SERENA®

ChangeMan® ZMF 7.1.2

Administrator's Guide

Publication date: 12 October 2012

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Welcome to *Serena® ChangeMan® ZMF*

Serena® ChangeMan® ZMF is a comprehensive and fully integrated solution for Software Change Management systems in z/OS environments. It provides reliable and streamlined implementation of software changes from development into production. ChangeMan ZMF manages and automates the application life cycle, protects the integrity of the code migration process, and results in higher quality delivered code to any test environment and to the production environment.

Before You Begin — See the Readme for the latest updates and corrections for this manual.

Objective — The *ChangeMan ZMF Administrator's Guide* describes how ChangeMan ZMF can be configured and administered.

Audience — This document is intended for ChangeMan ZMF global administrators, application administrators, and security administrators. It assumes that the administrator has a thorough knowledge of ChangeMan ZMF functions and is familiar with MVS™ and the security system in use.

Navigating this book — This guide describes the ISPF user interface to ChangeMan ZMF and explains how to perform administrative ChangeMan ZMF functions.

Change Bars — Change bars in the left margin identify substantive changes in this publication since ChangeMan ZMF release 7.1.

Guide to ChangeMan ZMF Documentation

The following sections provide basic information about ChangeMan ZMF documentation.

ChangeMan ZMF Documentation Suite

All ChangeMan ZMF documentation is included on the software distribution CD in Adobe Portable Document Format (PDF) format. You can access the documentation:

- From the Start | Programs | Serena | ChangeMan ZMF folder on your Windows workstation after you install ChangeMan ZMF from the distribution CD.
- From the download center of the Serena self-service Web site. A user ID and password are required. To obtain an ID and password, contact Serena Customer Support.

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.

Manual	Description
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.
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 / HFS 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 ChangeMan 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 ChangeMan ZMF.
Migration Guide 5.6 - 7.1	Gives guidance for upgrading ChangeMan ZMF from Version 5.6.x to 7.1.
Migration Guide 6.1 - 7.1	Gives guidance for upgrading ChangeMan ZMF from Version 6.1.x to 7.1.
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.

Manual	Description
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

To view PDF files, use Adobe® Reader®, which is freely available from www.adobe.com.

TIP Be sure to download the *full version* of Reader. The more basic version does not include the search feature.

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 and to other manuals with a single mouse click. These links appear in blue.
- **Printing.** While viewing a manual, you can print the current page, a range of pages, or the entire manual.
- **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.
- **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. (This is in addition to using any search index created by Adobe Catalog—see step 3 below.)

To search within multiple PDF documents at once, perform the following steps (requires Adobe Reader version 6 or higher):

1. In Adobe Reader, select Edit | Search (or press CTRL+F).
2. In the text box, enter the word or phrase for which you want to search.
3. Select the **All PDF Documents in** option, and browse to select the folder in which you want to search.
4. Optionally, select one or more of the additional search options, such as **Whole words only** and **Case-Sensitive**.

5 Click the **Search** button.

NOTE Optionally, you can click the **Use Advanced Search Options** link near the lower right corner of the application window to enable additional, more powerful search options. (If this link says **Use Basic Search Options** instead, the advanced options are already enabled.) For details, see Adobe Reader's online help.

Using the ISPF Interface

Administrators will most likely use the ChangeMan ZMF ISPF to configure and manage ChangeMan ZMF instances.

Description of the ISPF Interface

Instructions for using the ISPF interface are provided in the *ChangeMan ZMF User's Guide* in Chapter 2 "Using the ISPF Interface."

Using 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	Identifies UI controls, including PF keys, buttons, check boxes, lists, options, fields, and panel titles. Also emphasizes important information.
UPPERCASE	Indicates keys or key combinations that you can use. For example, press the **ENTER** key.
`monospace`	Indicates code, 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 guide is intended for ChangeMan ZMF global and application administrators as well as for security administrators. It assumes that the administrator has a thorough knowledge of ChangeMan ZMF functions, and is familiar with MVS™ and the security system in use.

As an administrator, your responsibilities depend on your administrative domain. You may be any or all of the following:

Global Administrator

If you are the global administrator, it is your responsibility to set the high-level rules (called *parameters)* of your site's implementation process. They can be as restrictive or permissive as you choose. For example, you have the option to completely prohibit or allow your site's developers to check out components to their personal libraries.

NOTE Rules are set for ChangeMan ZMF users on two levels. The global administrator sets them first, and the application administrator can further restrict them on an application-by-application basis.

It is also your responsibility to specify to ChangeMan ZMF the systems with which it interacts and the details regarding the staging library allocation. For example, as the global administrator you may choose CA Panvalet® as your baseline library storage means. You specify many other details, including procedures used for compiling (depending on languages for source), maximum allowance for schedule package installation on a daily basis, notification vehicles for people who need information on packages awaiting approval, and others.

Application Administrator

If you are the application administrator, it is your responsibility to set rules of your application's implementation process. They can only be as permissive as the values which are set by the global administrator (although you can further restrict your users). For example, if the global administrator lets users at the site check components out to their personal libraries, you can restrict your users from checking out components to their personal libraries. But if the global administrator has already restricted their access, you cannot override the global administrator's decision and give them permission.

Like the global administrator, you also set staging library information as well as determine compiling procedures for the languages used in your application's development. In addition, you configure the promotion libraries (if any) and baseline libraries used by your application. You create approval lists that are used by ChangeMan ZMF to notify strategic people in your development process that a change package is ready to be moved on to the next level of integration, testing, or into production.

In fact, no matter whether you are a global or an application administrator, you are capable of running reports for the site or the applications; you may also be responsible for setting up remote site information (if you have remote sites).

Security Administrator

As the security administrator, you assist and consult with the global and application administrators on site, user, library and component level security using the security package in use at your site. You are expected to be an expert in that system's functions and capabilities and you set up the overall security of your development process.

ChangeMan ZMF Monitor

As a ChangeMan ZMF monitor, you oversee packages and work closely with users during the implementation process, and you may be involved in resubmitting installation jobs if there are problems at package installation time. Also, you have the ability to hold packages back from installation as well as change the status of packages in limbo.

General Administrator

As the general administrator, you may be an expert in the periodic housekeeping tasks for ChangeMan ZMF such as starting up and shutting down each ChangeMan ZMF instance, updating the query information, backing up or recovering the package master, or clearing the activity log.

You may customize ChangeMan ZMF by implementing user exits, using and updating the services, creating custom reports, setting up the SYSOUT facility, or updating skeletons. Finally, you may also be a specialist in setting up the administration for the many selectable options which can be purchased individually for the unique needs of your site.

All of the responsibilities described above, except for customizing ChangeMan ZMF skeletons and administration for selectable options, are described further in this document. Information about skeletons is contained in the *ChangeMan ZMF Customization Guide*, and the selectable option information is contained in the individual selectable option manuals.

The global, application, and monitor administrative domains described above require that you have been defined to the individual security entities as such. See "Setting Up User Restrictions" on page 30 for further details.

Chapter 2

What is ChangeMan ZMF?

ChangeMan ZMF is a software change management product that integrates, automates, and controls the essential components of the software management lifecycle. With ChangeMan ZMF, the implementation of effective software management control is simplified.

Change Package

A Change Package is a grouping of all the components (Source, Copybook, Load, JCL, control cards, compiling procedures, documentation, and other components) required to implement a software change into production.

You can build Change Packages for any type of change, including permanent, emergency, temporary, simple, and complex changes. A variety of information can be associated with a Change Package. For example, reasons for the change, contingency plans, special implementation instructions, work request numbers, and contact lists can all be captured when the Change Package is created.

All Change Packages are referenced in the package master, a control file that contains the significant information regarding current and previous Change Packages. At creation time, a unique Change Package number is assigned to facilitate cross referencing. When a programmer adds components to a Change Package, that information is added to the package master.

Impact Analysis

To analyze the impact of changes, many organizations rely on data from a variety of sources, such as batch library scans and cross reference files. This method makes it difficult to maintain all sources of data and verify that they are current. ChangeMan ZMF provides a comprehensive facility to capture, query, and *enforce* relationships between components.

These relationships include not only the traditional ones, such as a source and executable relationship, but also other relationships based on common references to copybooks, SQL Include components, CA Panvalet® ++INCLUDE components, CA Librarian® - INC components, Called Subroutines, and JCL fields such as program name, procedure name, or data set name.

Checkout

Checkout enables you to reintroduce components residing in baseline or promotion libraries to the change cycle. Generally, production level components are checked out for modification. However, you can check out any previous version of a baseline component.

Depending on how ChangeMan ZMF is configured, one can check out components:

- To personal libraries
- To staging libraries
- Associated with a package using the copy forward feature
- In batch
- Online
- Concurrently with other components

If your site has applications that require parallel development, you can configure ChangeMan ZMF to allow concurrent checkout of components. ChangeMan ZMF has an automated process for managing this concurrent development. As part of this process, ChangeMan ZMF ensures that each owner of a version is aware of the actions of the other owners.

After you check out components and make necessary modifications, ChangeMan ZMF records the components and the associated change package for further impact analysis. This ensures that your developers are always working with the proper version of a component.

Staging

Staging is the process of introducing newly developed (or previously developed) components into the change cycle for modification or enhancement, and packaging with related change package components. When you *stage* a component, ChangeMan ZMF recognizes the type of component that you are staging and copies it into a staging library of corresponding type (source, load, JCL, documentation, copybook, etc.). Staged components are also associated with a pre-defined change package, which is the vehicle used to move components through the change cycle and track the history of change management activities for each staged component.

In change management systems other than ChangeMan ZMF, staging libraries are merely pre-production holding areas shared by one or more application groups. After components are tested in development libraries, they are copied into staging libraries prior to production implementation.

ChangeMan ZMF staging libraries are more than pre-production holding libraries. Components can be modified and tested *in* protected ChangeMan ZMF staging libraries. Moreover, when you stage source components, they are compiled and the resulting load modules are identified, helping you to maintain the integrity of source-to-load relationships.

In addition, ChangeMan ZMF maintains up-to-date records of all staging activities for packages and components. For example, when you stage a source component, the time that the component was staged is recorded, along with the name of any associated load modules, or copybooks, and the compiling procedures and linkage parameters used during the compile. This information is kept in the ChangeMan ZMF master file, the package master. You can view this component and package information any time by using the *query* function.

ChangeMan ZMF further extends the concept of staging by providing a means of isolating components from other changes in progress. This prevents uncontrolled and unknown copybooks and subroutines from being inadvertently referenced, allowing parallel or concurrent development without the risk of accidental overlays. The stable coexistence of multiple versions of a single component simplifies the blending of changes.

Audit

The ChangeMan ZMF audit process enables you to ensure correct synchronization of components and procedures. Using data stored in the package master, component

master, and impact analysis dataspace, ChangeMan ZMF maintains control of current and past modifications and component versions. Therefore, potential production problems can be identified before they impact production.

The audit function inspects the staging library contents of an evolving change package with respect to baseline library contents. The inspection looks for situations such as a package that shows no change from the baseline library, or a package that contains an LOD component that does not match its SRC component. Recognizing such out-of-sync situations helps you detect code that is inconsistent with your development procedure and other code problems. Examples of out-of-sync situations that the ChangeMan ZMF audit addresses include:

- Copybooks that have been changed after a source program has been compiled.
- Source programs that must be recompiled due to a copybook change.
- Called subroutines that have been changed after a referencing source program has been compiled and linked.

With ChangeMan ZMF you can enforce by application whether you want an audit, and if so, whether you want to correct or leave potential uncovered problems.

Recompile and Relink

The Recompile and Relink functions are intended to introduce components into packages in special circumstances. Neither Recompile nor Relink copies the source into the package, but instead keeps the output of the process. This may be helpful if:

- A copybook has changed, but not the referencing source (Recompile).
- The source code is not available for a driver, but a change is made to a subroutine (Relink).
- It is necessary to perform a composite link where the resulting load component name does not have accompanying source (Relink).

Both Recompile and Relink use the component's history from the package master. For example, Relink picks up the link options that were used when the program was last compiled.

Both Recompile and Relink can be used to resolve certain types of out-of-sync situations found during the audit of a package.

Freeze

Another unique ChangeMan ZMF feature is the ability to freeze Change Packages. When the Change Package is ready for the next phase of the change implementation lifecycle, a freeze is performed to prevent further modifications. The freeze also positions the Change Package for promotion or approval. Traditional methods accomplish this function by moving components from the development libraries to a separate set of libraries or, in some cases, separate environments. ChangeMan ZMF controls your updates in conjunction with your security system, so component movement is no longer necessary.

If further modifications are required, you can unfreeze a Change Package, and the approval process is reset.

Promotion

ChangeMan ZMF has the ability to promote Change Packages through multiple shared, pseudo-production promotion environments. These promotion environments can be secured as if they are production, and ChangeMan ZMF controls all updates.

ChangeMan ZMF considers shared promotion environments a place where full integrated system testing may be performed. When the time comes for a full system or an integrated system test, authorized approvers promote the acceptable components into the promotion environments.

When testing is complete and the Change Package is approved, ChangeMan ZMF removes the components from the promotion environments. All production installation occurs from the Change Package staging environment. With ChangeMan ZMF, you define your testing methodology and the number of testing levels that are required.

Approval

Approvals for change package installation are performed online, eliminating the requirement for manual approval processes. During the ChangeMan ZMF approval process, authorized approvers can indicate that the change package is acceptable for production implementation, or they have the option to reject or review the change and generate a checklist of questionable or unclear items for the programmer to resolve.

ChangeMan ZMF relies on your security system; it does not use internal personnel tables. Approval lists of specific USERIDs or approving entities are defined to your security system so that electronic approvals can be collected.

For each application, a variety of approvers can be included on the approver list. Separate approval lists can be created for scheduled, planned changes and for unplanned, emergency changes, or you can choose to use an approval hierarchy. With ChangeMan ZMF, you have the flexibility to make these choices.

Production Installation

ChangeMan ZMF is actively involved in the management and control of actual production component installation. Component installation can be automated through the ChangeMan ZMF internal scheduling system, or through the ChangeMan ZMF direct interface with a job scheduling system. In addition to component movement, ChangeMan ZMF performs other production installation activities such as DB2®, IMS and CICS processing.

ChangeMan ZMF also has a unique change quantity threshold facility that allows you to control the number of changes that occur in a given time period. For example, you may

want to limit the number of change packages that are installed during month-end processing.

