MICRO FOCUS | SERENA

ChangeMan® ZMF

IMS Option Getting Started Guide

Product version: 8.2 Patch 4

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Welcome to ChangeMan® ZMF

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.

Change Bars — Change bars in the left margin are not used.

Guide to ChangeMan ZMF Documentation

The following sections provide basic information about ChangeMan ZMF documentation.

ChangeMan ZMF Documentation Suite

The ChangeMan ZMF documentation set includes the following manuals in PDF format.

Manual	Description
Administrator's Guide	Describes ChangeMan ZMF features and functions with instructions for choosing options and configuring global and application administration parameters.
ChangeMan ZMF Quick Reference	Provides a summary of the commands you use to perform the major functions in the ChangeMan ZMF package life cycle.
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 ERO Option of ChangeMan ZMF for managing releases containing change packages.
ERO Getting Started Guide	Explains how to install and use the ERO Option of ChangeMan ZMF to manage releases containing change packages.

Manual	Description
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. ■ 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
OFM Getting Started Guide	Explains how to install and use the Online Forms Manager (OFM) option of ChangeMan ZMF.
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.
XML Services User's Guide	Documents the most commonly used features of the XML Services application programming interface to ChangeMan ZMF.
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/.

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

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 *ChangeMan 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 *ChangeMan 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.

ChangeMan ZMF Release Notes

High-level descriptions of the enhancements that are delivered in the ChangeMan ZMF major version release and in all subsequent ZMF 7.1.x maintenance releases are included in the "Features and Fixes" section of the latest *ChangeMan ZMF Readme*.

Online Help

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

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

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

Online Error Messages

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

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
italics	Introduces new terms that you may not be familiar with and occasionally indicates emphasis.
bold	Emphasizes important information and field names.
UPPERCASE	Indicates keys or key combinations that you can use. For example, press the ENTER key.
`monospace`	Indicates syntax examples, values that you specify, or results that you receive.
`monospaced italics`	Indicates names that are placeholders for values you specify; for example, *`filename`*.
vertical rule |	Separates menus and their associated commands. For example, select File | Copy means to select Copy from the File menu. Also, indicates mutually exclusive choices in a command syntax line.

Chapter 1
Introduction

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

About The IMS Option

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. Appendix A, "IMS Option Worksheets" on page 75 contains worksheets to help you gather this information.

Administration Rules

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

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

Staging Rules

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

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.

Chapter 2

Configuring the IMS Option

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

Introduction

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 Referal	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" on page 18.

```
CMNCGLT0               Global Library Types Part 1 of 2     Row 1 to 37 of 43
Command ===> _____________________________________________ Scroll ===> CSR

     Lib                                      Order Lke Seq Defer Target Sel
     type Description                       +                     type   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 Referal___________________ 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 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" on page 18.

```
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" on page 18.

```
CMNCLLT0              IMSA - Library Types Part 1 of 2       Row 1 to 37 of 50
Command ===> _____________________________________________ Scroll ===> CSR

     Lib                                        Order Lke Seq Defer Target Sel
     type Description                         +                     type   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 Referal___________________ 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" on page 18.

```
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" on page 18.

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

                                    Baseline
                        Install     storage
     Type  Levels       in prod     means
...
____ 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.

Fields	Meaning
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.
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 Application Administration" on page 32.

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 referal 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 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     Description                                         type
DBD      IMS DBD Source                                       D
DBL      IMS DBD Load                                         B
FMT      IMS MFS Load                                         F
MFR      IMS MFS Referal                                      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 referal 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
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
____ 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 * Selectto 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.
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

Field	Description
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 Referal                                      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 Referal Library

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

- MFS load
- MFS Referal

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 referal in application administration, set the Defer flag to N so that an MFS referal staging library is always allocated when you create a package.
- In the MFS referal 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 - *MNEX026 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 referal 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
    * Begining of first entry
             DC    CL4'*   '           application
             DC    CL3'JAV'            staged library type
             DC    CL3'LSH'            library type
             DC    CL27' '             the rest
    * Begining 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 - * Begining 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 - *MNEX026 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

Appendix B, "IMS-Related Skeletons" on page 79 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.

Skeleton	Function	DDNAME	Library or File
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.

Chapter 3

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 (*CMNPGNLO*), 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.

