Statements      Row 1 to 12 of 21
Command ==>>>_____ Scroll ==>>> CSR

      Package: IMSA000023      Status: DEV      Install Date: 20180909

      IMS      Logical Control      DBD      Library
      Id      Site      Site      Statement Name      Type
-----
Org _____
New _____
```

With this option, you can add or delete IMS DBD control statements for this package. For each override, type the original (ORG) or the revised (NEW) DBD control statement.

### Note

It is of no consequence to do an override if you are not GENING the DBD. Make sure you are going to be re-GENING before specifying the overrides. Check the IMS control region definition (panel CMNIMSYS).

## PSB Overrides

PSB Overrides at the Package level work the same as PSB overrides at the Global and Application levels. Option 4 displays the Update PSB Override Control Statement panel (CMNIMPSB) that allows you to display the PSB override selections. PSB override statements are generated during the stage process and processed during the promotion and install processes.

In the following example during the package installation process the original PSBGEN statement with LANG=ASSEM is replaced with LANG=COBOL.

```
CMNIMPSB          UPDATE: DBD Override Control Statements      Row 1 to 12 of 21
Command ==>>>_____ Scroll ==>>> CSR

      Package: IMSA000023      Status: DEV      Install Date: 20180909

      IMS      Logical Control      DBD      Library
      Id      Site      Site      Statement Name      Type
-----
Org _____
New _____
```

With this option, you can add or delete IMS PSB control statements for this package.

For each override, enter the original (ORG) or the revised (NEW) PSB control statement.

## Note

It is of no consequence to do an override if you are not GENING the PSB. Make sure you are going to be re-GENING before specifying the overrides. Check the IMS Control Region definitions.

## Package Staging Considerations

DBDs are parsed for appropriate information to determine if BUILD statements are required for ACBs.

PSBs are parsed to determine if BUILD statements for ACBs are required. If the ChangeMan ZMF Administrator has specified to always generate BUILD statements, then no parsing is required.

### Staging a PSB (IMS/DLI Application)

Select the PSB to stage:

```
CMNSTG02      Stage from Development
Command ==> _____
      Package:  IMSA000023 Status: DEV Install date: 0180909
Work request: 1907D92      Department:  IDD

ISPF Library:
Project . . . . USER015
Group . . . . . PSB
Type . . . . . SOURCE
Member . . . . _____ (Blank/pattern for list; * for all members)

Other partitioned, sequential or zFS dataset:
DSN . . . . . CMNTP.SERT6.BASE.IMSQ.PSB      +
Org . . . . . ____ (PDS, Seq, PAN, LIB, Oth, zFS)

Library type . . . . . PSB      (Blank for list)
Stage name . . . . . _____+
Stage mode . . . . . 1      (1-Online, 2-Batch)

Enter "/" to select option
/ Confirm request      __Expand zFS subdirectories
/ Lock component      __Display component user options
__Extract Stored Procedure from Db2 catalog
```

Select the PSB to STAGE, in this case we chose IM2Q101:

```

CMNSTG03      Stage from Development      Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR

From dataset name
CMNTP.SERT6.BASE.IMSQ.PSB

Name          Function vv.mm      Created      Changed      Size Init  User
IM2QPSB       01.01      2018/05/01  2018/06/03 06:45 00004 00002 USER015
S IM2Q101     01.01      2018/05/01  2018/05/03 06:45 00004 00002 USER015
***** Bottom of data *****

```

You'll need to fill in the PROCEDURE and LANGUAGE names:

```

CMNSTG04      Stage: Build

Command ==> _____

Package: IMSA000023      Status: DEV      Install date: 20180909

Staged name . . . . IM2Q101      +
Library type . . . . PSB - IMS PSB Source
Dataset name . . . . CMNTP.SERT6.BASE.IMSQ.PSB      +

Language . . . . . ASM (Blank for list)
Compile procedure . . . . CMNPSBGN (Blank for list; ? for designated proc.)
Compile parms . . . . . _____
Pgm binder parms . . . . . _____
Enter "/" to select option
  Db2 processing
  Other Db2 options
  Other options      User variables
  Suppress messages
Job statement information:
//USER015A JOB (ACCOUNT),'IMSA',
//          CLASS=A,
//          NOTIFY=USER015,
//          MSGCLASS=X

```

If you omit the Language, hit enter again you'll be prompted for a language, select ASM:

```

CMNSTG07      Language Selection List      Row 1 to 9 of 9
Command ==> _____ Scroll ==> CSR

  Language
S  ASM
___ C
...

```

Then also if you omit the compile procedure, select CMNPSBGN:

```

CMNSTG06 Compile Procedure Selection List Row 1 to 7 of 7
Command ==>_____ Scroll ==> CSR
Procedure      Language      Description
__CMNASM      ASM           Stage assembler source
__CMNASMOB    ASM           Stage assembler source to object
__CMNASM2L    ASM           Stage assembler source w/ 2 link edit
__CMNDBDGN    ASM           IMS DBD Gen
__CMNMAPGN    ASM           CICS BMS MAP Gen
__CMNMFSGN    ASM           IMS MFS Gen
s CMNPSBGN    ASM           IMS PSB Gen
*****Bottom of data*****

```

Here's the PSB SOURCE:

```

ISRBROBA NTP.SERT6.BASE.IMSQ.PSB(IM2Q101) - 01.01 Line 00000000 Col 001 080
Command ==>_____ Scroll ==> CSR
***** Top of Data *****
PCB      TYPE=DB,DBDNAME=CUSEDBD,PROCOPT=L,KEYLEN=4
SENSEG   NAME=CUSESEGM,PARENT=0
PSBGEN   PSBNAME=IM2Q101,LANG=ASSEM,CMPAT=YES
END
***** Bottom of Data *****

```

Cycle through the remaining screens, and the job will be submitted. This is the JESMSGLG showing the PSBGEN job steps executed.

```

***** TOP OF DATA *****
      J E S 2 J O B L O G -- S Y S T E M Q 0 0 1 -- N O D E M P 3 J E S 2
00.47.23 J0003331 ---- TUESDAY, 26 JUN 2018 ----
00.47.23 J0003331 IRR010I USERID SERT IS ASSIGNED TO THIS JOB.
00.47.24 J0003331 ICH70001I SERT LAST ACCESS AT 21:57:53 ON MONDAY, JUNE 25, 2018
00.47.24 J0003331 $HASP373 USER015A STARTED - INIT 1 - CLASS A - SYS Q001
00.47.24 J0003331 - --TIMINGS (MINS.)-- -----PAGING COUNTS-----
00.47.24 J0003331 -STEPNAME PROCSTEP RC EXCP CONN TCB SRB CLOCK SERV WORKLOAD PAGE SWAP VIO SWAPS
00.47.24 J0003331 -SERCOPY 00 229 51 .00 .00 .0 999 BATCH 0 0 0 0
00.47.25 J0003331 IEC130I SYSLIB DD STATEMENT MISSING
00.47.25 J0003331 -WRITE 04 741 188 .00 .00 .0 891 BATCH 2 0 0 0
00.47.25 J0003331 -ASM 00 182 45 .00 .00 .0 567 BATCH 0 0 0 0
00.47.25 J0003331 -SSIDN 00 81 17 .00 .00 .0 265 BATCH 0 0 0 0
00.47.25 J0003331 -ALOCIN 00 35 6 .00 .00 .0 115 BATCH 0 0 0 0
00.47.26 J0003331 -LNK 00 105 24 .00 .00 .0 365 BATCH 0 0 0 0
00.47.26 J0003331 -BT90PSL 00 219 44 .00 .00 .0 709 BATCH 0 0 0 0
00.47.27 J0003331 -VFYILOD 00 716 183 .00 .00 .0 743 BATCH 0 0 0 0
00.47.27 J0003331 -DLTILOD FLUSH 0 0 .00 .00 .0 0 BATCH 0 0 0 0
00.47.27 J0003331 -CPYPSL 00 237 50 .00 .00 .0 979 BATCH 0 0 0 0
00.47.28 J0003331 -PSBDBD 00 714 183 .00 .00 .0 770 BATCH 0 0 0 0
00.47.28 J0003331 -SUCCESS 00 815 194 .00 .00 .0 831 BATCH 0 0 0 0
00.47.28 J0003331 -CHKCOND 00 14 3 .00 .00 .0 32 BATCH 0 0 0 0
00.47.28 J0003331 -FAILURE FLUSH 0 0 .00 .00 .0 0 BATCH 0 0 0 0
00.47.29 J0003331 -PRINT 00 373 43 .00 .00 .0 1092 BATCH 0 0 0 0
00.47.29 J0003331 -COMPLST 00 147 33 .00 .00 .0 424 BATCH 0 0 0 0
00.47.30 J0003331 -ILODLST 00 714 183 .00 .00 .0 686 BATCH 0 0 0 0
00.47.30 J0003331 -USER015A ENDED. NAME-IMSA TOTAL TCB CPU TIME= .01 TOTAL ELAPSED TIME= .1
----- JES2 JOB STATISTICS -----
26 JUN 2018 JOB EXECUTION DATE
377 CARDS READ
1,620 SYSOUT PRINT RECORDS
0 SYSOUT PUNCH RECORDS
122 SYSOUT SPOOL KBYTES
0.11 MINUTES EXECUTION TIME
***** BOTTOM OF DATA *****

```

## Staging a DBD (DLI Database)

Select the DBD for staging:

```
CMNSTG02          Stage from Development
Command ==>_____
      Package: IMSA000023      Status: DEV      Install date: 20180909
Work request: 1907D92                      Department: IDD

ISPF Library:
Project . . . . . USER015
Group . . . . . JCL
Type . . . . . CNTL
Member . . . . .          (Blank/pattern for list; * for all members)

Other partitioned, sequential or zFS dataset:
DSN . . . . . CMNTP.SERT6.BASE.IMSQ.DBD          +
Org ____ . . . . .          (PDS, Seq, PAN, LIB, Oth, zFS)
Library type . . . . . DBD (Blank for list)
Stage name . . . . . _____+
Stage mode . . . . . 1      (1-Online, 2-Batch)

Enter "/" to select option
/ Confirm request      __Expand zFS subdirectories
/ Lock component      __Display component user options
__Extract Stored Procedure from Db2 catalog
```

Then select the DBD for staging, in this case we chose CUSEDBD:

```
CMNSTG03          Stage from Development          Row 1 to 1 of 1
Command ==>_____ Scroll ==> CSR

From dataset name
CMNTP.SERT6.BASE.IMSQ.DBD

  Name      Function vv.mm Created    Changed      Size  Init  User
__CUSEDBD      02.00 2018/05/02 2018/06/08 18:46 00006 00006 USER022
***** Bottom of data *****
```

Here's what the Staging Build panel will look like:



```

CMNSTG04                      Stage: Build
Command ==>_____
Package: IMSA000023           Status: DEV           Install date: 20180909
Staged name . . . . CUSEDDBD +
Library type . . . . DBD - IMS DBD Source
Dataset name . . . . CMNTP.SERT6.BASE.IMSQ.DBD +

Language . . . . . ASM (Blank for list)
Compile procedure . . . . CMNDBDGN (Blank for list; ? for designated proc.)
Compile parms . . . . . _____
Pgm binder parms . . . . . _____
Enter "/" to select option
    Db2 processing
    Other Db2 options
    Other options User variables
    Suppress messages
Job statement information:
//USER015A JOB (ACCOUNT),'IMSA',
//      CLASS=A,
//      NOTIFY=USER015,
//      MSGCLASS=X

```

Here's the DBD source code:

```

BROWSE CMNTP.SERT6.BASE.IMSQ.DBD(CUSEDDBD) - 02.00 Line 00000000 Col 001 080
Command ==>_____ Scroll ==> CSR
***** Top of Data *****
DBD  NAME=CUSEDDBD,ACCESS=HDAM,RMNAME=(DFSHDC40,1,500,824)
DATASET DD1=CUSEDDB1,DEVICE=3390
SEGM  NAME=CUSESEGM,BYTES=200,PARENT=0
      FIELD NAME=(CUSESEQ,SEQ,U),BYTES=4,START=1,TYPE=C
      FIELD NAME=CUSEDATA,BYTES=196,START=5,TYPE=C
DBDGEN
***** Bottom of Data *****

```

Excerpts from the DBDGEN:

```

JES2JOBLOG--SYSTEMQ001--NODEMP3JES2
01.10.10 J0003382 ---- TUESDAY, 26 JUN 2018 ----
01.10.10 J0003382 IRR010I USERID SERT IS ASSIGNED TO THIS JOB.
01.10.11 J0003382 ICH70001I SERT LAST ACCESS AT 00:47:24 ON TUESDAY, JUNE 26, 2018
01.10.11 J0003382 $HASP373 USER015A STARTED - INIT 1 - CLASS A - SYS Q001
01.10.11 J0003382 - --TIMINGS (MINS.)-- ----PAGING COUNTS----
01.10.11 J0003382 -STEPNAME PROCSTEP RC EXCP CONN TCB SRB CLOCK SERV WORKLOAD PAGE SWAP VIO SWAPS
01.10.11 J0003382 -SERCOPY 00 242 55 .00 .00 .0 1076 BATCH 0 0 0 0
01.10.12 J0003382 IEC130I SYSLIB DD STATEMENT MISSING
01.10.12 J0003382 -WRITE 04 749 201 .00 .00 .0 985 BATCH 0 0 0 0
01.10.13 J0003382 -ASM 04 247 59 .00 .00 .0 993 BATCH 0 0 0 0
01.10.13 J0003382 -SSIDN 00 83 18 .00 .00 .0 301 BATCH 0 0 0 0
01.10.13 J0003382 -ALOCIN 00 34 6 .00 .00 .0 121 BATCH 0 0 0 0
01.10.14 J0003382 -LNK 00 102 25 .00 .00 .0 414 BATCH 0 0 0 0
01.10.14 J0003382 -BT90DBL 00 220 45 .00 .00 .0 813 BATCH 0 0 0 0
01.10.15 J0003382 -VFYILOD 00 728 189 .00 .00 .0 827 BATCH 0 0 0 0
01.10.15 J0003382 -DLTILOD FLUSH .0 0 0 .00 .00 0 BATCH 0 0 0 0
01.10.16 J0003382 -CPYDBL 00 240 51 .00 .00 .0 1048 BATCH 0 0 0 0
01.10.16 J0003382 -PSBDBD 00 722 186 .00 .00 .0 824 BATCH 0 0 0 0
01.10.17 J0003382 -SUCCESS 00 817 204 .00 .00 .0 901 BATCH 0 0 0 0

```

```

01.10.17 J0003382 -CHKCOND          00   14    2   .00   .00   .0    30 BATCH    0    0    0    0
01.10.17 J0003382 -FAILURE          FLUSH  0    0   .00   .00   .0    0 BATCH    0    0    0    0
01.10.18 J0003382 -PRINT            00   369   45   .00   .00   .0   1190 BATCH    0    0    0    0
01.10.18 J0003382 -COMPLST          00   141   32   .00   .00   .0    486 BATCH    0    0    0    0
01.10.19 J0003382 -ILODLST          00   721  190   .00   .00   .0    794 BATCH    0    0    0    0
01.10.19 J0003382 -USER015A ENDED. NAME-IMSA TOTAL TCB CPU TIME= .01 TOTAL ELAPSED TIME= .1
01.10.19 J0003382 $HASP395 USER015A ENDED - RC=0004
*****
* DDNAME: CPYDBL.SYSPRINT          *
*****
IEBCOPY MESSAGES AND CONTROL STATEMENTS PAGE 1
IEB1135I IEBCOPY FMID HDZ2230 SERVICE LEVEL UA92265 DATED 20170618 DFSMS 02.03.00 z/OS 02.03.00 HBB77B0 CPU 2965
IEB1035I USER015A CPYDBL 01:10:15 TUE 26 JUN 2018 PARM='LIST=NO,SPCLCMOD'
COPYMOD OUTDD=SYS00003,INDD=((SYSUT1,R)),LIST=NO * Copy
IEB190I MAXIMUM BLOCK SIZE IS 32760, MINIMUM BLOCK SIZE IS 1024
IEB1013I COPYING FROM PDS INDD=SYSUT1 VOL=SRSM80 DSN=SYS18177.T011010.RA000.USER015A.LOAD.H09
IEB1014I TO PDS OUTDD=SYS00003 VOL=C1054D DSN=CMNTP.S6.IMSA.STG6.#000001.DBL
IEB1098I 1 OF 1 MEMBERS COPIED FROM INPUT DATA SET REFERENCED BY SYSUT1
IEB144I THERE ARE 9 UNUSED TRACKS IN OUTPUT DATA SET REFERENCED BY SYS00003
IEB149I THERE ARE 4 UNUSED DIRECTORY BLOCKS IN OUTPUT DIRECTORY
IEB147I END OF JOB - 0 WAS HIGHEST SEVERITY CODE
*****
* DDNAME: SUCCESS.SYSPRINT        *
*****
ChangeMan(R) ZMF      CMNBATCH - 8.2.0 2018/06/26 01:10:17
Attempting to initiate dialog with ChangeMan ZMF subtask
Session established with ChangeMan ZMF subtask
SYSIN: IMSA000023 90 RTP=ISRC
SYSIN: IMSA000023 90 LIB=DBD
SYSIN: IMSA000023 90 LNG=ASM
SYSIN: IMSA000023 90 SID=USER015
SYSIN: IMSA000023 90 CHT=19F3484300000128
...
SYSIN: IMSA000023 90 CNM=CUSEDBD
SOURCE COMPONENT ACTIVATED.                                IMSA000023
SOURCE COMPONENT ACTIVATION LOGGED.                        IMSA000023
SYSIN: IMSA000023 90 CID=
SYSIN: IMSA000023 90 RTP=ILOD
SYSIN: IMSA000023 90 SLT=DBD
SYSIN: IMSA000023 90 SNM=CUSEDBD
SYSIN: IMSA000023 90 SID=USER015
SYSIN: IMSA000023 90 SSI=6E0189EB
SYSIN: IMSA000023 90 PRC=CMNDBDGN
SYSIN: IMSA000023 90 RLK=
SYSIN: IMSA000023 90 LLT=DBL
SYSIN: IMSA000023 90 SUP=NO
SYSIN: IMSA000023 90 LNM=CUSEDBD
Component CUSEDBD is in ACTIVE status and the package master
LOAD record has been updated accordingly.                    IMSA000023
LOAD COMPONENT ACTIVATED.                                    IMSA000023
LOAD COMPONENT ACTIVATION LOGGED.                            IMSA000023
HISTORY RECORD has been updated accordingly.                 IMSA000023
SYSIN: IMSA000023 90 CID=CUSEDBD 6E0189EB IMSA000023 I
SYSIN: IMSA000023 90 CID=
END OF DATA ON SYSIN - TERMINATING
Session terminated with ChangeMan ZMF started task

<SIZE: RECS=1567 BYTES=93049>
***** BOTTOM OF DATA *****

```

## Staging MFS (IMS Message Formats)

Here's the MFS source:

```

BROWSE  CMNTP.SERT6.BASE.IMSQ.MFS(IM2QFMT) - 01.00 Line 00000000 Col 001 080
Command ==> Scroll ==> PAGE
***** Top of Data *****
      PRINT NOGEN
SQDF1  FMT
      DEV  TYPE=(3270,2),FEAT=IGNORE,DSCA=X'00A0',SYSMSG=MSGFLD
      DIV  TYPE=INOUT
      DPAGE CURSOR=((15,37))
      DFLD  'AUBREY SUSAN SUPPORT SYSTEMS',POS=(03,26,01)
      DFLD  'TRANCODE ',POS=(15,27)
TRANCODE DFLD  POS=(15,37),LTH=9
      DFLD  'STARTNUM ',POS=(16,27)
STARTNUM DFLD  POS=(16,37),LTH=9
      DFLD  'ENDNUM ',POS=(17,27)
ENDNUM   DFLD  POS=(17,37),LTH=9
      DFLD  'RESULT ',POS=(18,27)
RESULT   DFLD  POS=(18,37),LTH=9
MSGFLD   DFLD  POS=(21,02),LTH=79
      FMTEND
SQM01   MSG  TYPE=OUTPUT,SOR=(SQDF1,IGNORE),NXT=SQMI1
      SEG
      MFLD  TRANCODE,LTH=9
      MFLD  STARTNUM,LTH=9
      MFLD  ENDNUM,LTH=9
      MFLD  RESULT,LTH=9
      MSGEND
SQMI1   MSG  TYPE=INPUT,SOR=(SQDF1,IGNORE),NXT=SQM01
      SEG
      MFLD  TRANCODE,LTH=9
      MFLD  STARTNUM,LTH=9
      MFLD  ENDNUM,LTH=9
      MSGEND
      END
***** Bottom of Data *****

```

DIFs and DOFs and MIDs and MODs. The Device Input Format/Device Output Format name is SQDF1 (TYPE=INOUT). The Message Output Descriptor name is SQM01. The Device Input Format name is SQMI1. To initiate this transaction, issue a /FORMAT SQM01 from the IMS application terminal.

To stage the MFS control blocks:

```

CMNSTG02      Stage from Development
Command ==>_____

      Package: IMSA000023 Status: DEV Install date: 20180909
Work request: 1907D92 Department: IDD

ISPF Library:
Project . . . . USER015
Group . . . . . JCL
Type . . . . . CNTL
Member . . . . _____ (Blank/pattern for list; * for all members)

Other partitioned, sequential or zFS dataset:
DSN . . . . . CMNTP.SERT6.BASE.IMSQ.MFS +
Org . . . . . _____ (PDS, Seq, PAN, LIB, Oth, zFS)

Library type . . . . . MFS (Blank for list)
Stage name . . . . . +
Stage mode . . . . . 1 (1-Online, 2-Batch)

Enter "/" to select option
/ Confirm request      Expand zFS subdirectories
/ Lock component      Display component user options
  Extract Stored Procedure from Db2 catalog

```

Select the MFS member to STAGE, in this case we chose IM2QFMT

```

CMNSTG03      Stage from Development  Row 1 to 1 of 1
Command ==>_____ Scroll ==> CSR

From dataset name
CMNTP.SERT6.BASE.IMSQ.MFS

  Name Function vv.mm Created   Changed      Size  Init  User
__IM2QFMT      01.01 2018/05/14 2018/05/14 15:45 00030 00030 USER022
***** Bottom of data *****

```

Need to fill in Language and Procedure:

```

CMNSTG04                Stage: Build
Command ==>_____

Package: IMSA000023      Status: DEV      Install date: 20180909
Staged name . . . . IM2QFMT                      +
Library type . . . . MFS - IMS MFS Source
Dataset name . . . . CMNTP.SERT6.BASE.IMSQ.MFS    +

Language . . . . . ASM (Blank for list)
Compile procedure . . . . CMNMFSGN (Blank for list; ? for designated proc.)
Compile parms . . . . . _____
Pgm binder parms . . . . _____
Enter "/" to select option
__ Db2 processing
__ Other Db2 options
__ Other options      __User variables
__ Suppress messages
Job statement information:
//USER015A JOB (ACCOUNT),'IMSA',
//          CLASS=A,
//          NOTIFY=USER015,
//          MSGCLASS=X

```

### Excerpts from the MFSGEN:

```

***** TOP OF DATA *****
J E S 2 J O B L O G -- S Y S T E M Q 0 0 1 -- N O D E M P 3 J E S 2

02.39.50 J0003569 ---- TUESDAY, 26 JUN 2018 ----
02.39.50 J0003569 IRR010I USERID SERT          IS ASSIGNED TO THIS JOB.
02.39.51 J0003569 ICH70001I SERT          LAST ACCESS AT 02:34:30 ON TUESDAY, JUNE 26, 2018
02.39.51 J0003569 $HASP373 USER015A STARTED - INIT 1 - CLASS A - SYS Q001
02.39.52 J0003569 -                                --TIMINGS (MINS.)--          ----PAGING COUNTS----
02.39.52 J0003569-STEPNAME PROCSTEP RC EXCP CONN TCB SRB CLOCK SERV WORKLOAD PAGE SWAP VIO SWAPS
02.39.52 J0003569 -SERCOPY          00 230 51 .00 .00 .0 981 BATCH 0 0 0 0
02.39.52 J0003569 IEC130I SYSLIB DD STATEMENT MISSING
02.39.52 J0003569 -WRITE          04 735 189 .00 .00 .0 878 BATCH 0 0 0 0
02.39.53 J0003569 -MFSS1          04 166 32 .00 .00 .0 514 BATCH 0 0 0 0
02.39.53 J0003569 -MFSS2          00 173 44 .00 .00 .0 439 BATCH 0 0 0 0
02.39.53 J0003569 -BT90MFR        00 113 23 .00 .00 .0 238 BATCH 0 0 0 0
02.39.53 J0003569 -BT90FMT        00 109 22 .00 .00 .0 234 BATCH 0 0 0 0
02.39.54 J0003569 -VFYILOD        00 745 184 .00 .00 .0 788 BATCH 0 0 0 0
02.39.54 J0003569 -DLTILOD        FLUSH 0 0 .00 .00 .0 0 BATCH 0 0 0 0
02.39.54 J0003569 -COPYMFR        00 171 37 .00 .00 .0 443 BATCH 0 0 0 0
02.39.54 J0003569 -COPYFMT        00 181 40 .00 .00 .0 459 BATCH 0 0 0 0
02.39.55 J0003569 -SUCCESS        00 901 206 .00 .00 .0 1227 BATCH 0 0 0 0
02.39.55 J0003569 -CHKCOND        00 14 2 .00 .00 .0 30 BATCH 0 0 0 0
02.39.55 J0003569 -FAILURE        FLUSH 0 0 .00 .00 .0 0 BATCH 0 0 0 0
02.39.56 J0003569 -PRINT          00 431 45 .00 .00 .0 1059 BATCH 0 0 0 0
02.39.56 J0003569 -COMPLST        00 140 32 .00 .00 .0 402 BATCH 0 0 0 0
02.39.56 J0003569 -ILODLST        00 713 185 .00 .00 .0 702 BATCH 0 0 0 0
02.39.57 J0003569 -USER015A ENDED. NAME-IMSA          TOTAL TCB CPU TIME= .01 TOTAL ELAPSED TIME= .0
02.39.57 J0003569 $HASP395 USER015A ENDED - RC=0004
----- JES2 JOB STATISTICS -----
26 JUN 2018 JOB EXECUTION DATE
340 CARDS READ
1,388 SYSOUT PRINT RECORDS
0 SYSOUT PUNCH RECORDS
108 SYSOUT SPOOL KBYTES
0.10 MINUTES EXECUTION TIME
***** BOTTOM OF DATA *****

```

### More excerpts from the MFSGEN:



```

*****
* DDNAME: COPYMFR.SYSPRINT *
*****
SER9403I SERCOPY options: BSAM FULL REALLOC RETRY RSTATS
SER9405I Input dsname: SYS18177.T023950.RA000.USER015A.TEMPMFR.H09
SER9406I Output dsname: CMNTP.S6.IMSA.STG6.#000001.MFR
SER9407I Begin copy: INFILE=SYSUT1 OUTFILE=SYS00003
SER9420I Member successfully copied: SQDF1
SER9420I Member successfully copied: SQMI1
SER9420I Member successfully copied: SQM01
SER9424I Number of members copied: 3
SER9425I Copy completed successfully

*****
* DDNAME: COPYFMT.SYSPRINT *
*****
SER9403I SERCOPY options: BSAM FULL LMOD MFS REALLOC RETRY
SER9405I Input dsname: SYS18177.T023950.RA000.USER015A.TEMPFMT.H09
SER9406I Output dsname: CMNTP.S6.IMSA.STG6.#000001.FMT
SER9407I Begin copy: INFILE=SYSUT1 OUTFILE=SYS00005
SER9420I Member successfully copied: "sQDF1
SER9420I Member successfully copied: "SQDF1
SER9420I Member successfully copied: SQMI1
SER9420I Member successfully copied: SQM01
SER9424I Number of members copied: 4
SER9425I Copy completed successfully

Component SQDF1 is in ACTIVE status and the package master
LOAD record has been updated accordingly.          IMSA000023
LOAD COMPONENT ACTIVATED.                          IMSA000023
LOAD COMPONENT ACTIVATION LOGGED.                  IMSA000023
HISTORY RECORD has been updated accordingly.        IMSA000023
SYSIN: IMSA000023 90 LNM=SQMI1
Component SQMI1 is in ACTIVE status and the package master
LOAD record has been updated accordingly.          IMSA000023
LOAD COMPONENT ACTIVATED.                          IMSA000023
LOAD COMPONENT ACTIVATION LOGGED.                  IMSA000023
HISTORY RECORD has been updated accordingly.        IMSA000023
SYSIN: IMSA000023 90 LNM=SQM01
Component SQM01 is in ACTIVE status and the package master
LOAD record has been updated accordingly.          IMSA000023
LOAD COMPONENT ACTIVATED.                          IMSA000023
LOAD COMPONENT ACTIVATION LOGGED.                  IMSA000023
HISTORY RECORD has been updated accordingly.        IMSA000023
...
Component "sQDF1 is in ACTIVE status and the package master
LOAD record has been updated accordingly.          IMSA000023
LOAD COMPONENT ACTIVATED.                          IMSA000023
LOAD COMPONENT ACTIVATION LOGGED.                  IMSA000023
HISTORY RECORD has been updated accordingly.        IMSA000023
SYSIN: IMSA000023 90 LNM= "SQDF1
Component "SQDF1 is in ACTIVE status and the package master
LOAD record has been updated accordingly.          IMSA000023
LOAD COMPONENT ACTIVATED.                          IMSA000023
LOAD COMPONENT ACTIVATION LOGGED.                  IMSA000023
HISTORY RECORD has been updated accordingly.        IMSA000023
SYSIN: IMSA000023 90 LNM=SQMI1
Component SQMI1 is in ACTIVE status and the package master
LOAD record has been updated accordingly.          IMSA000023
LOAD COMPONENT ACTIVATED.                          IMSA000023

```

```

LOAD COMPONENT ACTIVATION LOGGED.                IMSA000023
HISTORY RECORD has been updated accordingly.      IMSA000023
SYSIN: IMSA000023 90 LNM=SQM01
Component SQM01 is in ACTIVE status and the package master
LOAD record has been updated accordingly.         IMSA000023
LOAD COMPONENT ACTIVATED.                        IMSA000023
LOAD COMPONENT ACTIVATION LOGGED.                IMSA000023
HISTORY RECORD has been updated accordingly.      IMSA000023
END OF DATA ON SYSIN - TERMINATING
Session terminated with ChangeMan ZMF started task

<SIZE: RECS=907 BYTES=44958>

```

## Staging the DBB (Db2 Bind requirements)

Here's the source:

```

BROWSE CMNTP.SERT6.BASE.IMSQ.DBB(IM2Q101) - 01.01 Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
BIND PLAN(IM2Q101) -                               00010001
PKLIST(CMN7.IM2Q101) -                             00020001
ACT(REP) -                                           00030001
ISO(CS) -                                             00040001
EXPLAIN(NO) -                                        00050001
VALIDATE(BIND) -                                     00060001
ACQUIRE(USE) -                                      00070001
RELEASE(COMMIT) -                                    00080001
***** Bottom of Data *****

```

Let's stage it:

```

CMNSTG03      Stage from Development                Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR

From dataset name
CMNTP.SERT6.BASE.IMSQ.DBB

Name      Function vv.mm Created   Changed   Size  Init  User
s IM2Q101          01.01 2018/06/26 2018/06/26 03:17 00008 00008 USER015
***** Bottom of data *****

```

The DBB member is STAGED



```
CMNSTG03          Stage from Development          IM2Q101 STAGED
Command ==>_____ Scroll ==> CSR
```

```
From dataset name
CMNTP.SERT6.BASE.IMSQ.DBB
```

Name	Function	vv.mm	Created	Changed	Size	Init	User
__IM2Q101	*STAGE	01.01	2018/06/26	2018/06/26 03:17	00008	00008	USER015

\*\*\*\*\* Bottom of data \*\*\*\*\*

```
CMN2575I - IM2Q101 component staged from CMNTP.SERT6.BASE.IMSQ.DBB
```

## Staging the COBOL source

Make sure the Db2 Active Libraries are set up properly:

```
CMNLD2AL ----- Db2 Active Library List ----- Row 1 to 4 of 4
Command ==>_____ Scroll ==> CSR
```

Logical name	Bind /SQL	Db2 active library name
___ PROM810	B	CMNTP.SERT6.PROM.IMSQ.C001AUT.DBR
___ PROM810	B	CMNTP.SERT6.PROM.IMSQ.C001AUT.DBB
___ PROM810	B	CMNTP.SERT6.PROM.IMSQ.C001AQA.DBR
___ PROM810	B	CMNTP.SERT6.PROM.IMSQ.C001AQA.DBB

\*\*\*\*\* Bottom of data \*\*\*\*\*

Select IM2Q101 for Staging:

```
CMNSTG03          Stage from Development          Row 1 to 1 of 1
Command ==>_____ Scroll ==> CSR
```

```
From dataset name
CMNTP.SERT6.BASE.IMSQ.SRC
```

Name	Function	vv.mm	Created	Changed	Size	Init	User
__s IM2Q101		01.01	2018/05/01	2018/05/03 16:11	00102	00102	USER022

\*\*\*\*\* Bottom of data \*\*\*\*\*

On the build panel make sure that Db2 processing is selected

```

CMNSTG04                               Stage: Build
Command ===>_____

Package: IMSA000023 Status: DEV Install date: 20180909

Staged name . . . . IM2Q101                +
Library type . . . . SRC - Source for Programs to be Linked Executable
Dataset name . . . . CMNTP.SERT6.BASE.IMSQ.SRC
+
Language . . . . . COBOL2                (Blank for list)
Compile procedure . . . . CMNCOB2        (Blank for list; ? for designated proc.)
Compile parms . . . . . _____
Pgm binder parms . . . . . _____
Enter "/" to select option
/ Db2 processing
/ Other Db2 options
/ Other options      __User variables
__Suppress messages
Job statement information:
//USER015A JOB (ACCOUNT),'IMSA',
//          CLASS=A,
//          NOTIFY=USER015,
//          MSGCLASS=X

```

If there are differences then you must select on, here select the first C11J:

```

CMNSTG18                               Db2 Physical Subsystems                Row 1 to 7 of 7
Command ===>_____                Scroll ===> CSR