Baseline Libraries and Delta Decks

ChangeMan ZMF recognizes that your software components are a vitally important business asset. It gives you the ability to store your production source components in a structure that works for your organization. Components can be stored in PDS files, PDSE files, CA Librarian files or CA Panvalet files. Components can be segregated by application or by categories, such as batch versus online. Equally, applications can share libraries.

ChangeMan ZMF automatically stores prior versions of components. These versions can be stored as full copies (inherent for load components), or as delta decks. It uses a unique reverse base/delta technique known as stacked reverse deltas. With this technique, the current version of the component is the base, and delta decks are created to backtrack to previous versions.

Backout Management Facilities

ChangeMan ZMF has comprehensive backout management facilities. In addition to source components, the prior functioning executable components can be automatically backed up. If a backout becomes necessary, ChangeMan ZMF automatically restores these executable components to production. It also performs all necessary DB2 Plan rebinding automatically.

Because ChangeMan ZMF is package driven, it backs out all the components of a change automatically.

Emergency Changes

Critical abends occur at inopportune times and require immediate attention. Because ChangeMan ZMF contains the ability to create Unplanned Change Packages, and the ability to maintain a separate list of approvers for unplanned changes, emergency changes are safe, fast and easy to perform. Additionally, because of the (optional) ability to concurrently check out components, ChangeMan ZMF provides notification to any developer affected by the change so that the emergency fix can be incorporated globally into all change packages.

ChangeMan ZMF does not impede the emergency change process by requiring that the component be released, reassigned, or renamed by the original owner.

ChangeMan ZMF Life Cycle

The change package life cycle is a rules-based process consisting of actions that you perform and actions automatically initiated by ChangeMan ZMF that guarantee the

integrity of changes you make to your production application system. These actions begin with Create Package and usually end with Baseline Ripple. Authority to perform any of these actions is controlled by ChangeMan ZMF and defined in your security system.

The actions in the change package life cycle include:

- **Create Package** is the first step in the change package life cycle. Using a series of input panels, screens or windows, you enter information that describes the change package, and you set control parameters that determine how the package behaves during the rest of the package life cycle.
- **Checkout Component** copies components from a baseline or promotion library into a staging library allocated exclusively to your package. You can also check out components to a personal library, which is tracked by ChangeMan ZMF.
- **Stage Component** is where you edit and build package components to meet project requirements. Source components are processed through predefined build processes to create executables and build listings. You can also stage components into your package from libraries outside of ChangeMan ZMF to bring those components under the control of ChangeMan ZMF.
- **Package Audit** detects problems that will occur in production if you install your package now in its current condition. Audit detects synchronization problems in relationships between components in your change package and synchronization problems between package components, components in participating packages, components in promotion, and baseline components.
- **Freeze Package** locks package information and package components to prevent further changes and to ensure that what the components you install into production are the same as the components you tested. You can selectively unfreeze, change, audit, and refreeze components to fix problems found in testing.
- **Promote Package** copies package components from staging libraries into test libraries. As a package is promoted from one testing level to the next, package components are removed from libraries in the prior level and copied from staging libraries into test libraries for the next level. Demote Package removes package components from test libraries.
- In **Approve Package**, predefined approvers review package information, components, and test results and approve or reject the package for install. If an approver rejects the package, they must enter text Reject Reasons.
- **Revert Package** removes all previously entered approvals, unlocks package information and components, and opens the package back up to development.
- **Distribute Package** starts automatically when all package approvals are entered for a package that is scheduled for install at a remote site. The package is transmitted to the remote site where package records are added to a ChangeMan ZMF P instance running there, package staging libraries are allocated and populated, and the package is added to the P instance internal scheduler.
- **Install Package** starts automatically, either when the package install date and time arrive, or when the last approval is entered. If the application has production libraries that are separate from baseline libraries, current production modules are backed up and new versions are copied from package staging libraries into the production libraries.
- **Baseline Package** starts automatically after a package is installed. This process ripples current and prior versions of package components down in the stack of prior

baseline versions, and then copies package components into the baseline libraries as the new current version.

- **Backout Package** removes package components from production libraries and restores the backups made at package installation. Package components that are the current version in baseline libraries are removed, and components are reverse rippled up the stack of prior baseline versions to restore the old current version.
- Utility **Scratch/Rename** removes **components** from or renames components within the ZMF environment.

Chapter 3

Pre-Implementation Decisions

This chapter provides you with important considerations that you may take up after ChangeMan ZMF has been installed, but before you set it up for your sites, applications, and users.

Customizing ChangeMan ZMF for Your Site

You can customize ChangeMan ZMF by modifying skeletons, implementing exits, and establishing initial history records.

Modify Skeletons

JCL for ChangeMan ZMF batch jobs is created by ISPF file tailoring services. These services read members in ISPF skeleton libraries and use variables provided by ZMF to control skeleton logic and set JCL values to build job JCL. The generated JCL is submitted to the z/OS internal reader for execution.

Many ZMF skeleton can be used as they are delivered with ChangeMan ZMF. You must customize other skeletons to fit your environment and your implementation of ZMF. The *ChangeMan ZMF Installation Guide* lists skeletons that you must modify regardless of your ZMF implementation, and the *ChangeMan ZMF Customization Guide* provides general information about customizing ZMF skeletons.

Implement Exits

ChangeMan ZMF is delivered with program exits, which are assembler subprograms that modify the normal behavior of ZMF functions. You can activate and customize these exits to make ChangeMan ZMF fit your requirements for software change management. The *ChangeMan ZMF Customization Guide* includes general information about customizing ZMF exits and a description of each exit program.

Establish Initial History Records

ChangeMan ZMF keeps information about components (also called history) in the component master file. This information includes compile and link options for the component. These options are used during the compile, recompile and relink processes.

It may be beneficial to pre-load this information before components are accessed through ChangeMan ZMF. CMNBAHST allows you to establish an initial history record for components. (Utility CMNBAHST is described in the *ChangeMan ZMF Customization Guide*.)

Managing Library Space

To build, distribute, install and back out change packages, ChangeMan ZMF allocates and accesses a number of data sets. There are administrative functions at the global and application level that provide you with the capability to enter and update information about how these data sets are named and allocated. ChangeMan ZMF provides modules that you can implement to help you manage library space more effectively. See the descriptions of exit programs SEREX001, CMNEX015, and CMNEXINS.

The staging libraries are always allocated as a PDS or a PDSE. Other libraries may be allocated using whatever storage method your site prefers. Currently there is only one backup for production libraries and it is stored as a PDS or PDSE.

Allocating Staging Libraries

Staging library allocation parameters are managed through the Global and Application Administration panels during setup. (See "Setting Up Global Administration" on page 49 and "Setting Up Application Administration" on page 113)

Allocating Baseline Libraries

ChangeMan ZMF baseline libraries may be pre-allocated outside of ChangeMan ZMF, or the application administrator may allocate PDS baselines through ChangeMan ZMF during application set-up. The following table describes the ways you can store the production and prior versions of components in baseline libraries.

Storage Means	Number of Levels Stored	Comments
Full PDS	2-10	The production version of a component is stored in full PDS format. There is an additional PDS library for each prior version level.
Stacked Reverse Delta	2-999	The production version of a component is stored in full PDS format. Prior versions are stored in proprietary reverse delta deck format. All reverse delta decks are stacked in a single PDS library.
Librarian	2-10	The production version of a component is stored in a CA Librarian file. There is an additional CA Librarian file for each prior version level.
Librarian Archie	2-255	The production version of a component and all prior versions are stored in a single CA Librarian file.
CA Panvalet	2-10	The production version of a component and all prior versions are stored in a single CA Panvalet library.
Reverse Delta Deck PDS	2-10	The production version of a component is stored in full PDS format. Prior versions are stored in proprietary reverse delta deck format. There is an additional PDS library of reverse delta decks for each prior version level. **NOTE** This storage means is obsolete for new baseline libraries, but existing baselines with this storage means are supported.

Allocating Promotion Libraries

Promotion libraries must be allocated outside of ChangeMan ZMF administration. After the libraries are allocated, they are defined to ChangeMan ZMF while setting up Promotion ("Configuring Promotion Sites, Levels, and Libraries" on page 154)

Allocating Production Libraries

See "Using Baseline Libraries for Production Libraries" on page 30 below for a discussion of baseline versus production libraries. If you decide to use production libraries, they are

allocated outside of ChangeMan ZMF. The section "Configuring Production Libraries" on page 176 explains how to define the libraries.

Using Baseline Libraries for Production Libraries

ChangeMan ZMF has the ability to synchronize baseline libraries and production libraries. This can be useful when development and production processing occurs in different locations. If your production applications run at the same site as your baseline libraries, you may not need to set up separate ChangeMan ZMF production libraries. Remember, ChangeMan ZMF baseline libraries can be standard PDSs and can be accessed by external tasks. Eliminating ChangeMan ZMF production libraries where possible could result in significant DASD savings.

Setting Up Remote Sites for Production Libraries

An alternative to using baseline libraries for your production libraries is to set up additional ChangeMan ZMF subsystems. This allows you to segregate packages still in development from production level packages. You define one subsystem as your development site and the additional subsystems as remote sites where production level packages can be distributed and installed. Baseline libraries reside at the development site and production libraries are kept on the remote site CPU.

You set up remote sites during global administration by configuring your ChangeMan ZMF subsystems as either D (Development site) or DP (Development and Production site) for the subsystem you designate as your development site, and P (Production site) for the subsystem you designate as your production site.

If you initially invest in a single subsystem, but are planning to incorporate remote site subsystems in the future, configure your single subsystem as DP, not ALL. Setting up as an ALL site enables you to have both development and production libraries on a single CPU, but prohibits you from attaching remote sites.

Setting Up User Restrictions

A primary function of ChangeMan ZMF is to protect and regulate your valuable code. To do this, there are specific choices to be made about ChangeMan ZMF functions. For example, do you want to allow two users to work on the same component at the same time?

Many of these choices are set by parameters in ChangeMan ZMF itself. Part of this implementation of ChangeMan ZMF is setting these parameters in the global and application administration functions. By setting these parameters, you further define the functions the end users have and access. In the above example, the parameter would be “Allow Concurrent Checkout”. If this parameter is set to “no”, only one person can work on the component at any given time.

"Setting Up Global Administration" on page 49 and "Setting Up Application Administration" on page 113 detail the set up requirements and identifies some of the policies you may want to set.

Allow Temporary Change Packages

A temporary change package is not permanent and may never be rippled into baseline. It is automatically deleted from production after a specified number of days (the user provides this information). The staging library contents associated with temporary change packages are placed into temporary libraries which are concatenated ahead of production libraries. They are never rippled into baseline and are deleted from the temporary libraries after a specified number of days by ChangeMan ZMF.

If the you restrict this option, the user is not allowed to select this change package option during package creation. If you allow temporary packages, users are required to enter the number of days the package is to remain in production after installation (duration number of days).

Work Request and Department Number Required

You can use the work request number and department number to track change packages in certain ChangeMan ZMF batch reports. They can also select viewing of package information within the Query function.

If you require all applications (and their users) to enter a work request number or a department number during change package creation, then users are not allowed to finish creating a change package without entering this information. (ChangeMan ZMF performs no validation checks on the number, but only that one is entered.)

Planned Installation Calendar

If you are the global administrator, you can set up a Planned Installation Calendar which limits the maximum number of planned changes that can be installed for any given date in the forthcoming 52 weeks. See *Chapter 4, "Global Component Options" on page 88*. Setting the maximum number to zero stops any planned package from being planned for installation on that date (unplanned change packages are not restricted by the calendar). This zero implies a non business day. A planned package cannot be scheduled for installation on a date that has already reached its maximum limit.

For the user, this information is accessible from the Dates option in the Build Change Package Menu. The user does not update the actual calendar. During package creation, they enter the desired installation date for each remote site selected to receive the package. ChangeMan ZMF verifies that the date is available and increments the calendar accordingly. If the date entered is not available (either the maximum allowable packages have been met or the date is blocked), the user is not be able to create the change package until a valid date is entered.

Unplanned change packages are not affected by this calendar.

Disable Installation Calendar

This option allows you to completely disable the Planned Installation Calendar. When a user creates a change package, ChangeMan ZMF only checks the install date to verify if it is a valid date, and disregards the maximum packages criteria.

Normal Business Hours

The application Planned Approval list is incorporated into any change package that is created within normal business hours. An unplanned package uses the Unplanned Approval list if it is created outside of normal business hours. Normal business hours are defined in global administration parameters.

Overlay Prior Staged Component

This situation only occurs if more than one user is attempting to re-stage components within a change package. (Of course, all users may stage and re-stage components as many times as they need to, but this option refers to two or more users working in the same change package and attempting to re-stage [overlay] each other's components.)

If overlaying a previously staged component is allowed, ChangeMan ZMF issues a warning to the user requesting the staging of an already-staged component (already staged by another user within the same package), and inform the first user that the component has been overlaid.

Checkout Enforcement

You can set the checkout enforcement rule such that if a component exists in baseline, it must be checked out before it can be staged. There are levels to this rule:

Level	Rule
1	Any component may be staged regardless of whether it exists in baseline or has been checked out to a package. ChangeMan ZMF does not check for the component's existence in the baseline libraries.
2	Users attempting to stage a component that exists in the baseline but has not been checked out must pass a security system ENTITY CHECK before the stage can proceed. The entity name is specified in the application parameter generation. Staging is not allowed if the user does not pass the entity check.
3	Disallow anyone from staging a component which exists in the baseline library but has not been checked out to the package requesting the stage.

Allow Concurrent Checkout

This rule is used to dictate whether a user can check out components that are already checked out to another package. It only applies to planned packages, not emergency packages.

Validate Version During Staging

This option validates the component versions during staging. If the same component is in motion in two different packages, the first package to baseline ripple can force the user of the other package to halt development and recheckout the latest version of the component.

Staging Restriction Level

This option restricts who is allowed to stage NEW components. New components are not yet associated or checked out to a package.

Level	Rule
1	All users can work on new components. This means they can stage components that are not yet associated with a packages (called development driven staging) as well as stage component that are associated with a package (called package driven staging).
2	Allows only users who have been defined to a special entity by their TSO ID to stage new components. Otherwise, they can only check out and stage components that are associated with a change package.
3	Does not allow you to stage new components, only ones currently associated with a package. This effectively disables development driven staging.