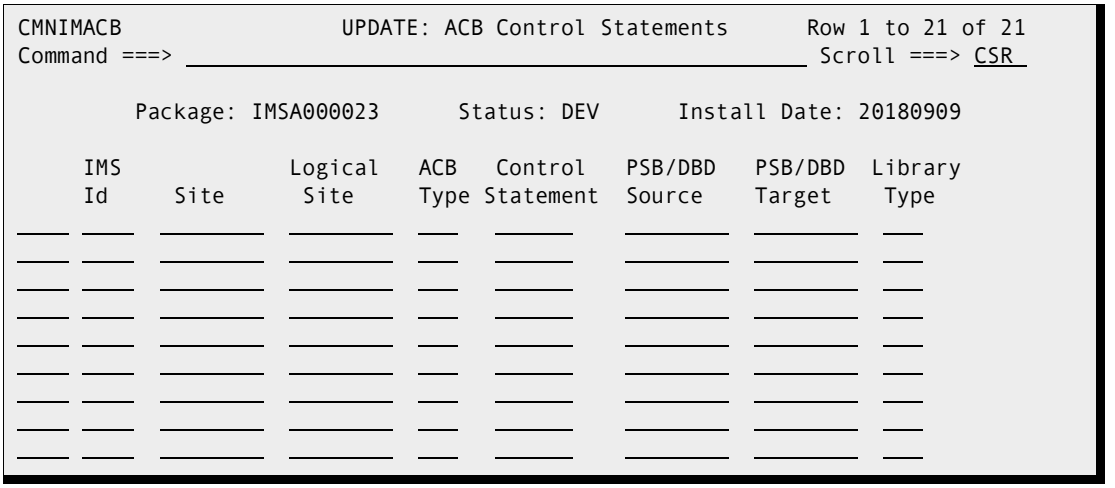
This authority can be controlled through ChangeMan ZMF exits CMNEX001 and CMNEX041. See the chapter titled *User Exits* in the ChangeMan ZMF *Customization Guide*.

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.



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.

Field	Description
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: PSB Override Control Statements  Row 1 to 12 of 21
Command ===> _____________________________________________ Scroll ===> CSR

         Package: IMSA000023      Status: DEV      Install Date: 20180909

     IMS             Logical   Control     PSB     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: 20180909
    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 Langauge, 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
00.47.30 J0003331  $HASP395 USER015A ENDED - RC=0004
------ 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  . . . . CUSEDBD                                          +
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(CUSEDBD) - 02.00  Line 00000000 Col 001 080
Command ===> ____________________________________________ Scroll ===> CSR
****************************** Top of Data ********************************
        DBD   NAME=CUSEDBD,ACCESS=HDAM,RMNAME=(DFSHDC40,1,500,824)
        DATASET DD1=CUSEDD1,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:

```
                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

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    .00    .00     .0      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
SQMO1    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=SQMO1
         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 SQMO1. The Device Input Format name is SQMI1.To initiate this transaction, issue a /FORMAT SQMO1 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: MFSS1.UTPRINT                                                        *
* DDNAME: MFSS2.UTPRINT                                                        *
********************************************************************************


DFS1011I  SQDF1     DOF  SIZE=0184  3270      24X80   027F IGNORE                  DATE=06/26/18 TIME=02.39.53       ADDED.
DFS1011I  SQDF1     DIF  SIZE=0042  3270      24X80   027F IGNORE                  DATE=06/26/18 TIME=02.39.53       ADDED.
DFS1011I  SQMO1     MSG  SIZE=004A                                                 DATE=06/26/18 TIME=02.39.53       ADDED.
DFS1011I  SQMI1     MSG  SIZE=0048                                                 DATE=06/26/18 TIME=02.39.53       ADDED.

DFS1060I  SQDF1     BUFFER SIZE = 0274
DFS1048I  SQDF1     DOF  SIZE=0184  3270      24X80   027F IGNORE                  DATE=06/26/18 TIME=02.39.53     CREATED.
DFS1048I  SQDF1     DIF  SIZE=0042  3270      24X80   027F IGNORE                  DATE=06/26/18 TIME=02.39.53     CREATED.
DFS1040I DEVICE MAPPING FOR FMT=SQDF1  DEVICE=3270 - 2 TYPE=INOUT  DPAGE=01 PHYSICAL PAGE=01
                      *-------------------------------------------------------------------------------*
                       |                                                                               |
                       |                                                                               |
                       |                        AUBREY SUSAN SUPPORT SYSTEMS                           |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                       |                         TRANCODE  _________                                   |
                       |                         STARTNUM  _________                                   |
                       |                         ENDNUM    _________                                   |
                       |                         RESULT    _________                                   |
                       |                                                                               |
                       |                                                                               |
                      | _______________________________________________________________________________|
                       |                                                                               |
                       |                                                                               |
                       |                                                                               |
                      *-------------------------------------------------------------------------------*
DFS1026I SQMO1    MESSAGE DESCRIPTOR STRUCTURE:
DFS1021I     SQMO1        MSG
DFS1023I     SEG00018       SEG
DFS1024I     MFL00019        MFLD
DFS1024I     MFL00020        MFLD
DFS1024I     MFL00021        MFLD
DFS1024I     MFL00022        MFLD
DFS1028I END OF DESCRIPTOR STRUCTURE.
DFS1048I  SQMO1     MSG  SIZE=004A                                                 DATE=06/26/18 TIME=02.39.53     CREATED.
DFS1026I SQMI1    MESSAGE DESCRIPTOR STRUCTURE:
DFS1021I     SQMI1        MSG
DFS1023I     SEG00025       SEG
DFS1024I     MFL00026        MFLD
DFS1024I     MFL00027        MFLD
DFS1024I     MFL00028        MFLD
DFS1028I END OF DESCRIPTOR STRUCTURE.
DFS1060I  SQMI1     BUFFER SIZE = 0031
DFS1048I  SQMI1     MSG  SIZE=0048                                                 DATE=06/26/18 TIME=02.39.53     CREATED.
```