Version . . _____

Db2      Db2 system
subsys  Site  load library
__ C10J          SYS2.DB21010.SDSNLOAD
__ C10J SERT6    SYS2.DB21010.SDSNLOAD
__ C10J PROD     SYS2.DB21010.SDSNLOAD
__ C10J UNIT     SYS2.DB21010.SDSNLOAD
__ C10J SYST     SYS2.DB21010.SDSNLOAD
s  C11J SERT6P1  SYS2.DB21010.SDSNLOAD
__ C11J SERT6P2  SYS2.DB21010.SDSNLOAD
***** Bottom of data *****

```

Excerpts from the job to Stage IM2Q101:

J E S 2 J O B L O G -- S Y S T E M Q 0 0 1 -- N O D E M P 3 J E S 2

16.16.26 J0004943 ---- TUESDAY, 26 JUN 2018 ----

16.16.26 J0004943 IRR010I USERID SERT IS ASSIGNED TO THIS JOB.

16.16.27 J0004943 ICH70001I SERT LAST ACCESS AT 02:39:51 ON TUESDAY, JUNE 26, 2018

16.16.27 J0004943 \$HASP373 USER015A STARTED - INIT 1 -CLASS A - SYS Q001

16.16.28 J0004943 - --TIMINGS (MINS.)-- -----PAGING

COUNTS----

STEPNAME	PROCSTEP	RC	EXCP	CONN	TCB	SRB	CLOCK	SERV	WORKLOAD	PAGE	SWAP
----------	----------	----	------	------	-----	-----	-------	------	----------	------	------

16.16.28	J0004943	-SERCOPY	00	234	52	.00	.00	.0	996	BATCH	0	0
----------	----------	----------	----	-----	----	-----	-----	----	-----	-------	---	---

16.16.28 J0004943 IEC130I SYSLIB DD STATEMENT MISSING

16.16.28	J0004943	-WRITE	00	736	188	.00	.00	.0	871	BATCH	0	0
----------	----------	--------	----	-----	-----	-----	-----	----	-----	-------	---	---

16.16.29	J0004943	-DB2PC	04	498	32	.00	.00	.0	678	BATCH	4	0
----------	----------	--------	----	-----	----	-----	-----	----	-----	-------	---	---

16.16.30	J0004943	-B90DBR	00	112	22	.00	.00	.0	244	BATCH	0	0
----------	----------	---------	----	-----	----	-----	-----	----	-----	-------	---	---

16.16.30	J0004943	-COBOL2	00	456	88	.00	.00	.0	780	BATCH	0	0
----------	----------	---------	----	-----	----	-----	-----	----	-----	-------	---	---

16.16.30	J0004943	-SSIDN	00	111	48	.00	.00	.0	3009	BATCH	0	0
----------	----------	--------	----	-----	----	-----	-----	----	------	-------	---	---

16.16.30	J0004943	-ALOCIN	00	37	16	.00	.00	.0	1004	BATCH	0	0
----------	----------	---------	----	----	----	-----	-----	----	------	-------	---	---

16.16.30	J0004943	-LNK	00	332	302	.00	.00	.0	2764	BATCH	0	0
----------	----------	------	----	-----	-----	-----	-----	----	------	-------	---	---

16.16.30	J0004943	-BT90LOD	00	208	82	.00	.00	.0	2200	BATCH	0	0
----------	----------	----------	----	-----	----	-----	-----	----	------	-------	---	---

16.16.30	J0004943	-VFYILOD	00	238	75	.00	.00	.0	8890	BATCH	0	0
----------	----------	----------	----	-----	----	-----	-----	----	------	-------	---	---

16.16.30	J0004943	-DLTILOD	00	125	47	.00	.00	.0	1090	BATCH	0	0
----------	----------	----------	----	-----	----	-----	-----	----	------	-------	---	---

16.16.30	J0004943	-CPYLOD	00	228	845	.00	.00	.0	2960	BATCH	0	0
----------	----------	---------	----	-----	-----	-----	-----	----	------	-------	---	---

16.16.30	J0004943	-CPYDBR	00	176	551	.00	.00	.0	222	BATCH	0	0
----------	----------	---------	----	-----	-----	-----	-----	----	-----	-------	---	---

16.16.30	J0004943	-SUCCESS	00	688	343	.00	.00	.0	21907	BATCH	0	0
----------	----------	----------	----	-----	-----	-----	-----	----	-------	-------	---	---

16.16.30	J0004943	-CHKCOND	00	19	7	.00	.00	.0	1103	BATCH	0	0
----------	----------	----------	----	----	---	-----	-----	----	------	-------	---	---

16.16.31	J0004943	-FAILURE	FLUSH	0	0	.00	.00	.0	0	BATCH	0	0
----------	----------	----------	-------	---	---	-----	-----	----	---	-------	---	---

16.16.31	J0004943	-PRINT	00	165	25	.00	.00	.0	663	BATCH	0	0
----------	----------	--------	----	-----	----	-----	-----	----	-----	-------	---	---

16.16.31	J0004943	-COMPLST	00	142	33	.00	.00	.0	405	BATCH	0	0
----------	----------	----------	----	-----	----	-----	-----	----	-----	-------	---	---

16.16.32	J0004943	-ILODLST	00	718	185	.00	.00	.0	710	BATCH	0	0
----------	----------	----------	----	-----	-----	-----	-----	----	-----	-------	---	---

16.16.32 J0004943 -USER015A ENDED. NAME-IMSA TOTAL TCB CPU TIME= .01 TOTAL ELAPSED TIME= .05

16.16.32 J0004943 \$HASP395 USER015A ENDED - RC=0004

000186 MAIN-ROUTINE.

000187 \*(1)

000188 \*\*\*\*\*EXEC SQL WHENEVER SQLERROR CONTINUE END-EXEC.

000189 \*(2)

000190 CALL 'CBLTDLI' USING GET-UNIQUE

000191 IO-PCB

000192 INPUT-MESSAGE.

000193 \*(3)

000194 IF IO-STATUS NOT = SPACES

```

000195          *(4)
000196      1      GOBACK.
000197          *(5)
000198              PERFORM SQL-CALL.
000199              MOVE INPUT-TEXT TO OUTPUT-TEXT
000200              MOVE SQLCODE TO NUMBER1 IN OUTPUT-TEXT.
000201              MOVE SQLVALUE TO RESULT IN OUTPUT-TEXT.
000202          *(6)
000203              CALL 'CBLTDLI' USING INSRT
000204                      IO-PCB
000205                      OUTPUT-MESSAGE.
000206          *(7)
000207              GO TO MAIN-ROUTINE.
000208          SQL-CALL.
000209              MOVE NUMBER1 IN INPUT-TEXT TO LOWNUM.
000210              MOVE NUMBER2 IN INPUT-TEXT TO HIGHNUM.
000211          *****EXEC SQL DECLARE TESTCURS CURSOR FOR
000212          *****      SELECT COUNT(*) FROM SQSYN
000213          *****      WHERE KSEQ BETWEEN :LOWNUM AND :HIGHNUM
000214          *****      AND K250K = 2
000215          *****      END-EXEC.
000216          *****EXEC SQL OPEN TESTCURS END-EXEC.
000217              PERFORM SQL-INITIAL UNTIL SQL-INIT-DONE
000218              CALL "DSNHLI" USING SQL-PLIST3.
000219          *****EXEC SQL
000220          *****      FETCH TESTCURS INTO :SQLVALUE
000221          *****      END-EXEC.
000222              PERFORM SQL-INITIAL UNTIL SQL-INIT-DONE
000223              CALL "DSNHLI" USING SQL-PLIST4.
000224          *****EXEC SQL
000225          *****      CLOSE TESTCURS
000226          *****      END-EXEC.
000227              PERFORM SQL-INITIAL UNTIL SQL-INIT-DONE
000228              CALL "DSNHLI" USING SQL-PLIST5.

```

More excerpts from the JOB to Stage COBOL/DB2/DLI component IM2Q101

```
*****
* DDNAME: DB2PC.SYSPRINT
*****
```

```
DB2 SQL PRECOMPILER          VERSION 10 REL. 1.0          PAGE 1
DSNH527I W      DSNHOPTS THE PRECOMPILER OR DB2 COPROCESSOR ATTEMPTED TO USE THE DB2-
SUPPLIED DSNHDECP MODULE.
OPTIONS SPECIFIED: HOST(COB2),
DSNH024I W DSNHOPTS SUBOPTION "COB2" INVALID FOR OPTION "HOST"
DSNHDECP LOADED FROM - (SYS2.DB21010.SDSNLOAD(DSNHDECP))
OPTIONS USED - SPECIFIED OR DEFAULTTED
```

- ATTACH(TSO)
- CCSID(500)
- CONNECT(2)
- DEC(15)
- DECP(DSNHDECP)
- FLAG(I)
- HOST(IBMCOB)
- LINECOUNT(60)
- MARGINS(8,72)
- NEWFUN(V10)
- ONEPASS
- OPTIONS
- PERIOD
- QUOTE
- QUOTESQL
- NOSOURCE
- SQL(DB2)
- STDSQL(NO)
- NOXREF

```
DB2 SQL PRECOMPILER          MESSAGES          PAGE 2
DSNH050I I DSNHMAIN WARNINGS HAVE BEEN SUPPRESSED DUE TO LACK OF TABLE DECLARATIONS
DB2 SQL PRECOMPILER          STATISTICS PAGE 3
```

```
SOURCE STATISTICS
SOURCE LINES READ: 102
NUMBER OF SYMBOLS: 50
SYMBOL TABLE BYTES EXCLUDING ATTRIBUTES: 5656
THERE WERE 3 MESSAGES FOR THIS PROGRAM.
THERE WERE 0 MESSAGES SUPPRESSED BY THE FLAG OPTION.
213232 BYTES OF STORAGE WERE USED BY THE PRECOMPILER.
RETURN CODE IS 4
```

```
*****
* DDNAME: B90DBR.SYSPRINT
*****
```

```
ChangeMan(R) ZMF CMNBAT90 - 8.2.0 TUESDAY JUNE 26, 2018 16:16:30
Execution parameter: BINDLIST=XLMOD
SYSIN: PKG=IMSA000023
SYSIN: SLT=SRC
SYSIN: SNM=IM2Q101
SYSIN: SID=USER015
SYSIN: SSI=6E025E53
SYSIN: LNG=COBOL2
SYSIN: PRC=CMNCOB2
SYSIN: LLT=DBR
SYSIN: SUP=NO
CMN5400I - Time of day at end of job: 16:16:30 - Condition Code on exit: 00
```

## Package Promotion Considerations

DBD and/or PSB override information is processed to determine if DBDs and/or PSBs will need to be GENed. If you (the administrator) specified that you always want to generate PSBs and/or DBDs, then the override information is processed to determine if the override should be done first (before the generation takes place).

IMS control regions are processed for the appropriate control region. It is also determined whether the development DEVCHAR suffix is different from the production one, or if the referral libraries need to be updated. In the latter case, an MSF generation is required.

Let's Promote package IMSA000023; Here's what's in the package:

```
CMNSTG01          STAGE: IMSA000023 Components          Row 1 to 5 of 5
Command ==>_____ Scroll ==> CSR

Name  + Type  Status      Changed      Procname      User      Request
CUSEDDBD  DBD  ACTIVE  20180626  011017      CMNDBDGN  USER015  LOCKED
IM2QFMT   MFS  ACTIVE  20180626  023955      CMNMFSGN  USER015  LOCKED
IM2Q101   DBB  ACTIVE  20180626  032322                        USER015  LOCKED
IM2Q101   PSB  ACTIVE  20180626  004728      CMNPSBGN  USER015  LOCKED
IM2Q101   SRC  ACTIVE  20180626  161611      CMNCOB2   USER015  LOCKED
***** Bottom of data *****
```

Back out to the Primary Menu, select option 3 Promote:

```
CMN@PRIM          ChangeMan(R) ZMF Primary Option Menu SYS(6)

Option ==>
0  Settings          User parameters
1  Build             Create, update and review package data
2  Freeze           Freeze or unfreeze a package
3  Promote          Promote or demote a package
4  Approve          Approve or reject a package
5  List            Display (to process) package list
6  Reports          Generate ChangeMan ZMF batch reports
7  Release          Extended Release Management
A  Admin            Perform administrative functions
B  Backout          Back out a package in production
C  M+R             Merge+Reconcile
D  Delete           Delete or undelete a package
L  Log             Browse the activity log
M  Monitor          Monitor internal scheduler or packages in limbo
N  Notify           Browse the Global Notification File
O  OFMlist         Online Forms package list
Q  Query           Query packages, components and relationships
R  Revert           Revert a package to DEV status
T  Tutorial         Display information about ChangeMan ZMF
X  Exit            Exit ChangeMan ZMF
```

Select P:

```

CMNRPM00      Promote/Demote a Change Package
Option ==>_____

P  Promote      D  Demote

Package . . . IMSA000023

```

Select F for full promotion:

```

CMNRPM03      Promote Options
Option ==>_____
  F Full promotion    S Selective promotion
  H Display history   O Check for overlay

Package: IMSA000023 Status: DEV Install date: 20180909

Promotion site:      SERT6P1
Current promotion level: STAGING + 0

Next promotion level . . 10
Schedule: date . . . . . _____time . . . . .____

Enter "/" to select option
__Short selection list  __Bypass overlay check
__User variables       __Suppress batch messages

Job statement information:
//USER015A JOB (ACCOUNT),'IMSA',
//          CLASS=A,
//          NOTIFY=USER015,
//          MSGCLASS=X

```

A JOB is submitted:

```

CMNRPM00      Promote/Demote a Change Package      Request submitted
Option ==>_____

P  Promote      D  Demote

Package . . . IMSA000023
...
CMN3281I - request submitted for promotion to SERT6P1,S6P1UT.

```

Upon completion of the promote job ChangeMan will notify the submitter of the success or failure of the promote job. Below is the message from a successful promote:

```

Job USER015D(J0005312) submitted CN(INTERNAL)
CMN402I - IMSA000023 PROMOTED TO SERT6P1 S6P1UT LEVEL 10 2018/06/26 @ 19:00:23. CN(INTERNAL)
***

```

Excerpts from package promotion JOB:

```

***** TOP OF DATA
*****
J E S 2 J O B L O G -- S Y S T E M Q 0 0 1 -- N O D E M P 3 J E S 2

18.54.03 J0005308 ---- TUESDAY, 26 JUN 2018 ----
18.54.03 J0005308 IRR010I USERID SERT IS ASSIGNED TO THIS JOB.
18.54.04 J0005308 ICH70001I SERT LAST ACCESS AT 18:39:06 ON TUESDAY, JUNE 26, 2018
18.54.04 J0005308 $HASP373 USER015A STARTED - INIT 1 - CLASS A - SYS Q001
18.54.05 J0005308 - --TIMINGS (MINS.) -----PAGING
COUNTS----
18.54.05 J0005308 -STEPNAME PROCSTEP RC EXCP CONN TCB SRB CLOCK SERV WORKLOAD PAGE SWAP VIO
SWAPS
18.54.05 J0005308 -CPY1DBD 00 98 167 .00 .00 .0 228 BATCH 0 0
0 0
18.54.05 J0005308 -DBD1A1 00 230 71 .00 .00 .0 861 BATCH 0 0
0 0
18.54.05 J0005308 -DBD1S1 00 83 30 .00 .00 .0 266 BATCH 0 0
0 0
18.54.06 J0005308 -DBD1L1 00 96 27 .00 .00 .0 339 BATCH 0 0
0 0
18.54.06 J0005308 -CPY1PSB 00 95 50 .00 .00 .0 184 BATCH 0 0
0 0
18.54.06 J0005308 -PSB1A1 00 160 107 .00 .00 .0 420 BATCH 0 0
0 0
18.54.07 J0005308 -PSB1S1 00 84 17 .00 .00 .0 222 BATCH 0 0
0 0
18.54.07 J0005308 -PSB1L1 00 101 27 .00 .00 .0 375 BATCH 0 0
0 0
18.54.07 J0005308 -CIP1DBL 00 116 49 .00 .00 .0 225 BATCH 0 0
0 0
18.54.08 J0005308 -CIP1FMT 00 123 71 .00 .00 .0 282 BATCH 0 0
0 0
18.54.08 J0005308 -CIP1PSL 00 115 53 .00 .00 .0 239 BATCH 0 0
0 0
18.54.09 J0005308 -ACBGEN1 00 463 189 .00 .00 .0 976 BATCH 0 0
0 0
18.54.10 J0005308 -SUCCESS 00 770 243 .00 .00 .0 812 BATCH 0 0
0 0
18.54.10 J0005308 -CHKCOND 00 14 3 .00 .00 .0 30 BATCH 0 0
0 0
18.54.10 J0005308 -FAILURE FLUSH 0 0 .00 00 .0 0 BATCH 0 0
0 0
18.54.10 J0005308 -PRINT 00 286 36 .00 .00 .0 639 BATCH 0 0
0 0
18.54.10 J0005308 -CLNLCL 00 90 44 .00 .00 .0 148 BATCH 0 0
0 0
18.54.10 J0005308 -USER015A ENDED. NAME-IMSA TOTAL TCB CPU TIME= .00 TOTAL ELAPSED
TIME= .1
18.54.10 J0005308 $HASP395 USER015A ENDED - RC=0000
IEBCOPY MESSAGES AND CONTROL STATEMENTS PAGE 1
IEB1135I IEBCOPY FMID HDZ2230 SERVICE LEVEL UA92265 DATED 20170618 DFSMS 02.03.00 z/OS
02.03.00 HBB77B0 CPU 2965
IEB1035I USER015A CPY1DBD 18:54:05 TUE 26 JUN 2018 PARM='
COPY INDD=((STGDBD,R)),OUTDD=PRMDBD
SELECT MEMBER=CUSEDDBD
IEB1013I COPYING FROM PDS INDD=STGDBD VOL=SRSM31 DSN=CMNTP.S6.IMSA.STG6.#000001.DBD
IEB1014I TO PDS OUTDD=PRMDBD VOL=C1054D DSN=CMNTP.S6.IMSA.PROM.S6P1UT.DBD
IEB167I FOLLOWING MEMBER(S) COPIED FROM INPUT DATA SET REFERENCED BY STGDBD
IEB154I CUSEDDBD HAS BEEN SUCCESSFULLY COPIED
IEB1098I 1 OF 1 MEMBERS COPIED FROM INPUT DATA SET REFERENCED BY STGDBD

```



```

IEB144I THERE ARE 0 UNUSED TRACKS IN OUTPUT DATA SET REFERENCED BY PRMDBD
IEB149I THERE ARE 4 UNUSED DIRECTORY BLOCKS IN OUTPUT DIRECTORY
IEB147I END OF JOB - 0 WAS HIGHEST SEVERITY CODE
                IEBCOPY MESSAGES AND CONTROL STATEMENTS PAGE 1
IEB1135I IEBCOPY FMID HDZ2230 SERVICE LEVEL UA92265 DATED 20170618 DFSMS 02.03.00 z/OS
02.03.00 HBB77B0 CPU 2965
IEB1035I USER015A CPY1PSB 18:54:06 TUE 26 JUN 2018 PARM=''
        COPY INDD=((STGPSB,R)),OUTDD=PRMPSB
        SELECT MEMBER=IM2Q101
IEB1013I COPYING FROM PDS INDD=STGPSB VOL=C1054D DSN=CMNTP.S6.IMSA.STG6.#000001.PSB
IEB1014I         TO PDS OUTDD=PRMPSB VOL=SRSM31 DSN=CMNTP.S6.IMSA.PROM.S6P1UT.PSB
IEB167I FOLLOWING MEMBER(S) COPIED FROM INPUT DATA SET REFERENCED BY STGPSB
IEB154I IM2Q101 HAS BEEN SUCCESSFULLY COPIED
IEB1098I 1 OF 1 MEMBERS COPIED FROM INPUT DATA SET REFERENCED BY STGPSB
IEB144I THERE ARE 0 UNUSED TRACKS IN OUTPUT DATA SET REFERENCED BY PRMPSB
IEB149I THERE ARE 4 UNUSED DIRECTORY BLOCKS IN OUTPUT DIRECTORY
IEB147I END OF JOB - 0 WAS HIGHEST SEVERITY CODE

```

Still more excerpts from the package promotion.

```

*****
* DDNAME: SUCCESS.SYSPRINT *
*****

ChangeMan(R) ZMF CMNBATCH - 8.2.0 2018/06/26 18:54:09
Attempting to initiate dialog with ChangeMan ZMF subtask
Session established with ChangeMan ZMF subtask
SYSIN: IMSA000023 85 FUN=PROMOTE,NOD=SERT6P1
SYSIN: IMSA000023 85 LVL=10,LNM=S6P1UT,CID=USER015
SYSIN: IMSA000023 85 SUP=NO,SSI=6E027FC3
SYSIN: IMSA000023 85 TYP=DBL
SYSIN: IMSA000023 85 CMP=CUSEDDBD
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 TYP=FMT
SYSIN: IMSA000023 85 CMP= "SQDF1
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 CMP= "SQDF1
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 CMP=SQMI1
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 CMP=SQM01
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 TYP=PSL

```

```

SYSIN: IMSA000023 85 CMP=IM2Q101
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 TYP=DBD
SYSIN: IMSA000023 85 CMP=CUSEDBD
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 TYP=PSB
SYSIN: IMSA000023 85 CMP=IM2Q101
Component History has been updated.
Component Promotion History has been updated
Promotion logged IMSA000023
SYSIN: IMSA000023 85 FUN=END
Package Promotion history has been updated
Package Promotion Unlocked
Package IMSA000023      PROMOTE
Package General record has been updated.
END OF DATA ON SYSIN - TERMINATING
Session terminated with ChangeMan ZMF started task
<SIZE: RECS=1480 BYTES=91549>

```

After successful promotion, the package is now FROZEN before being Approved.

```

CMN@PRIM      ChangeMan(R) ZMF Primary Option Menu SYS(6)
Option ==> 2 _____

0  Settings      User parameters
1  Build         Create, update and review package data
2  Freeze        Freeze or unfreeze a package
3  Promote       Promote or demote a package
4  Approve       Approve or reject a package
5  List          Display (to process) package list
6  Reports       Generate ChangeMan ZMF batch reports
7  Release       Extended Release Management
A  Admin         Perform administrative functions
B  Backout       Back out a package in production
C  M+R          Merge+Reconcile
D  Delete        Delete or undelete a package
L  Log           Browse the activity log
M  Monitor       Monitor internal scheduler or packages in limbo
N  Notify        Browse the Global Notification File
O  OFMlist       Online Forms package list
Q  Query         Query packages, components and relationships
R  Revert        Revert a package to DEV status
T  Tutorial      Display information about ChangeMan ZMF
X  Exit          Exit ChangeMan ZMF

```

Select 1 for Online Freeze.