Audit Level

You cannot freeze the change package without passing audit. The Audit Level in application administration sets the maximum return code that audit may produce and still allow your change package to pass the audit:

Audit Code	Explanation
0	Audit is never required. It may be performed, but this is optional.
1	Audit is required but any return code (except ABEND) is acceptable.
2	Audit is required but the return code must not exceed (12). This means that there are out-of-sync situations within this set of staging libraries
3	Audit is required but the return code must not exceed (8). This means that there are no out-of-sync situations within the staging libraries but there are out-of-sync situations within the baseline.
4	Audit is required but the return code must not exceed (4). This means that there are no out-of-sync situations in both staging and baseline sets of libraries, but there is at least one component of a staging library that is identical to the corresponding component in baseline (duplicate).
5	Audit is required but the return code must not exceed (0). This means that there are no out-of-sync situations and no duplicates.

Designated Compile Procedures

Change management best practices require consistent, repeatable build processes. ChangeMan ZMF offers a variety of controls over build processes and build options to

provide you with the level of consistency you want, and the level of flexibility you want to offer to application developers when they work on components in packages.

Level of Control	ChangeMan ZMF Processes and Configuration
Minimum	The compile procedure and build options that a developer enters on ChangeMan ZMF panels are recorded in package component records. These values are presented on build process panels the next time a build process is initiated for the component in the package, but a developer can change the information. When the package is installed and the component is baselined, build process information stored in package component records is written to the Component History file. When the component is checked out to another package, the compile procedure and build options are copied from component history to package component records for use in build processing in the new package.
Medium	Some compile and link edit options are hard coded in compile procedure skeletons. Some compile and link edit options are prohibited, and if a developer uses them, the package cannot be frozen and the component cannot be selectively refrozen. (Exit program CMNEX025)
High	Application administrator defines a designated compile procedure with a Force Level 1 for single component or a group of components. The designated compile procedure specifies compile procedure and build options that must be used the last time a component is built before the package is frozen.
Maximum	Application administrator defines a designated compile procedure with a Force Level 2 for single component or a group of components. The designated compile procedure specifies compile procedure and build options that must always be used in build processing for the component.

Designated compile procedures can completely eliminate variation in build processing for components before they are installed into production, and designated compile procedures can eliminate variation in development build processing as well.

Secured Components

If the administrator has chosen to secure one of the application's components to specific TSO IDs, generic TSO IDs, or to an Entity, only the TSO IDs associated with the component are allowed to check out or stage the component during change package development.

Approval Lists

The administrator has set up a list of approvers for this application's change packages, entity names associated with each approver description, and whether the approver will be called upon to approve packages (generated for another application) which impact this application. More than one TSO ID can be associated with each entity name so that packages can be approved when your regular approver is absent. When unplanned packages are created outside normal business hours, only the abbreviated list of approvers needs to be met. However, the installed package remains on the list of

packages to be approved until the complete approval list is met. (This is called *Post Approval* and it is intended to facilitate emergency change packages.)

Other Considerations

There are several issues you need to consider when planning for implementation, such as staging library allocations, staging for recovery, handling remote site issues, and more. These are discussed in the paragraphs that follow.

Global Parameters for Staging Library Allocation

If you are the global administrator, you set up a model for the staging dataset names, size allocation specifications, and types of libraries to be allocated, so that each time a user creates a change package, the package's staging libraries are allocated based on certain standards.

The dataset names follow this model:

- Four consecutive question marks ???? must appear where the application mnemonic (three or four alphanumeric characters) is to be substituted.
- Seven consecutive pound signs ####### must appear where the package number (.#000123) is to be substituted.
- Example:`????.CMNSTAGE.#######`
- Result: `DEMO.CMNSTAGE.#000001.SRC`

Application Parameters for Staging Library Allocation

If you are the application administrator, you determine which library types are required to be generated as staging libraries for each application. If you choose to defer staging library allocation, ChangeMan ZMF does not allocate the library type at package creation time. (The user has the option during package creation to request allocation of any of the deferred library types.) If the user makes a stage/checkout request for any component of the deferred type, then the staging library is automatically allocated based on the size parameters chosen for the application.

Edit Staging Recovery Mode

This application level parameter causes ChangeMan ZMF to store all of the user's edits to change packages so that they can recover them in the event that their TSO session fails. After the failure, upon reentering ChangeMan ZMF, they have a choice of recovering or canceling the recovery.

Query Of Available Users Options

You can query source component staging information after the package has been frozen. If you implement customized user option panel names, or add customized panels and want to enable users to query information about them, edit panels CMNQRY22, CMNSTG04, CMNSTG05, CMNRCMP1. Link each of these four panels to any user option

names or panels you have customized. See the ChangeMan ZMF 6.1 Customization Guide, Chapter 4 - User Data for more details.

Remote Sites

The global administrator has determined whether or not there are any remote production sites, how to transmit to them, and by what name they shall be known. The application administrator has chosen from the global list only those remote sites that are appropriate to application; thus, users may send change packages only to the remote sites designated for the application. (The user can select any or all of the remote sites from the application list.)

Package Approvals

The application administrator must set up two approval lists for each application.

- Planned Approvals

  This list of approvals is automatically incorporated into all planned packages. It is also included in unplanned packages that are created during normal business hours. Normal business hours are defined in application administration.

- Unplanned Approvals

  This list of approvals is automatically incorporated into unplanned packages that are created outside of normal business hours, which are defined in application administration.

Unplanned Approvals are intended to provide an alternative list of approvers for emergency changes that are urgent and may be needed at a time when approvers in Planned Approvals are not available.

Important considerations when defining Planned and Planned Approvals in application administration include:

- The type of approval list incorporated into an unplanned package depends on system time that the package was created and on the definition of normal business hours in application administration. The package install time is not considered.
- If an unplanned package is created with Unplanned Approvals, the Planned Approvals are added to the package after the package is installed. The package is displayed on the CMN120 Unplanned Packages Pending Post Approval report until all approvals are granted. An approval that is defined in both Unplanned and Planned Approvals does not need to be approved a second time.
- Approvals may be dynamically added to packages at Freeze by exit program CMNEX009 based on package conditions such as the presence of a library type or a the existence of a value in a Package User Information field.
- Restrictions can be placed on who can approve a package by setting Approval Restrictions in Application Parameters.
- The order of approval notification is influenced by the Hierarchical Approval Process indicator in Global Parameters.

Promotion And Demotion

Promotion is a ChangeMan ZMF facility that applies the changes in a package to libraries used for testing and other purposes.

Promotion can populate libraries used for:

- Batch testing where test libraries are coded in STEPLIB or JOBLIB statements in common application testing JCL.
- Online testing where application testing libraries are coded in region JCL.
- Unit testing where libraries are loosely controlled and populated by any developer who wants to run a test.
- Quality Assurance test libraries that must be tightly controlled and can only be populated by the QA testing coordinator.
- Training environments where software changes must be available for training classes before they are installed into production.
- Any purpose that requires package components to be copied into a fixed set of libraries.

How Does Promotion Work

Promotion copies components from package staging libraries into libraries that an enterprise uses for application testing or other purposes. Promotion may also be configured to execute additional processes to prepare promoted components for execution. Such processes might include CICS® PHASEIN/NEWCOPY, DB2® bind, and IMS™ gen.

Demotion deletes components from libraries that were populated by promotion. Demotion may also execute processes such as CICS PHASEIN/NEWCOPY, DB2 bind, and IMS gen to adapt an environment to the changes made by demotion.

Each set of libraries that promotion can target is represented by a **promotion level**. The ChangeMan ZMF Administrator defines promotion levels for each application with the library types that can be promoted and the names of the libraries that are targeted for each type. Library types for promotion usually include the executable components in your package and may also include nonexecutable types like source code. However, a promotion level does not have to include all library types in an application.

Each promotion level is defined under a **site**. Promotion can populate libraries and prepare executables on **local** sites, which means environments that are on the same MVS image as the ChangeMan ZMF server. Promotion can also populate libraries and prepare executables on **remote** sites, which means environments that are on MVS images separate from and do not share DASD with the image where the ChangeMan ZMF server runs.

Full promote and demote operate at the package level. All components in a package that are eligible for promotion are promoted or demoted together. The current promotion level is recorded at the package and the component level.

Selective promote and demote operate on individual components in a change package. The package promotion level remains the same, but the component promotion level changes.

Since application test libraries are often shared with other developers and projects, promotion looks for potential **overlays** by comparing the names of package components eligible for promotion against the directories of the target libraries. The person promoting the package is given a choice whether to proceed and overlay matching components in the promotion libraries or cancel the promotion request.

Promotion must not be confused with the physical movement of components through a series of test libraries and into production libraries. Promotion always copies components from package staging libraries into target promotion libraries. Likewise, at baseline ripple and install, package components are copied from package staging libraries into baseline and production libraries.

Promotion Library Cleanup

ChangeMan ZMF is delivered with the promotion facility configured to provide the maximum level control over the contents of promotion libraries. Promotion can be configured to satisfy other priority requirements.

In the maximum control configuration, when a package is promoted from one level to another, promotion libraries at the prior level are **cleaned up**. ChangeMan ZMF deletes the components from the libraries in the prior promotion level, unless a component originally promoted from the package was overlaid by promotion from another package.

Promotion libraries are also cleaned up when a promoted package is baselined or installed.

This configuration assumes that promotion libraries used for testing are concatenated in front of baseline libraries or production libraries or copies of these libraries. The objective is to guarantee that if no packages are promoted to a set of test libraries, those libraries are empty, and the test environment behaves exactly like production because it is running only production components.

In some testing environments, such as those that use databases and/or data dictionaries, it is not possible to concatenate promotion libraries in front of production libraries. Components must accumulate in the promotion environment as packages are cycled through development, testing, and install. To satisfy this requirement, ChangeMan ZMF skeletons must be modified to disable promotion library cleanup at promotion, demotion, and install.

Disabling promotion cleanup is not advisable. If promotion cleanup is disabled, the package lifecycle must be carefully analyzed to discover when orphans might be inadvertently left in promotion libraries, and when package components might not be copied to a particular accumulation library at all.

Promotion Security

Each promotion level in an application is associated with a security entity, which is defined in the mainframe security system (IBM RACF®, CA-ACF2®, or CA-Top Secret®). By working with the security administrator to grant or deny userid access to the promotion security entities in the security system, the ChangeMan ZMF administrator can limit who can promote and demote packages in a particular promotion level.

For example, all developers might be permitted to promote packages to a unit test promotion level. Only Quality Assurance test coordinators might be permitted to promote packages to a QA test promotion level.

Promotion Rule

The behavior of the promotion function is governed by the Promotion Rule. The administrator selects a Promotion Rule for each application that provides the level of management for change packages, components, and promotion libraries that is required by the application.

The following table describes how the Promotion Rule determines the requirements for promoting and demoting packages and components.

Rule	Restrictions
0	Full and selective promote and demote are allowed without freezing the package first. Requires the following sequence to change a promoted component: **1** Selective unfreeze (only if the package is frozen) **2** Edit **3** Stage ("Restage") **4** Selective freeze of the component (only if the package is frozen) **5** Selective promotion to any level up to the package promotion level.
1	Requires that the package be frozen for promote and demote. Requires the following sequence to change a promoted component: **1** Selective demote of the component **2** Selective unfreeze **3** Edit **4** Stage **5** Audit package **6** Selective freeze of the component **7** Selective promotion back to the package promotion level.
2	Requires that the package be frozen for promote and demote. Requires the following sequence to change a promoted component: **1** Selective demote of the component **2** Selective unfreeze **3** Edit **4** Stage **5** Audit package **6** Selective freeze of the component **7** Selective promotion through all intermediate levels to the package promotion level.

Rule	Restrictions
3	Requires that the package be frozen for promote and demote. Requires the following sequence to change a promoted component: **1** Full demote of the package **2** Selective unfreeze of the component **3** Edit **4** Stage **5** Audit package **6** Selective freeze of the component **7** Full promotion through all promotion levels up to the original promotion level.
4	Requires that the package be frozen for promote and demote. Requires the following sequence to change a promoted component: **1** Full demote of the package **2** Revert the package to development status **3** Edit **4** Stage **5** Audit package **6** Freeze package **7** Full promotion through all intermediate levels to the package promotion level.

NOTE The Promotion Rule does not change the requirements for audit. If audit is required before freeze, then audit is required before selective freeze.

Promotion Rule By Promotion Level

Normally, all promotion levels in all sites in an application are governed by the Promotion Rule coded in application administration parameters.

However, the level of control over promotion usually differs between lower promotion levels used for developer unit testing and higher promotion levels used for systems testing, quality assurance testing, and user acceptance testing.

Exit program CMNEX027 can be used to assign different promotion rules to different promotion levels. This exit can also be used to assign other promotion restrictions to individual promotion levels.

Promotion Rule 0

If the Promotion Rule is set to 0 for an application (or for a promotion level with exit program CMNEX027), many promotion controls are relaxed. These relaxed rules may be appropriate for certain uses like populating libraries used in early component testing.

In addition to the requirements listed in the Promotion Rule table above, the relaxed controls for Promotion Rule 0 include:

- Components that are not ACTIVE that are in library types eligible for promotion are bypassed and a message is displayed.
- Re-staging a component sets the component promotion level to 0. The package promotion level is not changed.
- Package may be promoted to levels that are not the next contiguous level.

Promotion Rule 0 must be used with caution because it allows different versions of a component to exist in promotion libraries and staging libraries.

First Promote

When a package is at promotion level 0 (not promoted), special procedures apply to the first promotion action. These procedures, specially in combination with Promotion Rule 0, can be useful for promoting individual package components for testing before the entire package is ready for testing.

- A package component may be selectively promoted when the change package is at Level 0 (not promoted). A selective promote in these circumstances is labeled a **first promote**.
- When all components are promoted to the same level as the first promote, the package promotion level is changed to that level. The package may be fully promoted or demoted from this new level.
- After a first promote, a package cannot be promoted until all components are selectively promoted to that level.

Other Restrictions and Options

These are general rules for promoting and demoting packages and components:

- Except for first promote, a component cannot be selectively promoted to a promotion level higher than the package promotion level.
- Except for first promote, the package promotion level is set only by a full promotion. The package promotion level is reset after a full demotion, not after all components have been selectively demoted.
- A package may not be promoted or demoted if components are at different promotion levels above the 0 level. Components may need to be selectively promoted or demoted to align components at the package level.
- A package may not be promoted to the current package promotion level. A component may not be selectively promoted to its current component promotion level.