The remaining 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: SQMO1
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: SQMO1
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=SQMO1
Component SQMO1 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=SQMO1
Component SQMO1 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    Bind
      name      /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 ********************************
```

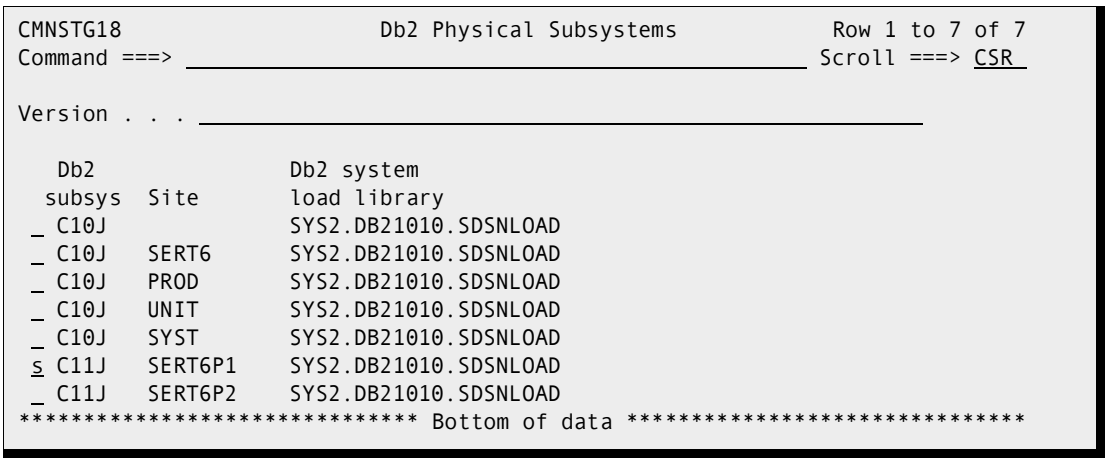
Select IM2Q101 for Staging:

```
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:



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----
16.16.28 J0004943  -STEPNAME PROCSTEP    RC   EXCP   CONN    TCB    SRB  CLOCK   SERV  WORKLOAD  PAGE  SWAP   VIO SWAPS
16.16.28 J0004943  -SERCOPY              00    234     52    .00    .00     .0    996  BATCH        0     0     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     0     0
16.16.29 J0004943  -DB2PC                04    498     32    .00    .00     .0    678  BATCH        4     0     0     0
16.16.30 J0004943  -B90DBR               00    112     22    .00    .00     .0    244  BATCH        0     0     0     0
16.16.30 J0004943  -COBOL2               00    456     88    .00    .00     .0    780  BATCH        0     0     0     0
16.16.30 J0004943  -SSIDN                00    111     48    .00    .00     .0   3009  BATCH        0     0     0     0
16.16.30 J0004943  -ALOCIN               00     37     16    .00    .00     .0   1004  BATCH        0     0     0     0
16.16.30 J0004943  -LNK                  00    332    302    .00    .00     .0   2764  BATCH        0     0     0     0
16.16.30 J0004943  -BT90LOD              00    208     82    .00    .00     .0   2200  BATCH        0     0     0     0
16.16.30 J0004943  -VFYILOD              00    238     75    .00    .00     .0   8890  BATCH        0     0     0     0
16.16.30 J0004943  -DLTILOD              00    125     47    .00    .00     .0   1090  BATCH        0     0     0     0
16.16.30 J0004943  -CPYLOD               00    228    845    .00    .00     .0   2960  BATCH        0     0     0     0
16.16.30 J0004943  -CPYDBR               00    176    551    .00    .00     .0    222  BATCH        0     0     0     0
16.16.30 J0004943  -SUCCESS              00    688    343    .00    .00     .0  21907  BATCH        0     0     0     0
16.16.30 J0004943  -CHKCOND              00     19      7    .00    .00     .0   1103  BATCH        0     0     0     0
16.16.31 J0004943  -FAILURE           FLUSH      0      0    .00    .00     .0      0  BATCH        0     0     0     0
16.16.31 J0004943  -PRINT                00    165     25    .00    .00     .0    663  BATCH        0     0     0     0
16.16.31 J0004943  -COMPLST              00    142     33    .00    .00     .0    405  BATCH        0     0     0     0
16.16.32 J0004943  -ILODLST              00    718    185    .00    .00     .0    710  BATCH        0     0     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 DEFAULTED
     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 referal 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
__ CUSEDBD            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=CUSEDBD
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 CUSEDBD  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=CUSEDBD
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=SQMO1
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
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
CUSEDBD  DBD CUSEDBD  DBL  FROZEN    0 STAGING  20180627  152431  USER25
             CUSEDBD  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
             SQMO1    FMT  FROZEN    0 STAGING  20180627  155035  USER25
             SQMO1    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  SQMO1
****************************** Bottom of data ******************************
```

Select an entry for more:

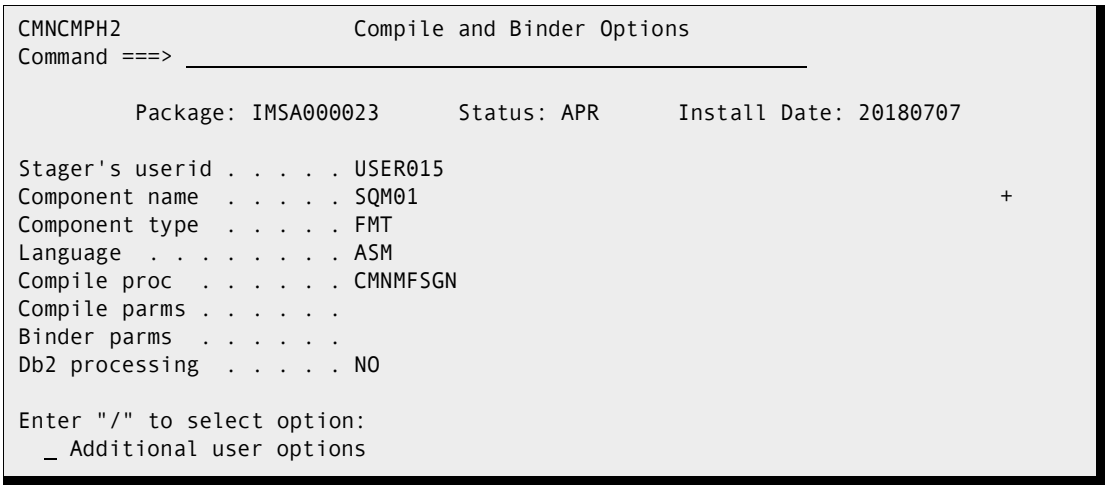
```
CMNCMPH1                     Component history              Row 1 to 1 of 1
Command ===> ____________________________________________ Scroll ===> CSR

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:



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 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 Referal library is not used)
M - MFS Source	R - MFS Referal (if the Referal library is used)
P - PSB Source	S - PSB
R - MFS Referal	F - MFS Format (if the Referal 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

Appendix B

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.

Skeleton	Function	Description
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

Skeleton	Function	Description
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
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
CMNRPMIM	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

Skeleton	Function	Description
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
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.

Skeleton	Function	Description
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.

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.

CMNISPRE

CMNISPRE 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 (CMNPGNL0), 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" on page 42 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.

SYSIN Keyword	Description
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.

CMNISPRE Job Sample

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

```
//PSBDBD  EXEC PGM=CMNISPRE,   *** DETERMINE CUSEDBD 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=CUSEDBD
```

CMNISPRE Sysprint Output Sample

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

ChangeMan(R) ZMF      CMNISPRE - 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=CUSEDBD

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.
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:

SYSIN: MBR=MFS00001
SYSIN: MBR=MFS00002
Temporary MFS file created.

and SYSIOUT 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	
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=&&DBD1OV,
//            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
```

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