```

CMNFRZ01          Freeze Options
Option ==> 1_____

Package . . . . IMSA000023

1 Online          Freeze package online
2 Batch           Freeze package in batch
3 Selective       Selectively unfreeze/refreeze package components
4 Reset           Reset indicator after unsuccessful batch freeze
5 Re-Build        Re-submit install JCL build request

```

It's frozen, on to Approval

```

CMNFRZ01          Freeze Options PACKAGE FROZEN
Option ==>_____

Package . . . . IMSA000023
1 Online          Freeze package online
2 Batch           Freeze package in batch
3 Selective       Selectively unfreeze/refreeze package components
4 Reset           Reset indicator after unsuccessful batch freeze
5 Re-Build        Re-submit install JCL build request
...
CMN3000I - IMSA000023 change package has been frozen.

```

Back out to the main menu select 4 for Approve:

```

CMN@PRIM          ChangeMan(R) ZMF Primary Option Menu SYS(6)
Option ==> 4_____

0 Settings       User parameters
1 Build          Create, update and review package data
2 Freeze         Freeze or unfreeze a package
3 Promote        Promote or demote a package
4 Approve        Approve or reject a package
5 List           Display (to process) package list
6 Reports        Generate ChangeMan ZMF batch reports
7 Release        Extended Release Management
A Admin          Perform administrative functions
B Backout        Back out a package in production
C M+R           Merge+Reconcile
D Delete         Delete or undelete a package
L Log            Browse the activity log
M Monitor        Monitor internal scheduler or packages in limbo
N Notify         Browse the Global Notification File
O OFMlist        Online Forms package list
Q Query          Query packages, components and relationships
R Revert         Revert a package to DEV status
T Tutorial       Display information about ChangeMan ZMF
X Exit           Exit ChangeMan ZMF

```

We are approving Simple Planned Permanent Package IMSA000023:

```

CMNAPPRV          Approve Package Parameters
Command ==>_____

Specify selection criteria:
Package . . . . . IMSA000023 (Full name or pattern, blank for list)
Approval entity name . . . _____ (Approvals for this security entity)
Notified user . . . . . _____
Work request . . . . . _____ questor name
Department . . . . . _____ NameName
Site affected . . . . . _____
Package level . . . . . 1 (1-Simple, 4-Participating)
Package type . . . . . p (Planned or Unplanned)
Package time span . . . . . p (Permanent or Temporary)
Install date: from . . . . _____ (yyyymmdd)
to . . . . . _____ (yyyymmdd)
Creation date: from . . . . _____ (yyyymmdd)
to . . . . . _____ (yyyymmdd)

Enter "/" to select option
__Other parameters

```

Select 1 for Approve:

```

CMNAPPOP          Approve/Reject Options
Option ==>_____

Package: IMSA000023 Status: FRZ Install date: 20180707
1 Approve Approve or reject a change package
2 Reasons Display reasons a package was rejected
3 Query Query change package
4 Reset Reset approval in progress indicator
5 Re-Build Re-submit install JCL build request

```

Approve the first approver

```

CMNAPPLS          Approval List          Row 1 to 3 of 3
Command ==>_____ Scroll ==> CSR

Package: IMSA000023 Status: FRZ Install date: 20180707
Approver Description      User
                        Date   Time   Seq Status

a Development Team Lead
                        10

__Quality Assurance
                        20

__Program Manager
                        30
***** Bottom of data *****

```

Repeat and approve the next, then approve the final one

```

CMNAPPLS          Approval List          Row 1 to 3 of 3

Command ==> Scroll ==> CSR
  Package: IMSA000023  Status: FRZ Install date: 20180707

Approver Description      User
                          Date Time  Seq  Status

_ Development Team Lead   USER015
                          20180626 2238 10  Approve
_ Quality Assurance       USER015
                          20180626 2239 20  Approve
a Program Manager

                          30
***** Bottom of data *****

```

Approve the second id and hit enter:

```

CMN400I - Package IMSA000023 approved by USER015 on 2018/06/26 at 22:42 CN(INTERNAL)
***
Job IMSA1023(J0005786) submitted CN(INTERNAL)
CMN8700I - IMSA000023 Installation JCL Build service completed CN(INTERNAL)
***

```

Now the package is installed via a series of JOBS. The JOBS in BLUE below are the STAGING JOBS (already run), the JOB in GREEN is the PROMOTION JOB (already run), and the JOBS in RED are the INSTALLATION JOBS(just ran).

```

SDSF STATUS DISPLAY ALL CLASSES          LINE 43-54 (54)
COMMAND INPUT _____ ==> SCROLL ==> CSR
NP   JOBNAME      JobID  Owner  Prty  Queue  C   Pos   SAff ASys Status
    S7IMSPSB  J0525269  SERT   1     PRINT  A   3336
    S7IMSDBD  J0525271  SERT   1     PRINT  A   3338
    S7IMSMFS  J0525272  SERT   1     PRINT  A   3339
    S7IMSSRC  J0525276  SERT   1     PRINT  A   3341
    S7IMSPRM  J0525281  SERT   1     PRINT  A   3347
    IMSQ1011  J0525283  SERT   1     PRINT  A   3349
    IMSQ1111  J0525284  SERT   1     PRINT  A   3350
    IMSQ1511  J0525286  SERT   1     PRINT  A   3351
    IMSQ2011  J0525285  SERT   1     PRINT  A   3352
    IMSQ2511  J0525287  SERT   1     PRINT  A   3353
    SERT6     J0525290  SERT   1     PRINT  A   3355
    IMSQ3011  J0525288  SERT   1     PRINT  A   3356

```

The following table gives a brief overview of each INSTALLATION JOB:

JOB	Overview
IMSQ1011	JOB TO SEND PACKAGE IMSQ000011 FROM SERT6 TO SERT6 Log DIS at SITE SERT6
IMSQ1111	JOB TO INSERT IMSQ000011 INFORMATION IN PACKAGE MASTER AT SERT6 Update DIS at PROD SITE SERT6

JOB	Overview
IMSQ1511	JOB TO ACKNOWLEDGE PACKAGE IMSQ000011 SENT FROM SERT6 TO SERT6 DIStribution acknowledged and logged at DEV
IMSQ2011	IMS OPTION: JOB TO INSTALL PACKAGE IMSQ000011 INTO PRODUCTION Backup existing PRODUCTION environment, INSTALL new PRODUCTION environment, ACBGEN
IMSQ2511	JOB TO ACKNOWLEDGE PACKAGE IMSQ000011 INSTALLATION AT SERT6 and kickoff package cleanup.
SERT6	DEMOTE PACKAGE IMSQ000011 FROM C001AUT LVL 10 AT SERT6 SITE.
IMSQ3011	IMS OPTION: JOB TO PERFORM BASELINE RIPPLE OF PACKAGE IMSQ000011 including final PSBGEN, DBDGEN MFSGEN, and ACBGEN. Run DSPTM to update Impact Analysis data.

Upon successful PACKAGE installation you'll see something like the following after querying the package's SITE ACTIVITIES DATE AND TIME:

```

CMNQRY14      Site Activities Date and Time      Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR

      Package: IMSA000023      Status: APR      Install date: 20180707

Site          Type of activity      Date          Time      User
UNIT          Distribution          20180626     2242
              Dis-Acknowledgment      20180626     2242
              Installation          20180626     2243
              Temp Change Cycled
              Full Back-Out
              Revert Back to DEV
***** Bottom of data *****

```

## Package Installation and Promotion Considerations

The process for installation is similar to that for promotion to a remote site. The staging process of IMS components is for installation at the development site; it uses the specified IMS control region. Therefore, generation of PSBs or DBDs are not required unless there are overrides or the ChangeMan ZMF Administrator has specified to always generate them. (This is also true for a specification of ALL SITE promotion.)

Promotion to a remote site is the same as promotion to a local site, except that everything happens at the remote site. the GENing for a remote site only takes place if the administrator has specified to do so, or if there are overrides. Otherwise, it is simply a copy.

## Querying a Package with IMS Components

You can query a package containing IMS components in the same way you query any package: select Q (for Query) from the Primary Options menu. The following panel appears.

```
CMNQDMNU                Query Options
Option ==>_____

P  Package      Query package information
C  Component    Query component information
I  Impact      Impact analysis of subordinate components
B  BofM         Component bill of materials
A  Approve      Approve In Limbo packages
```

From this panel, you can Query the information in any package or component.

Select P to query package information.

```
CMNQRY00                Package Parameters
Command ==>_____
Package list (Blank, full name or mask separated by ;)
IMSA23
Enter "/" to select:
  Package status __Dev  __Frz  __Apr  __Rej  __Dis  __Ins
                  __Bas  __Bak  __Del  __Opn  __Clo  __Tcc
Package level    __Simple __Super __Complex __Participating
Package type     __Planned Permanent  __Planned Temporary
                  __Unplanned Permanent __Unplanned Temporary

Work request . . . . ._____
Department . . . . ._____

Install date: From . . .____ To . .____ (YYYYMMDD)
Creation date: From . . ____To . .____ (YYYYMMDD)
Site . . . . ._____
Approver entity . . . . _____
Creator's id list      (Blank, full name or mask separated by ;)
_____
Enter "/" to select option
__Enter more parameters
```

Select Source and Load Relationship:

```

CMNQRY03      Package Information Categories      Row 1 to 20 of 20
Command ==>_____ Scroll ==> CSR

      Package: IMSA000023      Status: APR      Install date: 20180707
      Creator: USER015      Audit RC: 00

__ General
__ Non-Source
__ Source
s Source and Load Relationship
__ Renames and Scratches
__ Approval List
__ Site/Install Date Information
__ Site Activities Date and Time
__ Online Forms
__ Participating Packages
__ Status Start Date and Time
__ Revert Reasons
__ Backout Reasons
__ Promotion History
__ Promotion Libraries
__ Development Staging Libraries
__ Production Staging Libraries
__ Production Libraries
__ Baseline Libraries
__ IMS Information
***** Bottom of data *****

```

Hit enter, you'll get something like the following:.

```

CMNQRY21      Source to Load Relationship      Row 1 to 2 of 2
Command ==>_____ Scroll ==> CSR
Package: IMSA000023      Status: APR      Install date: 20180707

Source      Load
Name +      Type Name + Type      Status Promotion Changed      User
CUSEDDBD   DBD CUSEDDBD DBL FROZEN 0 STAGING 20180627 152431 USER25
           CUSEDDBD LST FROZEN 0 STAGING 20180627 152433 USER25
IM2QFMT    MFS SQDF1 MFR FROZEN 0 STAGING 20180627 155035 USER25
           ."SQDF1 FMT FROZEN 0 STAGING 20180627 155035 USER25
           ."SQDF1 FMT FROZEN 0 STAGING 20180627 155035 USER25
           IM2QFMT LST FROZEN 0 STAGING 20180627 155038 USER25
           SQMI1 FMT FROZEN 0 STAGING 20180627 155035 USER25
           SQMI1 MFR FROZEN 0 STAGING 20180627 155035 USER25
           SQM01 FMT FROZEN 0 STAGING 20180627 155035 USER25
           SQM01 MFR FROZEN 0 STAGING 20180627 155035 USER25
IM2QPSB    PSB IM2QPSB PSL FROZEN 0 STAGING 20180627 145630 USER25
           IM2QPSB LST FROZEN 0 STAGING 20180627 145633 USER25
IM2Q101    SRC IM2Q101 DBR FROZEN 0 STAGING 20180627 161558 USER25
           IM2Q101 LOD FROZEN 0 STAGING 20180627 161558 USER25
           IM2Q101 LST FROZEN 0 STAGING 20180627 161600 USER25
***** Bottom of data *****

```

Let's query some COMPONENTS. Back to the QUERY OPTIONS panel, select C for Component:



```

CMNQDMNU          Query Options
Option ==> c _____

P  Package      Query package information
C  Component    Query component information
I  Impact      Impact analysis of subordinate components
B  BofM         Component bill of materials
A  Approve     Approve In Limbo packages

```

To Display all the FMT components, input the 'FMT' Lib Type in the Component type field, and an '\*' in the Component name field then press enter. This will display all FMT components for all applications, which could be a very large list. To reduce the size of the list, consider qualifying the search with an APPLication name.