- Promotion or demotion for local sites is accomplished in one batch job. Promotion or demotion for remote sites requires three batch jobs, one of which runs at the remote location.
- All promotion jobs that are initiated on the user's MVS image obtain JOB card information from the Promote Options Panel. Promotion jobs that run at remote sites obtain JOB card information from the Site Definition in application administration. Job names for jobs that run at remote sites may be modified with exit program CMNEX008.

Promotion Paths

When promotion is defined for an application, the administrator creates each promotion level under a site defined in Application Administration.

The administrator can set the Force Demotion field for sites in the promotion definition to allow packages to be promoted to levels in more than one site at the same time. Sites may also be defined so that packages must be demoted in other sites before they can be promoted to levels in that site.

Levels, sites, and the Force Demotion field may be configured to provide multiple promotion paths within the same application. Here are some alternative promotion path definitions.

- Define each level under a unique site so that the Force Demotion field can be used to allow promotion or any or all promotion levels at the same time.
- Define all levels under one site to provide a single promotion path for all packages. If there is only one promotion site defined in an application, the promotion function skips over the site selection panel when a package is promoted or demoted.
- Group promotion levels under several sites to create multiple promotion paths. There might be a path for packages with online system changes and a different path for packages with batch system changes.
- Use sites for special promotion purposes. A promotion level with training environment libraries as targets might be defined under a unique site. A package containing new software would be promoted to this level on a certain calendar date to support training classes no matter where the package was promoted in other sites.

Approvals and Promotion

Approvals and promotion are separate facilities.

- Users authorized to promote packages to a level may promote frozen packages to that level no matter what approvals have been granted.
- Users authorized for approval can approve frozen packages no matter where a package may be promoted.
- The last approver initiates distribution and/or scheduling regardless of the last promotion level reached.

The package lifecycle always requires approvals. The package lifecycle does not require that packages be promoted before they are baselined and installed.

However, security entities for promotion and approvals may be used to provide a procedure that mixes promotion privileges with approval responsibility, as in the following example:

- The QA coordinator is permitted update authority to a promotion security entity to allow her to promote packages to the QA test environment.
- The QA coordinator is permitted update authority to an approval security entity to allow her to enter an approval labeled QA Testing.

The QA coordinator should only approve a package for QA Testing after she has promoted the package, the package has been tested, and she has examined QA test results.

NOTE Planned and Unplanned Approval definitions include an Order No. field. When this field is incorrectly called an approval level, users often confuse its purpose with the function of a promotion level.

Promotion Libraries In SYSLIB Concatenations

Library concatenations for SYSLIB DD statements in compile and link edit JCL are automatically built by ChangeMan ZMF skeletons. These skeletons put staging libraries at the top of the concatenation and baseline libraries at the bottom. Promotion libraries are placed between staging and baseline libraries.

You may exclude individual promotion libraries from these SYSLIB concatenations by coding the SYSLIB Exclude field in the promotion library definition in application administration. The SYSLIB Exclude field only has meaning for like-copy and like-load library types.

Staging Versions

The staging versions facility can save an unlimited number of versions of a package component that a developer might create in a staging library between the time the component is first added to the package and the time the package is baselined.

Staging versions may be created only for components that can be edited from the Stage: Package Components panel.

Staging versions are stored as full copies in a compressed format in a VSAM file. Each version may be labeled with an optional 35-character description.

Some features of staging versions are available if the merge facility has been installed. The merge facility of staging versions is only available if your company has licensed Serena® ChangeMan® M+R.

Staging Versions Installed

For detailed SSV implementation instructions, See Step 6: Define Staging Versions VSAM Files and Step 10: Build SERNET JCL for ChangeMan ZMF in Chapter 5 of the ChangeMan ZMF Installation Guide.

These features are available if the staging version facility has been installed:

- The VC Staging Selection Code can be used to display the Version Control panel for any component that is on the Stage: Package Components panel.
- The Version Control panel always shows a STG version and usually a BAS version. These versions are pointers to the component in the staging library and baseline library respectively.
- From the Version Control panel, the STG and BAS versions can be browsed, viewed, and compared.

Staging Versions Enabled

The staging versions facility may be enabled for a library type by setting the Save Staging Versions parameters in Global and Application Library Types.

These features are available in library types for which the staging version facility has been enabled.

- Users can add a component change description each time they create a new version of a package component on the Stage: Package Components panel.
- Users can save a staging version whenever they change a component on the Stage: Package Component panel.
- The administrator can make ChangeMan ZMF create a staging version every time a staging library member in the enabled library type is changed, or ChangeMan ZMF can ask if the user wants to overlay the component in the staging library without first creating a staging version.
- From the Version Control panel, the user can browse and view staging versions.
- Users can compare any two staging versions listed on the Version Control panel.
- Administrators can delete staging versions listed on the Version Control panel.

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If your company licensed ChangeMan M+R, and your administrator installed the software, you can merge two to eight versions listed on the Version Control panel to create a new version of the component. ChangeMan M+R is automatically invoked, and the Base and derivative versions are automatically assigned.

Considerations For Staging Versions

You must consider the following issues before you decide to install or enable save staging versions:

- If the staging versions facility is installed, ChangeMan ZMF reads one of the staging version VSAM files whenever a user performs a function that replaces a member in a staging library. This VSAM read might have an adverse affect on ChangeMan ZMF response time.
- If the staging versions facility is installed and enabled for a library type, ChangeMan ZMF writes to the save staging version VSAM files whenever a user saves a staging version. This VSAM write might have an adverse affect on response time.

You can disable staging versions for a library type by changing the Save Staging Versions parameter to NO in the library type definition in Application Parameters.

You can de-install the staging package facility by removing the HPSPLIB and HPSIN DD statements from the SERNET started task JCL. You can then delete the three staging version VSAM files.

Implementation Checklist

The following checklist is a high-level overview of the steps to implement ChangeMan ZMF. Some of the items have been covered in more detail earlier in this chapter. Since every site is different, and every implementation needs to be tailored for your specific needs, this checklist is only a suggestion of the steps you may wish to take.

Most implementations are done one application at a time. The first application may be a real application in your shop, or a test application set up to become familiar with ChangeMan ZMF.

1 Form an Implementation Team. This team usually consists of security personnel, application leads, application programmers, systems programmers, operations analysts, managers, et cetera. These are the people that can make and carry out the decisions necessary to implement ChangeMan ZMF.

2 Form an Application Test Team. This team should consist of someone who could perform program tests where required and someone that is extremely familiar with your existing change control process and/or compile and link edit procedures. Additionally, someone that is familiar with ISPF skeletons would be a large plus but this process could be learned if required. Your security administrator must be on alert as changes are needed periodically during the initial phases of implementation.

3 Conduct an implementation planning session with appropriate staff to determine how ChangeMan ZMF will help control the current environment and what the flow of the entire process should be.

4 Identify ALL libraries that will be managed by ChangeMan ZMF for the application.

5 Locate ALL compile/link edit procedures that will be required for integration into ChangeMan ZMF for the application. If current procedures are in skeleton format, all skeletons must be expanded and all symbolic variables must be resolved. This means that you have to review all the options for the compile/link edit procedures.

6 Identify ALL language types that will be required for integration into ChangeMan ZMF for the application (for instance, ASM, COBOL, DB2, CICS). If multiple versions of a language are required, that must also be noted. Each of these languages must have compile/link edit procedures that have been identified above.

7 Ensure the installation security package has been altered properly as outlined in the security portion of the ChangeMan ZMF documentation. This must include the set up of required ChangeMan ZMF entity names, association of the appropriate userids to those entity names, and set up of the proper dataset access rules for the ID associated with the subsystem.

8 Have two TSO IDs available for use in ChangeMan ZMF.

- The first ID must have the following privileges:

- All five ChangeMan ZMF entity privileges
- External authority for update of custom skeleton library

- The second ID is a standard TSO ID with no additional authority to ChangeMan ZMF. This ID only has access to a specific application, and it must not have any administrative capabilities. It is used for testing/debugging the system. Remember to grant this ID access to data sets and batch jobs as outlined earlier in this chapter.

9 The subsystem should be brought up, security resource rules established and set up for a test application, and the global and application administrative parameters should be defined with permissive rules. These initial administrative decisions may be made more restrictive later as you become more familiar with the product. Finish setting up the test application by defining libraries, languages, procedures, et cetera. (These processes are detailed in Chapter 4, "Setting Up Global Administration" and Chapter 5, "Setting Up Application Administration".)

10 If you are using the DB2 Option, the installation procedures for DB2 should be followed, ensuring that the ID associated with the subsystem has SYSADM OR BIND/ADD authority for all DB2 programs. For more information on the DB2 option see the *ChangeMan ZMF DB2 Option Getting Started Guide*.

11 Identify all ChangeMan ZMF exits that will assist in the enforcement of shop standards for customization, if required. (See the *ChangeMan ZMF Customization Guide.*)

12 Have test programs for each of the above language types so that the STAGE process may be completely tested. The resultant size (length) of the linked component is a good indicator of the ChangeMan ZMF process producing an equivalent load component to the one currently in production. In other words, the load components should be the same size if the skeletons invoked the same compile/link edit procedures. Running a parallel test of those components is a final test.

When the above tasks have been completed, you are ready to move through a phased implementation of ChangeMan ZMF. Many of the above tasks must be performed for each new application that is moved under ChangeMan ZMF control, for example, identifying the libraries necessary. Other tasks, such as setting up the subsystem security rules, are *one time only* items and do not need to be performed again.

ChangeMan ZMF Administrator Duties

The person who will become the ChangeMan ZMF administrator should be very involved in the implementation process. Not only will this help familiarize the administrator with the product, but he/she can be involved in the decisions about functions that he/she may later have to teach to users.

In addition, the administrator traditionally has many other duties in the supervision of ChangeMan ZMF:

- Consider the implementation needs of your sites, including space allocation for libraries as well as security needs. (See "Setting Up Global Administration" on page 49.)
- Set global parameters for your ChangeMan ZMF installation. (See "Setting Up Global Administration" on page 49.)

- Consult on and/or set application parameters. (See "Setting Up Application Administration" on page 113.)
- Set the global and/or application parameters for remote sites. (See "Configuring Remote Sites" on page 253.)
- Produce and browse reports for your sites or specific applications. (See "Defining and Running ChangeMan ZMF Reports" on page 205.)
- Customize ChangeMan ZMF for your site. Customization includes the implementation of exits and tailoring skeletons. (See the *ChangeMan ZMF Customization Guide.*)
- Continually monitor ChangeMan ZMF for packages in limbo as well as packages whose installation you wish to expedite or prohibit. (See "Monitoring Site and Application Packages" on page 189.)
- Periodically execute housekeeping functions such as starting up and shutting down the ChangeMan ZMF instance, backing up the package master, clearing the logs, updating the query component relationship information. (See "Batch Housekeeping Tasks" on page 223.)
- Act as primary contact for questions, problems, and suggestions forwarded to Serena Customer Support.

Scheduler Specification Flexibility

Keep the following in mind when setting up your system. See the ChangeMan ZMF ERO Getting Started Guide and ChangeMan ZMF XML Services User's guide for more details on Scheduler interaction.

There are three global admin scheduler types: CMN, Manual and other. This defines which of the 3 scheduler types to enable in application and release admin, and the default scheduler to use when defining new applications and releases.

Equivalent scheduler parameters are available in application admin. This defines which scheduler types may be selected when creating or updating a package and which scheduler type is set by default when creating a package.

Equivalent scheduler parameters are also available to the ERO functions that create and update a release. This defines which scheduler types may be selected when creating or updating a package attached to the release and which scheduler type is set by default when creating a package attached to the release.

A new package attached to a release will default to the release default scheduler, not the application default scheduler.

A new package created using the short and copy forward method will use the application or release default scheduler, not the scheduler from the package used as a model. The scheduler from the model package may not be valid, will not be displayed and can not be changed using the short method.

A new package created in ZMF/ISPF using the long and copy, forward method will use the scheduler from the package used as a model. The scheduler from the model package may not be valid but can be changed using the long method.

A new package created using the package.service.create service using the copy forward method will use the scheduler from the package used as a model. If specified, the

scheduler specified in the service request will be used instead. The scheduler from the model package may not be valid but can be changed by specifying a scheduler in the service request. This is similar to the ZMF/ISPF function using long and copy forward methods.

The scheduler for packages attached to a release must comply with both the application and release allowed schedulers.

The global and application parameter update services (parms.gbl.update, parms.appl.update/create) perform minimal validation. These services do not ensure consistency between different global parameters or between different application parameters. The application update service does ensure that application updates conform to global restriction rules. The application update service will prevent setting a scheduler to be allowed if it is not allowed in global parameters. It will prevent setting a default scheduler other than '1', '2' or '3' (cmn, manual or other). The global and application update services ignore allowed scheduler values other than 'Y' and 'N'. These services allow setting a default scheduler that is not an allowed scheduler.

The release configuration service (rlsmrlse.service.config) will prevent setting a scheduler to be allowed if it is not allowed in global parameters. It will prevent setting a default scheduler that is not allowed in global parameters. It will prevent setting a default scheduler that is being disallowed in the current service call.

See the ChangeMan/ZMF ERO Getting Started Guide and ChangeMan ZMF XML Services User's Guide for more details on how the Scheduler interacts with these facilities.

Chapter 4

Setting Up Global Administration

This chapter explains how to set up and change global administration for your ChangeMan ZMF instance. Some entries in global administration define general use parameters and functions. Other global administration entries limit the range of choices available when defining parameters and functions for applications.

Accessing the Global Administration Options

Perform these steps to access the **Global Administration Options** menu (CMNGAMEN).

1 Go to the ChangeMan ZMF **Primary Option Menu** (CMN@PRIM).

NOTE If option **A Admin** is *not* shown on the **Primary Option Menu**, you are not authorized in your security system for any ChangeMan ZMF administration functions. See topic "Security Considerations" in the *ChangeMan ZMF Installation Guide* and then consult with your security administrator.

2 On the **Primary Option Menu**, select option **A Admin** and press **Enter**. The **Administration Options** menu (CMNADMON) is displayed.

```
CMNADMON ------------------- ADMINISTRATION OPTIONS --------------------------
OPTION  ===>

  A  Application  - Perform application administration functions
  B  Application  - Browse application administration configuration
  G  Global       - Perform global administration functions
  H  Global       - Browse global administration configuration

Press ENTER to process; Enter END command to exit.
```

The **Administration Options** menu is built dynamically to show only those administration functions that you are authorized to browse or update.

NOTE If option **G Global** is not shown on the **Administration Options** panel, you are not authorized in your security system to update global administration. See topic "Security Considerations" in the *ChangeMan ZMF Installation Guide*, and then consult with your security administrator.

3 On the **Administration Options** menu (CMNADMON), select option **G Global** and press **Enter**. The **Global Administration Options** menu (CMNGAMEN) is displayed:

```
CMNGAMEN --------------- GLOBAL ADMINISTRATION OPTIONS ----------------------
OPTION  ===>

  1  Parms        - Generate global parameters
  2  Library      - Generate library types
  3  Language     - Generate language names
  4  Procedures   - Generate compiling procedures
  5  Reason Codes - Generate reason codes for unplanned packages
  6  Sites        - Generate site information
  7  Lock         - Lock or reset application parameter locks
  C  Component    - Update component information, procedures, security
  D  Dates        - Update the installation calendar
  H  Housekeeping - Run housekeeping tasks
  I  Impact       - Perform impact analysis maintenance
  N  Notify       - Update the global notification file
  O  Options      - Configure selectable options
  R  Reports      - Generate Change Man batch reports
  S  Skeleton     - Create, update, and test skeleton procedures

Press ENTER to process; Enter END command to exit.
```

You can use option **H Global** on the **Administration Options** menu (CMNADMON) to view global parameters on read-only panels.

Setting up Global Parameters

Some of the settings in global parameters define the basic configuration for ChangeMan ZMF in your environment. Other parameters govern the action of users.

The application parameters that an administrators will set later can be more restrictive than the global parameters, but they cannot be more permissive. If you set global parameters to allow more options, application administrators can establish tighter control over sensitive applications while allowing other applications more latitude.

NOTE The rules you define in global administration are not application specific—they affect all applications.

To set global parameters, execute the following steps to make entries on global parameters panels.

1 On the **Global Administration Options** menu (CMNGAMEN), select **1 Parms**. The **Global Parameters Part 1 of 7** panel (CMNGGP01) is displayed.

```
CMNGGP01 -------------- GLOBAL PARAMETERS - PART 1 OF 7 ----------------------
COMMAND ===>

SUBSYSTEM: 7                RLS option: NO

CHANGEMAN ENVIRONMENT       ===> DP       (A/D/DP/P)
JOB ENTRY SYSTEM            ===> JES2     (JES2 or JES3)
SITE NODE NAME              ===> SERT7
LOGICAL UNIT OR SYSTEM NAME ===> C001
DEFAULT UNIT NAME           ===> SYSDA    (Generic disk unit)
DEFAULT VOLUME SERIAL       ===>
DEFAULT NON-VIO UNIT NAME   ===> SYSDA    (Generic disk unit)
CHANGEMAN SECURITY RESOURCE ===> $CMNTP

INSTALL JOB SCHEDULER:   CMN ===> YES      (Y/N)
                      Manual ===> YES      (Y/N)
                       Other ===> NO       (Y/N)
DEFAULT JOB SCHEDULER       ===> CMN      (CMN, Manual, Other)
  SCHEDULER INTERVAL IF CMN ===> 001      (Minutes)

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields of the **Global Parameters Part 1 of 7** panel and the valid information that you can enter in the fields.

Field	Description
SUBSYSTEM	Displays the subsystem ID that you are currently logged on to
RLS option	This field indicates whether the VSAM Record Level Sharing Option is used to share VSAM master files between multiple ChangeMan ZMF instances. This option is superseded by the Load Balancing Option, available in ChangeMan ZMF 5.1 and higher, which permits user access to a single ChangeMan instance from multiple LPARs.

Field	Description
CHANGEMAN ENVIRONMENT	Type a one- or two-character code to determine the kind of ChangeMan ZMF instance you are configuring. **CAUTION** The environment type is set when you run program INITIAL2 to initialize the package master VSAM file for this ChangeMan ZNFM instance. (See the *ChangeMan ZMF Installation Guide*.)Consult with Serena Customer Support before you change the environment on this panel. A ALL - A single ChangeMan ZMF instance that manages development, maintains baseline libraries, and maintains production libraries that are on shared DASD and shared catalogs. D DEVELOPMENT - A ChangeMan ZMF instance that manages development and maintains baseline libraries, but does not maintain production libraries. A D environment sends package information to a separate P environment for installation into production libraries. DP DEVELOPMENT AND PRODUCTION - A ChangeMan ZMF instance that manages development, maintains baseline libraries, manages production libraries on shared DASD and shared catalogs, and can send package information to a separate P environment for installation into production libraries that are not on shared DASD with shared catalogs. P PRODUCTION - A stripped-down ChangeMan ZMF instance that receives change package information form a D or DP environment and installs package components into production libraries. No development is performed in a P environment. A P environment is required where production libraries reside on an MVS image that is separated from development and does not share DASD and catalogs with development. A P environment is also required if DB2 binds or IMS gens must be performed for install on an MVS image that is separate from development.
JOB ENTRY SYSTEM	Type the name of the job entry system (JES2 or JES3) used at your site.
SITE NODE NAME	The contents of this field depend on the ChangeMan Environment you specified above. A (All) Environment: Type a common name or nickname for this ChangeMan ZMF instance. You cannot use the same name here that you will use for a site name in the Global Site List (=A.G.6). D (Development) Environment: Type a common name or nickname for this ChangeMan ZMF instance. You cannot use the same name here that you will use for a site name in the Global Site List (=A.G.6). DP (Development/Production) Environment: Type the Site Name for this ChangeMan ZMF instance defined in the Global Site List (=A.G.6). P (Production) Environment: Type the Site Name defined in the Global Site List (=A.G.6) of the D or DP ChangeMan ZMF instance that installs to this P instance.
LOGICAL UNIT OR SYSTEM NAME	This field has two uses in installation jobs for remote sites and promotion jobs for remote sits. Target name for your transmission vehicle (like SNODE for NDM). JES node name for LPAR or JES name for /*ROUTE statements in install JCL and JCL for promote to remote sites.

Field	Description
DEFAULT UNIT NAME	Type the generic unit name for DASD to be used for dynamic allocations for this ChangeMan ZMF instance. This field may be left blank if DEFAULT VOLUME SERIAL is used. The Default Unit Name in Global Administration sets the Default Unit Name used when you create an application, but it can be changed at the application level.
DEFAULT VOLUME SERIAL	Type the DASD volume serial number to be used for dynamic allocations for this ChangeMan ZMF instance. This field may be left blank if DEFAULT UNIT NAME is used. The Default Volume Serial in Global Administration sets the Default Volume Serial used when you create an application, but it can be changed at the application level.
DEFAULT NON-VIO UNIT NAME	Type the generic unit name for DASD to be used for non-VIO datasets.
CHANGEMAN SECURITY RESOURCE	Type the resource class defined in your security system for ChangeMan ZMF. See the *ChangeMan ZMF Installation Guide*.
INSTALL JOB SCHEDULER	Specify which scheduling systems can be defined in application and release administration to control submission of package installation batch jobs. CMN — Specify whether (Y) or not (N) the ChangeMan ZMF internal scheduler can be enabled in application administration. **Note:** If you set CMN to N in global parameters, scheduled promotions are never initiated. Manual — Specify whether (Y) or not (N) the manual control of the submission of installation jobs can be enabled in application administration. The installation process will begin as soon as the package is approved. MANUAL allows you to install a package before its scheduled install date. Other — Specify whether (Y) or not (N) scheduling software such as CA-7, CA-Scheduler, or CA-ADC2 can be enabled in application administration.
DEFAULT JOB SCHEDULER	Specify the default scheduling system to be defined within application and release administration to control submission of the package installation batch jobs. CMN — The ChangeMan ZMF instance schedules the submission of package installation jobs. MANUAL — The installation process begins as soon as the package is approved. This option allows you to install a package before its scheduled install date. OTHER — ChangeMan ZMF invokes a batch interface to add the package install job information to the database for an external scheduler.
SCHEDULER INTERVAL IF CMN	Type the number of minutes (mmm) between checks by the internal ChangeMan ZMF scheduler for packages that have CMN for the scheduler type and are ready to be installed. The valid range is 1 to 255.

2 When you finish entering information on the **Global Parameters Part 1 of 7** panel, press **Enter**. The **Global Parameters Part 2 of 7** panel (CMNGGP02) is displayed.

```
CMNGGP02 -------------- GLOBAL PARAMETERS - PART 2 OF 7 ----------------------
COMMAND ===>

TRANSMISSION VEHICLE         ===> OTHER    (IEBCOPY or Other)
NORMAL BUSINESS HOURS:  FROM ===> 0001     TO ===> 2349 (HHMM format)
AGING - INSTALLED PACKAGES   ===> 180      (0 to 9999 days)
      - STAGING DATASETS     ===> 180      (0 to 9999 days)
      - COMPONENT HISTORY    ===> 3660     (0 TO 9999 days)
ALLOCATION RETRY COUNT       ===> 5        (0 TO 65535)
ALLOCATION RETRY WAIT        ===> 15       (0 TO 65535 seconds)

Press ENTER to continue; Enter B to go back 1 screen, or CANCEL to exit.
```

The following table describes the fields of the **Global Parameters Part 2 of 7** panel and the valid information that you can enter in the fields.

Field	Description
TRANSMISSION VEHICLE	Type IEBCOPY for an A environment or for an initial implementation of a D or DP environment. In a D or DP environment, this field sets the value of ISPF variable TRNSTYP, which is referenced in JOB statement skeletons CMN$$JNM and CMN$$SJN to enable JES job routing statements. IEBCOPY — Exclude JES routing statements from installation JCL. OTHER — Include JES routing statements in installation JCL. **NOTE:** This field no longer sets the transmission vehicle used in building installation job JCL. ■ An ALL environment uses IEBCOPY by definition. ■ In a D or DP environment, the transmission vehicle for each site is specified on the **Site Information** panel (CMNGRST2).
NORMAL BUSINESS HOURS	Type a **From** and **To** time in 24-hour clock format (hhmm). Normal Business Hours determine whether an unplanned package is assigned the Planned Approval List or the Unplanned Approval list when the package is created. If you create an unplanned change package during Normal Business Hours, the Planned Approval List is assigned to your package. If you create an unplanned package outside of Normal Business Hours, the Unplanned Approval List is assigned. To force all unplanned packages to use the Unplanned Approval List, set Normal Business Hours to a one minute range sometime when it is unlikely that anyone will create a change package. The settings for Normal Business Hours in Global Administration restrict the entries for these parameters in Application Administration. Normal Business hours at the application level must be the same as the global parameters or times that fall within the global time range. **Note** Normal Business Hours are compared to the time you *create* your package, not the time that your package is frozen or the time that it is scheduled for install.

Field	Description
AGING - INSTALLED PACKAGES	Type the number of calendar days after a package is installed (status BAS, INS, or TCC) that package records must be retained on the package master. After the specified number of days, package records may be archived or deleted by housekeeping. The setting for this parameter in global administration restricts the setting in application administration. The application setting cannot be less than the global setting. A value of zero (0) days turns off the package aging function, and package records are never archived or deleted. **Note:** The days you specify for Aging - Installed Packages must be equal to greater than the days you specify for Aging - Staging Datasets. Staging data sets cannot be deleted if the package records have been archived or deleted.
AGING - STAGING DATASETS	Type the number of calendar days after a package is installed (status BAS, INS, or TCC) that staging libraries must be retained. After the specified number of days, staging libraries may be deleted by housekeeping. The setting for this parameter in global administration restricts the setting in application administration. The application setting cannot be less than the global setting. A value of zero (0) days turns off the staging library aging function, and staging libraries are never deleted by housekeeping. **Note:** The days you specify for Aging - Staging Datasets must be equal to or less than the days you specify for Aging - Installed Packages. Staging data sets cannot be deleted if the package records have been archived or deleted.
AGING - COMPONENT HISTORY	Type the number of calendar days after a package is installed (status BAS, INS, or TCC) that component history for that package must be retained on the component master. After the specified number of days, component history records may be archived or deleted by housekeeping. The setting for this parameter in global administration restricts the setting in application administration. The application setting cannot be less than the global setting. A value of zero (0) days turns off the component history aging function, and component records are never archived or deleted. Regardless of the value specified, the most recent history record for a baselined component in a library type in an application is preserved in component history to provide information for future build activity and for audit auto resolve. **Note:** The value for **AGING - COMPONENT HISTORY** should be equal to or greater than the value for **AGING - INSTALLED PACKAGES**. Even if you specify an aging value for component history that is less than the aging value for installed packages, component history is not deleted or archived until package records are deleted or archived and the associated component history records are flagged with delete/archive status.
ALLOCATION RETRY COUNT	Enter the number of times to retry failed allocation attempts. The value can be from 0 to 65535. Failed allocation attempts are retried when package installation JCL is generated.
ALLOCATION RETRY WAIT	Enter the time in seconds to wait between allocation retry attempts. The value can be from 0 to 65535 seconds.

3 When you finish entering information on the **Global Parameters Part 2 of 7** panel, press **Enter**. The **Global Parameters Part 3 of 7** panel (CMNGGP03) is displayed.