```

CMNQCMP1          Query Component Parameters
Command ==> _____

Specify selection criteria:
Component name . . . . . * _____ +
                        (Full component name or pattern)
Component type . . . . . FMT (Full library type or pattern)
Application . . . . . ____
Package . . . . . _____

Enter "/" to select:
Package status . . . . .   _ Dev _ Fr_ _ Apr _ Rej _ Dis _ Ins
                        _ Bas _ Bak _ Del _ Opn _ Clo _ Tcc _ D/A
Package type . . . . .   _ Planned Permanent _ Planned Temporary
                        _ Unplanned Permanent _ Unplanned Temporary

Procedure name . . . . . _____
User . . . . . _____
Checkout/staging
From date . . . . . _____ (YYYYMMDD)
To date . . . . . _____ (YYYYMMDD)

Enter "/" to select option:
__Include deleted components
__Mixed case

```

After hitting enter you'll get something like the following:

```

CMNQCMP2          Component List          Row 1 to 12 of 12
Command ==> _____ Scroll ==> CSR

  Lib Name
_ FMT ."pAYF01
_ FMT ."sQDF1
_ FMT ."PAYF01
_ FMT ."SQDF1
_ FMT PAYD01
_ FMT PAYI01
_ FMT SQMI1
S FMT SQM01
***** Bottom of data *****

```

Select an entry for more:

```

CMNCPH1          Component history        Row 1 to 1 of 1
Command ==> _____ Scroll ==> CSR

Component: SQM01.FMT

Package Sta Promotion vv.mm  P   Last action      Size  Setssi  User
__IMSA000023 APR          01.04          2018/04/27 00:22 00000  6DB264D2 USER015
***** Bottom of data *****

```

The S(select) command will display component build data for this component taken from the component history information.

The Q(query) command will display the package information categories in the same manner as if the user had entered the Q.P. (query package) function.

The P(Process) command will place the user in the staging panel allowing them to enter staging commands against the selected component. This is the same as if the user had entered the staging option 3 and the component name and type will be filled in for you. The C(Checkout) command will place the user at the checkout options panel. From there they can select the checkout option they wish to perform. The

package name is passed as well as the component name and type selected. The package name is available to be changed just in case they wish to checkout to another package. Regardless of the checkout option specified the panels following the option selection will automatically fill in the component name and type. If this is a checkout from package the source package will be the selected package of the component from the history list.

Select a package to show a screen of information similar to below:

CMNCMPH2 Compile and Binder Options

Command ==> \_\_\_\_\_

Package: IMSA000023

Status: APR

Install Date: 20180707

Stager's userid . . . . .	USER015	
Component name . . . . .	SQM01	+
Component type . . . . .	FMT	
Language . . . . .	ASM	
Compile proc . . . . .	CMNMFSGN	
Compile parms . . . . .		
Binder parms . . . . .		
Db2 processing . . . . .	NO	

Enter "/" to select option:

\_\_Additional user options

# 5. Appendix A. IMS Option Worksheets

---

To use the IMS Option, some information about your IMS environment must be supplied to ChangeMan ZMF. For example, to manage IMS, ChangeMan ZMF should know about the following:

- Your company site names
- The site types (Development, Production, DEV/PROD, and so on)
- The names of your IMS control regions
- The libraries used for IMS components
- The libraries used for promotion (testing)
- The languages used for IMS components
- The processes used to prepare IMS components for production These worksheets will help you gather the needed information.

## IMS Option Worksheets

---

These worksheets will help you gather the needed information.

### IMS Support Administration Worksheet 1

---

Use this worksheet to complete Part 1 of the Global Definition panels.

In the following table, supply the information required. The IMS ID is usually assigned by an IMS systems programmer when the IMS control region is created.

IMSID	**Site	Logical Site	**Active?	DEVCHAR Suffix	DBDGEN	PSBGEN	ACB

## IMS Support Administration Worksheet 2

Use to complete the IMS System Library Global Declaration panels. Complete a Worksheet 2 for each entry in Worksheet 1.

IMS ID	SITE	LOGICAL SITE
(From Worksheet 1)	(From Worksheet 1)	(Enter information below.)

Hi-level Node Bkup	IMSGEN Macro Def.	Member Name
(The Hi-level node is a pattern for backups of the IMS system libraries during promotion and installation.)	(This is the IMS system generation data set containing the system generation member name.)	(This is the member that contains the source code that generated the IMS control region, databases, programs, and so on.)

For certain types of PSBs and DBDs, parsing source alone is not sufficient to determine if an ACB GEN is required. To completely determine if an ACB GEN is required, the IMSGEN Macro definition and member name must be analyzed. Because ChangeMan ZMF determines this requirement during Stage, the IMSGEN data set name entered here must be available on the development site.

DDName	IMS System Libraries
ACBLIB	
DBDLIB	
DFSES	
FORMAT	
MACLIB	
MODSTAT	
PSBLIB	
REFERRAL	

## IMS Support Administration Worksheet 3

LIB TYPE	**Description	**Like (S/ L/P)	Defer (Y/ N)	**IMS SUB TYP	**TGT LIB TYP

The IMS subtypes must be one of the subtypes listed in the following table.

Like "S" (Source) Type	Target Type
A - ACB Control	C - ACB
D - DBD Source	B - DBD
M - MFS Source	F - MFS Format (if the Referral library is not used)
M - MFS Source	R - MFS Referral (if the Referral library is used)
P - PSB Source	S - PSB
R - MFS Referral	F - MFS Format (if the Referral library is used)

Any like L (Load) library requires additional processing by the AUDIT program and, as a result, causes the audit process to take longer to execute. Serena suggests that you use only like L (Load) for program load libraries.

## IMS Support Administration Worksheet 4

In the following table, associate a compile procedure with each IMS global language name.

Language	Procedure
DBD	CMNDBDGN
MFS	CMNMFSGN
PSB	CMNPSBGN

# 6. Apptendix B. IMS-Related Skeletons

---

This appendix tells you about ChangeMan ZMF ISPF skeletons and variables used by the IMS Option.

## IMS-Related Skeletons

---

This appendix tells you about ChangeMan ZMF ISPF skeletons and variables used by the IMS Option.

### Introduction

You can modify the behavior of the ChangeMan ZMF IMS Option by customizing ZMF skeletons, exits, and panels, and by using XML Services to access ZMF functions and data.

This appendix tells you where to find information about ChangeMan ZMF ISPF variables used by the IMS Option, and it lists skeletons involved in IMS component processing.

When you customize a ChangeMan ZMF component, preserve the original code by copying the component from the delivered library into a custom library, and edit the component in the custom library. If you customize and assemble an exit program, ensure that the customized load is written to a custom load library.

For general information about customizing ChangeMan ZMF, see the *ChangeMan ZMF Customization Guide*.

### ISPF Variables for the IMS Option

---

When IMS Option batch job JCL is built by ISPF file tailoring, information from the following sources is passed to file tailoring in ISPF variables:

- Global administration
- Application administration
- IMS Option administration
- Package master
- Component history

ChangeMan ZMF ISPF variables and tables are listed in member #VARLIST in the CNMZMF SKELS library. ISPF variables and tables used exclusively by the IMS Option usually have names that start with \&IMS...

Use #VARLIST to find ISPF variables that contains the information you want for a customized skeleton.

## IMS Option Skeletons

This table lists fifty-six skeletons that are delivered for the IMS Option. The skeletons are grouped by the ChangeMan ZMF function they serve.

<b>Skeleton</b>	<b>Function</b>	<b>Description</b>
CMN\$\$IMS	Stage	Parse DBD/PSB source and build ACB statements
CMN\$\$MFS	Stage	Assemble IMS MFS source code
CMNDBDGN	Stage	Main process DBD source code
CMNMFSGN	Stage	Main procedure for IMS MFS assemble and link
CMNPSBGN	Stage	Process PSB source code
CMN\$\$ACB	Promotion	Perform an ACB GEN
CMN\$\$IGN	Promotion	Perform IMS gens at promote or install time
CMNIMCPY	Promotion	Synchronize IMS and promotion libraries
CMNIMPRM	Promotion	Perform package promotion or demotion
CMNIMPRO	Promotion	Copy staging libraries to promotion libraries
CMNIMRPM	Promotion	Main driver routine for promotion
CMNIMSIM	Promotion	Synchronize IMS and promotion libraries
CMNIMSPR	Promotion	Synchronize promotion and IMS libraries
CMNMFSPG	Promotion	Process MFS source code at promotion time
CMNMFSRG	Promotion	Process MFS source code at promotion time
CMNPDPEX	Promotion	Expand PSB/DBD source code at promotion
CMNPDPGN	Promotion	Process PSB/DBD source code at promotion
CMNPDPOV	Promotion	Apply overrides for PSB/DBD source code at promotion
CMNPRASW	Promotion	Sample ACB library swap for promotion
CMNPRFSW	Promotion	Sample format library swap for promotion
CMNPRIBK	Promotion	Sample IMS library back for promotion
CMNPRIRB	Promotion	Sample IMS library recovery for promotion



<b>Skeleton</b>	<b>Function</b>	<b>Description</b>
CMNPRMIM	Promotion	Check if we really copy to promotion
CMNRDPEX	Promotion	Expand PSB/DBD source code at remote promotion
CMNRDPGN	Promotion	Process PSB/DBD source code at remote promotion
CMNRDPOV	Promotion	Apply overrides for PSB/DBD source code at remote promotion
CMNRPICL	Promotion	Shadow library remote promotion or demotion
CMNRPICR	Promotion	Perform remote promotion or demotion
CMNRPIGN	Promotion	Perform IMS gens for remote promotion
CMNRPIPS	Promotion	Synchronize remote promotion libraries and IMS Libraries
CMNRPIRC	Promotion	Copy remote staging library to promotion library with IMS
CMNRPIRD	Promotion	Perform remote demotion with IMS
CMNRPISC	Promotion	Synchronize remote promotion libraries
CMNRPIMIM	Promotion	Check if we really copy to remote promotion
CMN20I	Installation	Install a package into production libraries
CMN20TI	Installation	Install a temporary package
CMN30I	Installation	Perform baseline ripple of a package
CMN31TI	Installation	Cycle (de-install) a temporary package
CMN50I	Installation	Backout a package from production libraries
CMN50TI	Installation	Backout a package from temporary libraries
CMN55I	Installation	Perform baseline reverse ripple of a package
CMN55TI	Installation	Backout a package from temporary libraries
CMNIDPEX	Installation	Expand PSB/DBD source code at installation
CMNIDPGN	Installation	Process PSB/DBD source code at installation
CMNIDPOV	Installation	Apply overrides for PSB/DBD source code at installation
CMNIMSBL	Installation	Synchronize IMS and baselines libraries
CMNIMSPD	Installation	Synchronize IMS and production libraries
CMNIMSTP	Installation	Synchronize IMS and temporary libraries
CMNINACB	Installation	Perform ACB GEN at installation
CMNINASW	Installation	Sample ACB library swap for production/install
CMNINFSW	Installation	Sample format library swap for production/install
CMNINIBK	Installation	Sample IMS library back for install or baseline

<b>Skeleton</b>	<b>Function</b>	<b>Description</b>
CMNINIGN	Installation	Perform IMS gens at installation
CMNINIRB	Installation	Sample IMS library recovery for install or baseline
CMNMFSIG	Installation	Process MFS source code at installation
CMNPRDIM	Installation	Check if we really copy to production

## General Use Skeletons That Use IMS Option Variables

Eighteen base ZMF skeletons refer to ISPF variables that are used to process IMS components.

<b>Skeleton</b>	<b>Function</b>	<b>Description</b>
CMN\$\$CKO	Checkout	Checkout components from baseline/promotion libraries
CMN\$\$ASM	Stage	Translate ASSEMBLER source code
CMN\$\$LNK	Stage	Link-edit a program
CMN\$\$SYL	Stage	Build SYSLIB link-edit concatenation sequence
CMN\$\$CLN	Promotion	Cleanup prior promotion libraries
CMN\$\$PMT	Promotion	Build temporary staging promotion data sets
CMNRPMCL	Promotion	Perform shadow library remote promotion and demotion
CMN30CDT	Installation	Routine for Cascaded Delta baseline ripple component
CMN30CPY	Installation	Baseline ripple components using IEBCOPY
CMN30HFS	Installation	HFS delta baseline ripple/delete/rename processing
CMN30LIB	Installation	Routine for Librarian baseline ripple component
CMN30PDS	Installation	Routine for PDS baseline ripple component
CMN30SRD	Installation	Routine for Stacked Reverse Delta baseline ripple component
CMN55CDT	Installation	Cascaded delta baseline reverse ripple component
CMN55CPY	Installation	Reverse baseline ripple using IEBCOPY
CMN55HFS	Installation	Perform reverse ripple of HFS
CMN55LIB	Installation	Perform Librarian baseline reverse ripple component
CMN55PDS	Installation	Perform PDS baseline reverse ripple component

## IMS Skeleton Hierarchy

---

For a complete picture of ChangeMan ZMF skeleton file tailoring, see the *ChangeMan ZMF Customization Guide* for charts that describe the hierarchy of imbedded skeletons in the base ChangeMan ZMF product and in the IMS Option.

# 7. Appendix C. IMS Batch Services

---

This section contains a selection of commonly used ChangeMan ZMF programs that can be customized and executed in batch mode.

## IMS Batch Services

---

This section contains a selection of commonly used ChangeMan ZMF programs that can be customized and executed in batch mode.

### CMNISPRES

CMNISPRES is executed in stage jobs for PSB and DBD source components. It scans the macro source to determine if an ACBGEN is required. If an ACBGEN is required, an ACB build statement record is created in the package master *for each IMS region defined to this instance of ChangeMan ZMF*.

Follow these steps to view the ACB build statements for a PSB or DBD component that has been staged in a package:

1. On the **Primary Option Menu** (CMN@PRIM), select option **1 Build**.
2. On the **Build Options** menu (CMNBUILD), select option **2 Update**.
3. On the **Update: Package Information** menu (CMNPGNLO), type the **Package ID** and select option **I IMS Information**.
4. On the **Update: IMS Package Update Options**, menu (CMNIMUPD), select option **2 ACB Statements**.

Review [ACB Control Statements](#) to get a detailed explanation of this panel.

### PSB ACBGEN Requirement

- PSB that contains both TYPE=TP and CMPAT=YES requires an ACBGEN.
- ACB flag setting. This flag is set up when the IMS System definitions are defined during Global and Application Administration. If the ACB flag is set to Y, always create the ACB build statement for PSBs. This flag is normally used during staging process but if this program is executed outside of ChangeMan ZMF this flag will be honored.

## DBD ACBGEN Requirement

DBD with either a Logical or GSAM access will require an ACBGEN.

### Static Input Files

Input DD	Description
SYSFILE	Contains PSB/DBD source members.
SYSIN	80 byte card images in keyword format. See keyword table below.

### Keyword Table

SYSIN Keyword	Description
IMS=	IMS subtype defined to ChangeMan ZMF. Valid IMS subtype entries are (P)sb or (D)bd.
LIB=	Library type of SYSPFILE DD defined to ChangeMan ZMF.
MBR=	Member name of PSB/DBD source.
PKN=	Package name.

### Static Output Files

Output DD	Description
SYSPRINT	A summary report reflecting SYSIN contents and processor activity. See SYSPRINT output sample below.

### CMNISPRES Job Sample

The following is a sample job fragment after file tailoring that illustrates what the step looks like:

```

//PSBDBD EXEC  PGM=CMNISPRES,      *** DETERMINE CUSEDDBD ACB REQUIREMENTS
//
//              COND=(4,LT),
//              REGION=4M,
//              PARM='SUBSYS=6,USER=USER015'
//*)IM CMN$$$SPR
//SER#PARM DD  DISP=SHR,DSN=CMNTP.SER820.C6.TCPIPORT
//SYSPRINT DD  DISP=(,PASS),DSN=&&LIST199,
//              UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE),
//              DCB=(RECFM=FA,LRECL=133,BLKSIZE=0)
//SYSPFILE DD  DISP=OLD,DSN=CMNTP.S6.IMSA.STG6.#000001.DBD
//ABNLIGNR DD  DUMMY
//SYSUDUMP DD  SYSOUT=*
//SYSIN DD *
PKN=IMSA000023
LIB=DBD
IMS=D
MBR=CUSEDDBD

```

## CMNISPRES Sysprint Output Sample

```

*****
* DDNAME: PSBDBD.SYSPRINT *
*****

ChangeMan(R) ZMF          CMNISPRES - 8.2.0 20/18/06 01:10:16
Session established with ChangeMan ZMF Started task.

SYSIN: PKN=IMSA000023
SYSIN: LIB=DBD
SYSIN: IMS=D
SYSIN: MBR=CUSEDDBD

Session terminated with ChangeMan ZMF Started task.

```

## CMNISMFS

The primary purpose of CMNISMFS is to stack MFS macro source code into a sequential file so that one MFSGEN can be issued. Each MFS source member is written to the sequential file without the END statement. The final MFS source member written to the sequential file will retain the END statement. This program is a standalone program and does not interact with the ChangeMan ZMF instance.

### Static Input Files

Input DD	Description
SYSIMS	Contains MFS source members.

Input DD	Description
SYSIN	80 byte card images using MBR=keyword format.

### Keyword Table

SYSIN Keyword	Description
MBR=	Member name of MFS source.

### Static Output Files

Output DD	Description
SYSIOUT	All input MFS members processed through the SYSIN DD and are stacked into this sequential file.
SYSPRINT	A summary report reflecting SYSIN contents and processor activity. See SYSPRINT output sample below.

### CMNISMFS Job Sample

The following is a sample job fragment after file tailoring that illustrates what the step looks like:

```

//**** STACK MFS SOURCE ONE GEN
//MFSSTK1 EXEC PGM=CMNISMFS
//SYSIMS DD DISP=SHR,DSN=CMNTP.S#.V711.PROD.MFS
//SYSPRINT DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
//SYSIOUT DD SYSOUT=*,DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
//SYSIN DD *
MBR=MFS00001
MBR=MFS00002

```

### CMNISMFS Sysprint Output Sample

SYSPRINT MFSSTK1 has this output:

```
SYSDIN: MBR=MFS00001
SYSDIN: MBR=MFS00002
Temporary MFS file created.
```

and SYSDIOUT MFSSTK1 has the stacked code:

```
PAYF01      FMT
            DEV          TYPE=(3270,2),FEAT=IGNORE,DSCA=X'00A0'
            DIV          TYPE=INOUT
            DPAGE        CURSOR=((5,15))
            DFLD         '*****',POS=(1,21)
            DFLD         '* DUMMY CODE FOR MFS *',POS=(2,21)
            DFLD         '*****',POS=(3,21)
            DFLD         'FIRST NAME:',POS=(5,2)
FNAME       DFLD         POS=(5,15),LTH=16
            DFLD         'LAST NAME:',POS=(5,36)
LNAME       DFLD         POS=(5,48),LTH=16
            DFLD         'EMPLOYEE NO:',POS=(7,2)
...
            DFLD         '*****',POS=(1,21)
            DFLD         '* DUMMY CODE --> MFS *',POS=(2,21)
            DFLD         '*****',POS=(3,21)
            DFLD         'FIRST NAME:',POS=(5,2)
FNAME       DFLD         POS=(5,15),LTH=16
            DFLD         'LAST NAME:',POS=(5,36)
LNAME       DFLD         POS=(5,48),LTH=16
            DFLD         'EMPLOYEE NO:',POS=(7,2)
EMPNO       DFLD         POS=(7,16),LTH=6
            DFLD         'SOC SEC NO:',POS=(9,2)
```

## CMNISOVR

CMNISOVR processes PSB/DBD macro source and allows PSB/DBD statements to be overridden. Whether an override occurs or not, all input members processed are written to a temporary PDS file.

Two search criteria are performed before an override can occur. The first is performed on Control Word (see Control Word Table below). A Control Word is either a PSB or DBD generation statement defined by IMS.

Once a control word has been found, the second criterion begins using the original statement. This subsequent search is performed on the actual character string that will be overridden.

Once the original statement is found, the original statement is replaced with the specified override statement.

For example:



MBR=PSBname CTL=SENSEG ORG=PARENT=PARTROOT

OVR=PARENT=OVERRIDE

All occurrences of PARENT=PARTROOT in the PSB source that has a control word of SENSEG will be replaced with PARENT=OVERRIDE.

### Static Input Files

Input DD	Description
SYSIMSI	Contains PSB/DBD source members.
SYSIN	80 byte card images in keyword format requesting type of activity to occur. See keyword and control word table for specifications.

### Keyword Table

SYSIN Keyword	Description
MBR=	PSB/DBD member name of the data set pointed to by the SYSIMSI DD statement. If MBR= is the only keyword specified, the input member is copied to the output file.
CTL=	Control word to perform first search criteria. If the control word is not found, the search for the original statement will not be performed. See PSB/DBD control table below for valid entries.
ORG=	Original statement. The PSB/DBD source is searched for a match on the original statement. The control word must be found before the original statement is searched for. Mutually inclusive with a corresponding OVR= statement.
OVR=	Override statement. The override statement will be used to override the corresponding original statement match. Mutually inclusive with a corresponding ORG= statement.

### Control Word Table

DBD Control Words	PSB Control Words
DBD	PCB
DATASET	SENSEG
AREA	SENFLD
SEGM	PSBGEN
LCHILD	

DBD Control Words	PSB Control Words
FIELD	
XDFLD	
DBDGEN	

## CMNISOVR Job Sample

The following is a sample job fragment after file tailoring which illustrates what the step may look like. There are three basic SYSIN formats.

```
//DPOVR1 EXEC  PGM=CMNISOVR, *** DBD/PSB SOURCE OVERRIDE C115
//              COND=(4,LT)
//SYSPRINT DD  DISP=(MOD,PASS),DSN=&&LIST90,
//              UNIT=SYSDA,SPACE=(CYL,(5,5),RLSE),
//              DCB=(RECFM=FBA,LRECL=133,BLKSIZE=13300)
//SYSIMSI DD   DISP=(OLD,DELETE),
//              DSN=&&DBDWR
//SYSIMSO DD   DISP=(,PASS),DSN=&&DBD10V,
//              UNIT=SYSDA,SPACE=(CYL,(10,10,100)),
//              DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
//ABNLIGNR DD  DUMMY
//SYSUDUMP DD  SYSOUT=*
//SYSIN DD     *
MBR=IMSDBD01
LIB=PSL
CTL=DATASET
ORG=DEVICE=3380
OVR=DEVICE=3400
```

### SYSIN Format 1

```
MBR=Dbdname or PSBname
CTL=Control_word
ORG=Original_statement
OVR=Override_statement
```

### SYSIN Format 2

```
MBR=Dbdname or PSBname
CTL=Control_word
ORG=Original_statement
OVR=Override_statement
```

## SYSIN Format 3

MBR=DDBname or PSBname  
(copy from input to output)

## Static Output Files

Output DD	Description
SYSIMSO	All input members from SYSIMSI DD are written to this PDS data set. When overrides occur for a member, the overrides are performed in memory. The memory copy is then written to this PDS file for further processing. The ISPF statistics for the updated member will reflect the activity. The last modification date, time, modification level and the userid are updated. If a member has not been overridden the ISPF statistics will remain unchanged. See ISPF statistics sample below.
SYSPRINT	A summary report reflecting SYSIN contents and processor activity. See SYSPRINT output sample below.

## CMNISOVR ISPF Statistics Sample

Name	VV	MM	Created	Changed	Size	Init	Mod	ID
* PSB1	01	07	1999/01/01	97/01/08 15:09	14	13	0	CHGMAN
. PSB2	01	03	1999/01/01	96/10/27 22:41	13	1	0	USER33
. PSB3	01	03	1999/01/01	96/10/27 22:41	13	1	0	USER33

The asterisk '\*' in the panel above indicates Override Activity.

## CMNISOVR Sysprint Output Sample

```
*****  
* DDNAME: DPOVR1.SYSPRINT *  
* DDNAME: MFSSTK2.SYSPRINT *  
*****
```

```
SYSIN: MBR=IMSDBD01  
SYSIN: CTL=DATASET  
SYSIN: ORG=DEVICE=3380  
SYSIN: OVR=DEVICE=3400
```

```
Copy in memory has been altered with the following:  
Original: DEVICE=3380  
Override: DEVICE=3400  
New member added to temporary PDS. Member IMSDBD01
```

```
SYSIN: MBR=MFS00001  
Temporary MFS file created.  
SYSIN: MBR=IMSPSB01  
SYSIN: CTL=PCB  
SYSIN: ORG=DBDNAME=IMSPSB01  
SYSIN: OVR=DBDNAME=IMSGBL01  
No updates for member IMSPSB01  
New member added to temporary PDS. Member IMSPSB01
```

## 8. Legal Notice

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