```
CMNGGP03 -------------- GLOBAL PARAMETERS - PART 3 OF 7 ----------------------
COMMAND ===>

BASELINE: STACKED REVERSE DELTA  ===> YES  (Y/N)
          PANVALET               ===> NO   (Y/N)   USER DEFINED ===> NO   (Y/N)
          LIBRARIAN              ===> NO   (Y/N or LAM)
KEEP BASELINE BY SITE            ===> NO   (Y/N)
REQUIRE WORK REQUEST NUMBER      ===> NO   (Y/N; affects INFO)
REQUIRE DEPARTMENT NUMBER        ===> NO   (Y/N)
DISABLE INSTALLATION CALENDAR    ===> NO   (Y/N)
ALLOW TEMPORARY PACKAGES         ===> YES  (Y/N)
PROCESS PARTICIPATING PACKAGES
          BY INSTALLATION DATE   ===> YES  (Y/N)
HIERARCHICAL APPROVAL PROCESS    ===> YES  (Y/N)
NOTIFICATION VEHICLES:   EMAIL   ===> YES  (Y/N)
                         BATCH   ===> YES  (Y/N)
USE GLOBAL NOTIFICATION FILE     ===> YES  (Y/N)
ALLOW APPLICATION UPDATE TO FILE ===> YES  (Y/N)
GLOBAL NOTIFICATION FILE    ===> CMNTP.S0.NOTIFY

Press ENTER to continue; Enter B to go back 1 screen, or CANCEL to exit.
```

The first five fields of the panel specify the storage means for back levels of Baseline libraries. Except for CA Panvalet and CA Librarian, the current level of any baseline library is configured as a PDS. The storage means for the back levels of each particular Baseline library are selected by the Application Administrator (under the Baseline option) based on the means allowed here.

NOTE The Delta Deck storage means is obsolete for new baseline libraries. However, existing baselines with this storage means are supported.

The following table describes the fields of the **Global Parameter Part 3 of 7** panel and the valid information that you can enter in the fields.

Field	Description
STACKED REVERSE DELTA	Type Y to allow use of the Stacked Reverse Delta format. This storage means uses one PDS for the (0) level, and a second PDS for the -001 through -999 levels. Backup levels are stored in reverse delta form. This option optimizes disk space utilization. Type N to disallow the use of this option.
PANVALET	Type Y if prior levels of baseline are to be kept in CA Panvalet libraries. Program SERIFACE is the interface for CA Panvalet, and the interface should run as delivered, without customization.
LIBRARIAN	If you have CA Librarian Masters, enter YES or LAM. LAM is only valid for release 3.6 or later. Program SERIFACE is the interface for CA Librarian, and the interface should run as delivered, without customization.
USER DEFINED	Type Y to allow another type of library organization be used. This choice requires customization of installation skeletons and customization of interface program SERIFACE. The source for SERIFACE is delivered in the SERCOMC ASMSRC library. See the comments in the program source.

Field	Description
KEEP BASELINE BY SITE	Type Y to allow the Development (D) or Development (DP) Production site to keep a set of Baseline libraries for each additional site that was generated within the ChangeMan ZMF system. Use if an application has multiple sites, and you want to maintain Baseline libraries at each site. With YES, you receive subsequent prompts at baseline library definition, and package build, to indicate which site is being selected. Type N if remote site Baseline libraries are not to be maintained. When you type NO, the Baseline libraries are only kept at the DP or D site. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. NO is the recommended option because it: ■ Prevents duplications of DASD ■ Makes the maintenance of skeletons easier ■ Keeps multiple sites synchronized **Note:** You can only select one site at package creation time and all checkouts are from the baselines associated with that site. You cannot install to two sites in the same package when you keep baselines by site. Audit only runs against the baselines/site selected at package create time and only the baseline/site libraries selected at that time are concatenated in batch jobs for that package. Use package query (Option Q.P) to see which sites were included in the package.
REQUIRE WORK REQUEST NUMBER	Determines whether data must be entered in the Work Request ID field in create package and update package processing. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Require data in the Work Request ID field. N Allow blank Work Request ID field.
REQUIRE DEPARTMENT NUMBER	Determines whether data must be entered in the Department field in create package and update package processing. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Require data in the Department field. N Allow blank Department field.
DISABLE INSTALLATION CALENDAR	Determines whether the Planned Installation Calendar is checked when a planned package install date is specified in create package or update package information. The Planned Installation Calendar limits the number of planned packages that can be scheduled for install on a particular calendar date. Y Permit an unlimited number of planned packages to be scheduled for install on any date. N Check the install date for a planned package against the maximum number of planned packages allowed for install on that date as specified in the Planned Installation Calendar.
ALLOW TEMPORARY PACKAGES	Temporary change packages are placed into production and concatenated ahead of Production libraries. They are never rippled into Baseline and are deleted from the production environment after the number of days specified at package creation. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Type Y to allow temporary change packages. Type N to prohibit temporary change packages.

Field	Description
PROCESS PARTICIPATING PARCKAGES BY INSTALLATION DATE	* This option is for audit. Audit can process participating package groups within a Complex or Super package base on the installation date of participating packages. Participating packages defined to a Complex or Super package that have not been baselined and have installation dates that are equal to or earlier than the participating package containing the component to be compiled or link-edited are included as part of the SYSLIB concatenation. Type Y to process and audit participating packages within a Complex or Super package by the installation date. Type N to process and audit all participating packages defined to a Complex or Super package.
HIERARCHICAL APPROVAL PROCESS	Determines whether the approval sequence is enforced that is specified in the Order Number field of Planned Approvals and Unplanned Approvals definitions in application administration. (The Order Number on the Approvals definition panels appears in the Seq field on the Approval List panel.) When the hierarchical approval sequence is enforced, notification for an approval is held until the approval is actually pending. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Enforce the hierarchical structure of approvals defined in the Order Number field on approval list definition panels and displayed in the Seq field on the Approval List panel. N Permit approvals to be entered in any order. Notification for all approvals are sent at package freeze.
APPROVER NOTIFICATION VEHICLE	Enables notification vehicles for this ChangeMan ZMF instance. Notification vehicles are used to notify an approver about packages pending approval. You can enable more than one: EMAIL - Send notification through Simple Mail Transfer Protocol (SMTP) to a user-defined e-mail server. You define the e-mail server to ChangeMan ZMF on the **Global Parameters - Part 5 of 7** (CMNGGP05) panel, which is described below. BATCH - File tailor skeleton CMN$$NTF and submit the generated JCL with Job Card Information defined in Application Administration Parameters. MVSSEND - Notification through MVS SEND is always available and need not be enabled here.
USE GLOBAL NOTIFICATION FILE	Enables or disables the Global Notification File. Administrators use the Global Notification File to pass information to ChangeMan ZMF users. See "Configuring the Global Notification File" on page 105. for details. N Deactivate the Global Notification File. The **Allow Application to Update File** field is automatically set to **NO**. Y Activate the Global Notification File. Also type **Y** or **N** in the **Allow Application to Update File** field, and provide a valid data set name in the **Global Notification File** name field.

Field	Description
ALLOW APPLICATION UPDATE TO FILE	Determines whether application administrators can update the Global Notification File to pass information to all users. N Prohibit application administrators from updating the Global Notification File and to suppress display of option **N Notify** on the **Application Administration Options** panel. Y Display option **N Notify** on the **Application Administration Options** panel and allow application administrators to update the Global Notification File.
GLOBAL NOTIFICATION FILE NAME	Type the data set name of the Global Notification File if you specified **Y** in the **Use Global Notification File** field.

4 When you finish entering information on the **Global Parameters Part 3 of 7** panel, press **Enter**. The **Global Parameters Part 4 of 7** panel is displayed.

```
CMNGGP04 -------------- GLOBAL PARAMETERS - PART 4 OF 7 -----------------------
COMMAND ===>

AUDIT LEVEL                        ===> 1    (0,1,2,3,4,5)
CHECKOUT ENFORCEMENT RULE          ===> 1    (1,2,3)
DISALLOW CONCURRENT CHECKOUT       ===> NO   (Y/N)
ALLOW CHECKOUT TO PERSONAL LIB     ===> NO   (Y/N)
STAGING RESTRICTION LEVEL          ===> 1    (1,2,3)
ELIMINATE SAVE TO PERSONAL LIB     ===> YES  (Y/N)
OVERLAY PRIOR STAGED MODULE        ===> NO   (Y/N)
VALIDATE VERSION DURING STAGING    ===> YES  (Y/N)
BUILD INSTALL JCL AT APPROVE       ===> NO   (Y/N)
USE LIKE-LOD IN SYSLIB             ===> YES  (Y/N)
PROMOTION/DEMOTION RULE            ===> 0    (0,1,2,3,4)
VALIDATE ISPF LIBRARIES  ISPLLIB ===> YES  (Y/N)  ISPMLIB ===> YES  (Y/N)
                         ISPPLIB ===> YES  (Y/N)  ISPSLIB ===> YES  (Y/N)
STARTED PROCEDURES:
INSTALLATION JCL BUILD             ===> CMN7ADSP
BATCH COMPONENT BUILD              ===> CMN7ADSP
PROMOTION JCL BUILD                ===> CMN7ADSP
DEFAULT                            ===> CMN7ADSP

Press ENTER to continue; Enter B to go back 1 screen, or CANCEL to exit.
```

This table describes the fields on the **Global Parameters Part 4 of 7** panel.

Field	Description
AUDIT LEVEL	Type a one digit code to determine whether you must run package audit before freezing a package and what kinds of out-of-sync conditions are acceptable. The Audit Level does not apply to unplanned packages, which may be frozen without running package audit. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be lower than the global setting. 0 Audit is recommended but not required. 1 Audit is required, but any return code (except ABEND) is acceptable. This means that any out-of-sync condition is permitted. This is the default option. 2 Audit is required, and the return code cannot exceed 12. This means out-of-sync conditions between package components and baselined components are permitted, out-of-sync conditions between components in staging libraries are permitted, and package components can be exactly the same as baseline versions. 3 Audit is required, and the return code cannot exceed 8. This means out-of-sync conditions between package components and baselined components are permitted, but out-of-sync conditions between components in staging libraries are not permitted. Package components can be exactly the same as baseline versions. 4 Audit is required, and the return code cannot exceed 8. This means out-of-sync conditions between package components and baselined components are not permitted, and out-of-sync conditions between components in staging libraries are not permitted. Package components can be exactly the same as baseline versions. 5 Audit is required, and the return code cannot exceed 0. This means out-of-sync conditions between package components and baselined components are not permitted, out-of-sync conditions between components in staging libraries are not permitted, and no package components can be exactly the same as the baseline version.
CHECKOUT ENFORCEMENT RULE	Determines whether checkout must be used to bring a component into a change package when it is already in a baseline library. This setting places restrictions on the use of stage from development to populate a package. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be numerically less than the global setting. 1 Checkout is optional. All users can stage a component from development into a package, even when the component is in a baseline library. 2 Checkout is required unless the user has UPDATE access to a security entity specified in application administration. Users with UDPATE access to the security entity can use stage from development even if the component is in a baseline library. 3 Users always check out a component if it is in a baseline library.

Field	Description
DISALLOW CONCURRENT CHECKOUT	Determines whether a component can be checked when it is already in another change package. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibits checkout if a component is already in another change package. N There are no restrictions on checking out a component that is already in another package. This rule does not apply to unplanned packages. You can always check out a component into an unplanned package, even if the component is in another package and the **Disallow Concurrent Checkout** indicator is set to **YES**.
ALLOW CHECKOUT TO PERSONAL LIB	Determines whether users can check out components into their personal libraries and edit them there. A copy of the component is kept in a staging library. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Y Allow checkout into personal libraries or data sets. N Prohibit checkout into personal libraries or data sets. **Caution!** Serena discourages the use of personal libraries with change packages. See "ELIMINATE SAVE TO PERSONAL LIB" on page 62.
STAGING RESTRICTION LEVEL	Determines who can use stage from development. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be numerically less than the global setting. 1 There are no restrictions on who can use stage from development. 2 Restricts stage from development to users who have been granted UPDATE access to a security entity specified in application administration. 3 Disables stage from development.

Field	Description
ELIMINATE SAVE TO PERSONAL LIB	Determines whether the connection is maintained between members in package staging libraries and: ■ Members checked out to personal libraries ■ Members in development libraries that were staged into the package with stage from development. **Note:** If you edit outside of ChangeMan ZMF, your changes are not saved to package staging libraries. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y If a member is *staged from development*, then edited in the package, do not save the edit changes into the member in the development library. If a member is *checked out* to a personal library, then edited in the package, save the changes from the first edit into the member in the personal library and into the member in the staging library, but do not save changes for any subsequent edits into the member in the personal library. N If a member is *staged from development*, then edited in the package, save the changes into the member in the development library and into the member in the package staging library. If a member is *checked out* to a personal library, then edited in the package, save the changes into the member in the personal library and into the member in the package staging library. If users edit components checked out to a personal library *outside* of ChangeMan ZMF, their changes are never automatically saved to package staging libraries. If you want users to be able to edit in a personal library, then set **Allow Checkout to Personal Lib.** to **Y**, and set **Eliminate Save to Personal Lib** to **N**. Users check out a component to their personal library, then make changes to the member in their personal library. When they want to save the changes into the package staging library so the changes can be promoted, audited, and installed with the package, they use the **ST** or **SB** command on the **Stage: *package* Components** panel to stage the member into the staging library. **Caution!** If a user edits a package component directly in a personal library, their changes will not be promoted, audited, or installed if they forget to stage the member in the package. For this reason, Serena discourages the use of personal libraries with change packages.
OVERLAY PRIOR STAGED MODULE	Determines whether a user can check out a component, or stage a component from development, and overlay a package component that is identified by another person's userid. The compare is between the userid of the person attempting the checkout or stage from development and the userid that is stored in the package component record. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Y Allow a user to check out a component or stage a component from development and overlay a package component identified by another userid in the package component record. N Prohibit a user from checking out a component or staging a component from development and overlaying a package component identified by another userid in the package component record, unless the component is in INACTIV status.

Field	Description
VALIDATE VERSION DURING STAGING	Determines whether a user can edit or stage a package component that was checked out from baseline or promotion if the baseline component has been changed since the checkout. This function is intended to prevent component regression, and it is the equivalent of checking for an audit SYNCH10 before allowing a user to edit or stage a package component. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit stage or discard edit-in-stage changes for package components checked out from baseline or promotion if the baseline component has changed since the checkout. N There are no restrictions on staging a component that was checked out even when the baseline component has changed since the checkout.
BUILD INSTALL JCL AT APPROVE	Determines whether install JCL is automatically built when a package is frozen or when the last approval for a package is entered. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Build install JCL when the last approval is entered for a change package. N Build install JCL when a change package is frozen. An internal package indicator controls whether install JCL is built for a frozen package when you change the **Build Install JCL at Approve** parameter. If install JCL was built when a package was frozen, and you change the **Build Install JCL at Approve** from **N** to **Y**, the install JCL is not rebuilt at final approval if there was no promotion activity after freeze. If install JCL was not built when a package was frozen, and you change the **Build Install JCL at Approve** from **Y** to **N**, the JCL is built at final approval, regardless of whether there was promotion activity after freeze. Package List option **F5 Re-submit** (Freeze option **5 Build**) or Package List option **A5 Re-submit** will both build package install JCL regardless of the setting of the **Build Install JCL at Approve** parameter.
USE LIKE-LOD IN SYSLIB	Determines whether like-load libraries are included in SYSLIB concatenations for link edit (Binder) along with like-object and like-NCAL libraries. A setting of N for this parameter in Global Administration restricts Application Administration settings to N.

Field	Description
PROMOTION/ DEMOTION RULE	Determines how full and selective promote and demote work for all promotion sites and levels in the application. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be numerically less than the global setting. 0 Full and selective promote and demote are allowed without freezing the package first. Full promote can skip promotion levels. Requires the following sequence to change a promoted package component: Selective unfreeze (only if the package is frozen), edit, stage (restage), selective freeze of the component (only if the package is frozen), selective promotion to any level up to the package promotion level. **Note:** Because there is no requirement to demote a component before editing it, a component in the package staging library may not be the same as the component in a promotion library. 1 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Selective demote of the component, selective unfreeze, edit, stage, audit package, selective freeze of the component, selective promotion back to the package promotion level. 2 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Selective demote of the component, selective unfreeze, edit, stage, audit package, selective freeze of the component, selective promotion through all intermediate levels to the package promotion level. 3 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Full demote of the package, selective unfreeze of the component, edit, stage, audit package, selective freeze of the component, full promotion through all promotion levels up to the original promotion level. 4 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Full demote of the package, revert the package to development status, edit, stage, audit package, freeze package, full promotion through all intermediate levels to the package promotion level.

Field	Description
VALIDATE ISPF LIBRARIES	Validates the ISPF library concatenation used in a ChangeMan ZMF client against the library concatenation coded in the SERNET started procedure. When an ISPF client session is started, the ISPF library concatenation used to connect to ChangeMan ZMF is superseded by the concatenation coded in the SERNET started procedure. The VALIDATE ISPF LIBRARIES function ensures that no unauthorized libraries are subsequently concatenated for ChangeMan ZMF execution by a LIBDEF in the user's TSO session. The VALIDATE ISPF LIBRARIES function also verifies the ISPF library concatenation used in ChangeMan ZMF cataloged procedure CMNxJOBS. This prevents users from substituting a procedure with unauthorized libraries by using a JCLLIB statement in the JOB STATEMENT INFORMATION on ChangeMan ZMF panels that invoke the batch API.
ISPLLIB	Y Validate ISPF load library concatenation (data set names and order). N Bypass validation of the ISPF load library concatenation.
ISPLIB	Y Validate ISPF message library concatenation (data set names and order). N Bypass validation of the ISPF message library concatenation.
ISPLPLIB	Y Validate ISPF panel library concatenation (data set names and order). N Bypass validation of the ISPF panel library concatenation.
ISPLSIB	Y Validate ISPF skeleton library concatenation (data set names and order). N Bypass validation of the ISPF skeleton library concatenation.
INSTALLATION JCL BUILD	Enter the name of started procedure you created to build the JCL for installing packages. If you leave this field blank, the default name is CMN*x*ADSP, where *x* is the ZMF subsystem ID.
BATCH COMPONENT BUILD	Enter the name of started procedure you created to build the JCL used to check out, compile, recompile, and relink components. If you leave this field blank, the default name is CMN*x*ADSP, where *x* is the ZMF subsystem ID.
PROMOTION JCL BUILD	Enter the name of started procedure you created to build the JCL used to promote and demote components. If you leave this field blank, the default name is CMN*x*ADSP, where *x* is the ZMF subsystem ID.
DEFAULT	Enter the name of started procedure you created to build the JCL used for functions other than the installation, batch component, and promotion procedures listed above. If you leave this field blank, the default name is CMN*x*ADSP, where *x* is the subsystem ID of the SERNET started task under which ChangeMan ZMF runs.
NOTE: The ChangeMan ZMF installer or global administrator must determine the names to be assigned to the four started procedures and define them to the security system before they can be used. Refer to the *ChangeMan ZMF Installation Guide* for details on setting up these procedures.	

5 When you finish entering information on the **Global Parameters Part 4 of 7** panel, press **Enter**. The **Global Parameters Part 5 of 7** panel (CMNGGP05) is displayed.

```
CMNGGP05 -------------- GLOBAL PARAMETERS - PART 5 OF 7 ----------------------
COMMAND ===>

JOB NAME INCREMENT OVERRIDE            ===> NO   (Y/N)
USE ZPREFIX IN BATCH JOBS              ===> NO   (Y/N)
SUPPRESS MSGS IN DIS/INS/BAS JOBS      ===> NO   (Y/N)
CREATE COMPONENT WORK RECORDS          ===> YES  (Y/N)
FORCE AUDIT OF UNPLANNED PACKAGES      ===> NO   (Y/N)
ALLOW LINK PACKAGES                    ===> NO   (Y/N)
MEMO DELETE EMPTY PACKAGES ONLY        ===> NO   (Y/N)
AUDIT PACKAGE LOCK                     ===> OPTIONAL (ALWAYS/NEVER/OPTIONAL)

APPROVAL RESTRICTIONS:
  PACKAGE CREATOR CANNOT APPROVE       ===> NO   (Y/N)
  PACKAGE WORKER CANNOT APPROVE        ===> NO   (Y/N)
  ONLY 1 APPROVAL PER USER ID          ===> NO   (Y/N)

DISPLAY PACKAGE USER OPTION PANEL(S)   ===> YES  (Y/N)

Press ENTER to continue; Enter B to go back 1 screen, or CANCEL to exit.
```

This table describes the fields on the **Global Parameters Part 5 of 7** panel.

Field	Description
JOB NAME INCREMENT OVERRIDE	Determines whether a job name suffix for staging jobs is incremented to allow multiple jobs to run at the same time. This parameter does not effect job name increment for mass stage jobs initiated from the Stage: Mass Build panel (CMNSTG05). The job name in the Job Statement Information field must consist of the submitter's TSO userid followed by a one character alpha suffix, A-Z. Job name suffixes 0-9, @, #, and $ are not incremented. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Do not increment the job name suffix. Force jobs to single thread. N Increment job name suffix, allowing multiple jobs to run simultaneously.
USE ZPREFIX IN BATCH JOBS	Determines if ChangeMan ZMF uses the userid to construct a TSO profile to identify the variable pools when a TSO session is opened for batch API processing. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Use &ZPREFIX instead of &ZUSER in the PROFILE PREFIX command in batch TSO sessions for batch API functions. N Use &ZUSER in the PROFILE PREFIX command in batch TSO sessions for batch API functions.

Field	Description
SUPPRESS MSGS IN DIS/INS/BAS JOBS	ChangeMan ZMF jobs that perform distribution, installation, baseline ripple, and back-out functions issue TSO SEND messages to inform you of success or failure. If you are distributing, installing, baselining, or backing out a large number of packages concurrently, the large number of TSO SEND messages can degrade system performance. This option enables you to suppress these TSO SEND messages only if a job is successful. If a job fails, you will always receive the TSO notification. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Suppress status notification messages for success. N Allows all status notification messages.
CREATE COMPONENT WORK RECORDS	Enables the Component Work Record facility, which keeps a record of each userid that acted on a component in a change package. Actions which are recorded include checkout, stage, edit in stage, recompile, relink, and delete. Component work records can be accessed from the **Stage: *package* Components** panel, and they can be used to restrict who can approve a package. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Enable the Component Work Record facility. N Do not create component work records.
FORCE AUDIT OF UNPLANNED PACKAGES	Determines whether audit is required for unplanned packages when the application audit level is greater than 0. If an unplanned package fails audit, users can still freeze, approve, and install the package. This option ensures that users know about potential out-of-sync problems before you install an unplanned package. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Audit is required for unplanned packages when the application audit level is greater than 0, although unplanned packages can still be frozen, approved, and installed if they fail audit. N Audit is never required for unplanned packages.
ALLOW LINK PACKAGES	Determines whether change packages can be linked to other ChangeMan ZMF packages or packages on other platforms using Serena® ChangeMan® ECP. Access to package delete, freeze, approval, and revert through the ISPF interface are restricted for linked packages. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Y Allow packages linked packages. N Prohibit package linking.

Field	Description
MEMO DELETE EMPTY PACKAGES ONLY	Determines whether change packages that contain components or utility requests (scratch or rename) can be memo deleted. There are two disadvantages to memo deleting packages that contain components: ■ If the package is mistakenly memo deleted, work on the components is lost. ■ Component history makes no distinction between components that were in packages that were installed and aged/deleted, and components that were in packages that were memo deleted and never installed. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit memo delete if a package contains components or utility requests. N Permit packages with components or utility requests to be memo deleted.
AUDIT PACKAGE LOCK	This value dictates whether a package is locked to prevent the contents being updated while the package is being audited. A setting of ALWAYS or NEVER for this parameter in global administration restricts application administration to the same value. Enter one of the following values: ALWAYS Packages must be locked during audit. NEVER Packages must not be locked during audit. OPTIONAL The application administrator for each application may choose whether or not packages are locked during audit.
APPROVAL RESTRICTIONS	The next three fields on this panel limit approval authority for planned packages, even though a user may be otherwise authorized to approve a package. Approval restrictions controlled by these parameters do not apply to unplanned packages.
PACKAGE CREATOR CANNOT APPROVE	Determines whether the creator of a planned package may approve that package, if they are otherwise authorized. This parameter does not apply to unplanned packages. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit the package creator from approving a planned package. N Allow package creator to approve a planned package if they are otherwise authorized.
PACKAGE WORKER CANNOT APPROVE	Determines whether someone who has worked on a component in a planned package can approve that package, if they are otherwise authorized. This parameter does not apply to unplanned packages. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit anyone who has worked on a component in a planned package from approving the package. N Allow someone who has worked on a component in a planned package to approve the package if they are otherwise authorized.

Field	Description
ONLY 1 APPROVAL PER USER ID	Determines whether an approver can enter more than one approval for a planned package, even if they are otherwise authorized. This parameter does not apply to unplanned packages. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit an approver from entering more than one approval for a planned package N Allow an approver to enter more than one approval for a planned package if they are otherwise authorized.
DISPLAY PACKAGE USER OPTION PANEL(S)	Determines whether the Package User Information panels are displayed when users access Create Package, Update Package, or Query Package. See "Using Package User Information" on page 110. Y Display the Package User Information panels. N Hide the Package User Information panels. **NOTE** Set this field to YES if you want to be able to access user variables *user0101* through *user7205* from exit CMNEX009. See the *ChangeMan ZMF Customization Guide* for a description of this exit.

6 When you finish entering information on the **Global Parameters Part 5 of 7** panel, press **Enter**. The **Global Parameters Part 6 of 7** panel (CMNGGP06) is displayed.

```
CMNGGP06 -------------- GLOBAL PARAMETERS - PART 6 OF 7 -----------------------
COMMAND ===>

STAGING LIBRARY MODEL DATASET NAME:

 DEV MODEL DSNAME    ===> CMNTP.S7.STAG.????.#######.DEV
 PRD MODEL DSNAME    ===> CMNTP.S7.STAG.????.#######.PRD
 DEV MODEL HFS NAME  ===> /cmntp/s7/stag/????/#######/dev          +
 PRD MODEL HFS NAME  ===> /cmntp/s7/stag/????/#######/prd          +

-  "????" is placeholder for application name.
-  "#######" is placeholder for package number (.#000123).
- (press <HELP> for more information)

 HFS Temp Folder     ===> /tmp/s4

 PACKAGE MASTER      ===> CMNTP.S7.V710.CMNZMF.CMNPMAST
 COMPONENT MASTER    ===> CMNTP.S7.V710.CMNZMF.CMNELCTX
 DELAY FILE          ===> CMNTP.S7.V710.CMNZMF.CMNDELAY

 EMAIL SERVER:       ===> mail.serena.com                  PORT:  => 00025

Press ENTER to continue; Enter B to go back 1 screen, or CANCEL to exit.
```

This table describes the fields on the **Global Parameters Part 6 of 7** panel.

Field	Description
STAGING LIBRARY MODEL DATASET NAME Staging library data set names and HFS path names are created from a model by: 1 Replacing ???? with the application mnemonic 2 Replacing the last six # of ####### with the change package number 3 Appending a three character library type to the end as a data set name node or an HFS subdirectory **Notes:** ■ You must include the ???? and ####### nodes/directories in the model. ■ You may use the # character in other nodes/directories of the model. ■ Build your models so that they generate staging library names/paths that comply with your local standards. ■ Include the subsystem ID in the models if you will have multiple ChangeMan ZMF instances. ■ If you do not intend to manage Java components in ChangeMan ZMF, leave the HFS model names blank.	
DEV MODEL DSNAME	Type a model dataset name for package staging PDS(E) libraries in the development environment.
PRD MODEL DSNAME	Type a model dataset name for package staging PDS(E) libraries in the production environment. If a package is installed through a P instance, production staging libraries are copied from development staging libraries at installation time to install package components in production libraries. **Note:** This field is obsolete, but must be filled.
DEV MODEL HFS NAME	Type a model path name for package staging directories in the development environment.
PRD MODEL HFS NAME	Type a model path name for package staging directories in the production environment. If a package is installed through a P instance, production staging directories are copied from development staging directories at installation time to install package components in production directories. **Note:** This field is obsolete, but must be filled if you will manage components in HFS.
HFS Temp Folder	Type the root directory for temporary HFS files created by ZMF if components in HFS are managed by this ChangeMan ZMF instance.
PACKAGE MASTER	Displays the data set name of the package master for this ZMF instance.
COMPONENT MASTER	Displays the data set name of the component control LDS for this ZMF instance.
DELAY FILE	Displays the data set name of the delay file for this ZMF instance.
EMAIL SERVER	If you set **NOTIFICATION VEHICLES: EMAIL ===> YES** on the **Global Parameter - Part 3 of 7** (CMNGGP03) panel, type the SMTP email server name or IP address for your email system. If you enter an email server name, it is parsed to establish a default domain name for email approver notifications. Example: Email server: mail.serena.com Default domain name: serena.com
PORT	Type the port number of the SMTP email server. If omitted, the port defaults to 00025.

7 When you finish entering information on the **Global Parameters Part 6 of 7** panel, press **Enter**. The **Global Parameters Part 7 of 7** panel (CMNGGP07) is displayed.

```
CMNGGP07 -------------- GLOBAL PARAMETERS - PART 7 OF 7 ----------------------
COMMAND ===>

JOB STATEMENT INFORMATION:
===> //SERT7    JOB (),'S7.V710',_____________________________________________
===> //          CLASS=A,MSGCLASS=X,_____________________________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

     This job card will be used when the package installation jobs are built
     at freeze time.  The job name will change to reflect package and install
     transaction numbers.  The job card can be overridden at the Application
     Administration "PARMS" option and the Global Administration DB2 option.

Press  ENTER  to generate global parameters.
Enter B to go back 1 screen or CANCEL to exit.
```

The job statement information on this panel serves as the model for job statement information when you create an application. You can change the job statement information in application administration parameters, which is used for installation jobs such as baseline ripple that run in the development environment.

Global parameters are generated after you press Enter.

Defining Library Types And Staging Library Attributes

A library type definition sets processing rules for the components stored under that library type. The definition also sets the data set attributes for the package staging library that is allocated for the library type. The Global Administrator defines the library types that are available to applications.

Global administration contains library types for all unique component types and processing requirements that might be required in any application. Library types can be changed at the application level, but they should be standardized on global definitions to simplify administration maintenance.

To define global library types, follow these steps:

1 On the **Global Administration Options** menu (CMNGAMEN), type 2 on the Option line and press Enter. The **Global Library Types Part 1 of 2** panel is displayed.

The first time you access this panel to define global library types, the panel is empty. This is an example of the panel after library types are entered.

```
CMNCGLT0 -------------- GLOBAL LIBRARY TYPES PART 1 OF 2 --- Row 1 to 11 of 11
COMMAND ===>                                                SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

     LIB                                                LKE SEQ  DFR  TARGET SEL.
     TYPE DESCRIPTION                                          (Y/N)  TYPE  OPT.
'''' CPY  Copybooks_____________________________________ C  003   Y    ___   __
'''' CTL  Program Control Statements____________________ P  ___   Y    ___   __
'''' DOC  Documentation_________________________________ P  ___   Y    ___   __
'''' JCL  Execution JCL_________________________________ P  ___   Y    ___   __
'''' LCT  Link Edit Control Statements__________________ P  ___   Y    ___   __
'''' LOD  Executable Load Modules_______________________ L  002   Y    ___   __
'''' LOS  Load for Subprograms to be Linked NCAL________ N  001   Y    ___   __
'''' LST  Compressed Stage Listings_____________________ P  ___   Y    ___   __
'''' PRC  Cataloged Procedures__________________________ P  ___   Y    ___   __
'''' SRC  Source for Programs to be Linked Executable_ S  002   Y    LOD   __
'''' SRS  Source for Subprograms to be Linked NCAL_____ S  001   Y    LOS   __
****************************** Bottom of data ********************************
```

The following table describes the fields on the **Global Library Types Part 1 of 2** panel.

Field	Description
Line Command	Type a line command to the left of a panel row. S Select to see the next panel for this library type. I Insert a blank library type row. R Repeat an existing library type row. D Delete an existing library type row.

Field	Description
LIB TYPE	Type a three character library type. The following library types are reserved. These types have built-in attributes, and they are used in particular internal processes. Like-types are defined in field LKE later in this table. CPY Copybooks - Requires like-copy, DCB must be RECFM=F/FB, LRECL=80 CTC Control Statements - Requires Like-PDS. DCB must be RECFM=F/FB, LRECL=80. DOC Documentation - Requires Like-PDS. DCB must be RECFM=F/FB/V/VB. JCL JCL - Requires Like-PDS, although libraries with this type are included in Impact Analysis JCL relationships. DCB must be RECFM=F/FB, LRECL=80. LCT Link Edit Control Statements - Requires Like-PDS. DCB must be RECFM=F/FB, LRECL=80. LOD Load Modules - Requires like-load. DCB must be RECFM=U. LST Compressed Stage Listings - Requires Like-PDS. Cannot be explicitly staged. DCB must be RECFM=F/FB, LRECL=80. PRC Cataloged JCL Procedures - Default to Like-PDS, although libraries with this type are included in Impact Analysis JCL relationships. DCB must be RECFM=F/FB, LRECL=80 SRC Source code - Requires like-source. DCB must be RECFM=F/FB, LRECL=80
DESCRIPTION	Type freeform text describing the library type.

Field	Description
LKE	Type a one-character LIKE code to define behaviors and characteristics of a library type. S – Like-Source – Components in like-source library types are staged through a batch job defined by a Language and Procedure assigned to the component to create a component in a like-load library type. Every like-source library type must have a TARGET TYPE in its Library Type Definition. There is a source-load relationship between every like-source component and a like-load component. Members in like-source libraries are analyzed for Impact Analysis copybook relationships. C – Like-Copy – Components in like-copy library types are not processed through a procedure by stage. Like-copy libraries are included in SYSLIB concatenations for copybook libraries. L – Like-Load – Components in like-load libraries are assumed to be the product of a stage procedure performed on a like-source component. Like-load libraries are included in SYSLIB concatenations for load libraries. N – Like-NCAL – NCAL load subroutines. Once staged they are concatenated in the SYSLIB for links within the same package (if the library type is present in the package). O – Like-Object – Object code subroutines. Once staged they are concatenated in the SYSLIB for links within the same package (if the library type is present in the package). P – Like-PDS -Components in Like-PDS library types are not processed through a procedure by stage. Like-PDS libraries are not included in SYSLIB concatenations for copybook or load libraries. Members in Like-PDS libraries are not analyzed for Impact Analysis relationships. Blank – Like-Other – If you leave the LIKE field blank in a Library Type Definition, the type is referred to as "like-other". Components in like-other library types are staged through a batch job created from an ISPF skeleton named CMN$$xxx where xxx is the like-other library type. Code like-other skeletons from a model named CMN$$OTH delivered from Serena. You must also customize skeleton CMN$$CKO to check out components in a like-other library type. Search CMN$$CKO for "OTHER" to see instructions in the skeleton comments. **Note:** Like-other libraries are not analyzed for Impact Analysis relationships. Like-other components are not analyzed by Audit.

Field	Description
SEQ	Type a numeric value from 001 to 255 or leave blank for like-copy-like-source, like-object, like-NCAL, and like-load library types. Sequence number influences two functions: ■ In build processing, sequence numbers that are assigned to like-copy library types determine the order compile SYSLIB library concatenations, and sequence numbers that are assigned to like-object, like-NCAL, and like-load library types determine the order link edit SYSLIB library concatenations. ■ In audit auto-resolve, sequence numbers that are assigned to like-source library types determine the order that stage and recompile jobs are submitted for file-tailoring, and sequence numbers that are assigned to like-load library types determine the order that relink jobs are submitted for file-tailoring. Sequence number can have a numeric value from 001 to 255 or blank, and there is no edit for unique values. Blank sequence numbers sort ahead of numeric values. When sequence numbers are blank, or when the same sequence number is assigned to library types with same like-type, the SYSLIB or audit auto resolve order is determined by how the library types are stored on the package master, which cannot be controlled by the administrator.
DFR (Y/N)	Y Defer allocation of the staging library for this types until the fist component of the type is staged or checked out. N Allocate the stage library for this type when the change package is created, even though there may never be any members of this library type in the package.
TARGET TYPE	Type a like-load, like-object, or like-NCAL target library type for each like-source library type.
SEL. OPT.	Use this field to associate a library type with a ChangeMan ZMF selectable option that you have licensed. The behavior of the library type may require further definition in administration panels or ISPF skeletons. D DB2 Option I IMS Option

ChangeMan ZMF sorts the library entries on the panel in ascending alphanumeric sequence by LIB TYPE before it redisplays the panel.

- To add a library type, type I (Insert) in the line command above where you want to insert the library type and press Enter. An empty library type entry is inserted on the panel.
- To delete a library type, type D (Delete) in the line command for the library type and press Enter.

2 For each library type on the **Global Library Types Part 1 of 2** panel you must complete a second panel of information. Type S in the line command for a library type and press Enter. The **Global Library Types Part 2 of 2** panel is displayed. The first

time you access this panel for a library type, the panel is empty. This is an example of the panel after entering information for library type CPY.

```
CMNCGLT1 -------------- GLOBAL LIBRARY TYPES PART 2 OF 2 ----------------------
COMMAND ===>

LIBRARY TYPE: CPY - Copybooks
LIKE VALUE:   C     DEFER VALUE:   Y

STAGING DATASET ATTRIBUTES:
  GENERIC UNIT NAME  ===> SYSDA    (Generic group name or unit)
  VOLUME SERIAL      ===>          (Required if GENERIC UNIT unspecified)
  SPACE UNITS        ===> TRK      (TRK, CYL or BLK)
  PRIMARY QUANTITY   ===> 1        (In above units)
  SECONDARY QUANTITY ===> 10       (In above units)
  DIRECTORY BLOCKS   ===> 10
  RECORD FORMAT      ===> FB
  RECORD LENGTH      ===> 80
  BLOCK SIZE         ===> 0
  DATA SET TYPE      ===> PDS      (LIBRARY, PDS, HFS or blank)
OTHER OPTIONS: CHECKOUT COMPONENT DESCRIPTION    ===> NO  (Y/N)
               CHECKOUT COMPONENT ACTIVITY FILE  ===> NO  (Y/N)
               COMPONENT ACTIVITY FILE TYPE      ===>
               SAVE STAGING VERSIONS             ===> OPT    (YES/NO/OPT)

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on the **Global Library Types Part 2 of 2** panel.

Field	Description
GENERIC UNIT NAME	Type the DASD generic group or unit device name to be used for allocating staging libraries for this library type. This field may be left blank if the VOLUME SERIAL field is used.
VOLUME SERIAL	Type the DASD volume serial number where stage libraries are to be allocated for this library type. This field may be left blank if the GENERIC UNIT NAME field is used.
SPACE UNITS	Type the units to be used for the primary and secondary space allocations for staging libraries for this library type. TRK Allocate space in tracks. CYL Allocate space in cylinders. BLK Allocate space in blocks.
PRIMARY QUANTITY SECONDARY QUANTITY DIRECTORY BLOCKS	Type the primary space, secondary space, and directory block allocation to be used for the staging libraries for this library type. Use MINIMUM space allocations, especially the PRIMARY QUANTITY. ChangeMan ZMF dynamically reallocates stage libraries if extents or directory blocks are exhausted as the change package grows. Unused space in PDS stage libraries is freed when the change package is frozen. ChangeMan ZMF does not automatically compress stage libraries, but you can compress stage libraries for a package with the ZP Package List command.

Field	Description
RECORD FORMAT	Type the staging library record format for this library type. Valid values include: F, FA, FB, FBA, FBM, FM, FS, V, VA, VB, VBA, VBM, VM, U Legend: F - Fixed length records V - Variable length records U **-** Undefined format records B - Blocked records S - Standard blocks A - ASA printer control characters M - Machine code printer control characters
RECORD LENGTH	Type the logical record length for components in this library type.
BLOCK SIZE	Type the staging library block size for this library type. Type 0 to let SMS calculate the best block size for the storage device.
DATASET TYPE	Leave blank for PDS staging library, or type one of the following: LIBRARY PDSE library HFS HFS directory PDSE PDS library
CHECKOUT COMPONENT DESCRIPTION	Y Copy the Component General Description from the package master to the change package when a component is checked out. Allow developers to create or update the Component General Description through a change package. N Do not copy the Component General Description from the package master to the change package when a component is checked out. Prevent developers from creating or updating the Component General Description in a change package. The Component General Description can always be created or updated through Application Administration.
CHECKOUT COMPONENT ACTIVITY FILE	Y Automatically check out a second component with the same name in a second library type when you check out a component in this library type. The second library type specified below in the COMPONENT ACTIVITY FILE TYPE field. The second library type is called a "Component Activity File" here, but it can be any like-PDS library type defined to this application. If you check out a component to a personal library, the Activity File is checked out to the staging library. If there is no Activity File member with the same name in baseline, you must create one (stage from development) in your package. If there is no matching Activity File member, Audit flags a SYNCH6! N Check out components in this type without checking out a second component with the same name in another library type.
COMPONENT ACTIVITY FILE TYPE	Type the library type of the Component Activity File. This field is only required if YES is specified in the CHECKOUT COMPONENT ACTIVITY FILE field.

Field	Description
SAVE STAGING VERSIONS	Restricts how the application library type can be defined to save a previous version in a staging library before it is overlaid by a new version from edit-in-stage, checkout, or stage from development. See "Staging Versions" on page 43. Y The application library type must always be defined to save staging versions. N The application library type can never be defined to save staging versions. OPT The application administrator can define the library type to always save staging versions, never save staging versions, or prompt the developer to make a choice

3 When you finish updating fields on the **Global Library Type Part 2 of 2** panel, press Enter to return to the **Global Library Types 1 of 2** panel.

4 When you finish updating library type definitions on the **Global Library Type Part 1 of 2** panel, press PF3, or type End and press Enter, to store the global library type definitions in the ChangeMan ZMF package master file.

Defining Language Names

You must provide ChangeMan ZMF with all of the language names that will be used in applications in this environment. The languages on this list are paired with skeleton names to create the global procedure list in the next section of this chapter.

Application administrators select languages from this list when applications are configured.

To define global languages, take the following steps:

1 Select Option 3 on the **Global Administration Options** menu (CMNGAMEN). The **Global Language Names** panel (CMNGGLNG) is displayed.

The first time you access this panel to define global languages, the panel is empty. This is an example of the panel after languages are entered.

```
CMNGGLNG ------------------- GLOBAL LANGUAGE NAMES --------- Row 1 to 10 of 10
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

     LANGUAGE
'''' ASM_____
'''' HASM____
'''' COBOL___
'''' COBOLE__
'''' COBOL2__
'''' JAVA____
'''' PLI_____
'''' SQL_____
'''' PLIE____
'''' SASC____
****************************** Bottom of data ********************************
```

The following table describes the fields on the **Global Language Names** panel.

Column	Description
Line Command	Type a line command to the left of a panel row. I Insert a blank library type row. R Repeat an existing library type row. D Delete an existing library type row.
LANGUAGE	Type the language name for the compile procedure. These language names are hard coded in stage skeletons in ISPF variable LNGNAME. If you use another language, analyze the PROCEDURE skeleton and other stage skeletons you intend to use to see if your language will require skeleton customization. ASM Assembler C C (not HFS) COBOL OS/VS COBOL COBOLE IBM Enterprise COBOL COBOL2 COBOL2 CPP IMSFMT IMS MFS Format PLI PLI/I CMNPLIE PLIE IBM Enterprise PL/I SASC SAS C SQL DB2 SQL

2 Type a new language or update an existing language on the panel. Use the line commands to Insert (below), Delete, or Repeat a panel row.

3 Press PF3, or type End on the Command line and press Enter, to save your updates.

NOTE Languages are listed on the **Global Language Names** panel in the order that they are saved. If you bring up the panel, insert a new language anywhere, save the panel, and then reenter the panel, the new language appears at the bottom of the list.

Defining Compile Procedures

Compile procedures are required when you stage a like-source package component.

Use this option to enter all the procedures that are needed to stage like-source components in all applications on this ZMF instance.

Application administrators select compile procedures from this list when applications are configured.

Even if your applications do not contain any like-source components, you must enter a compile procedure.

To define global compile procedures, take the following steps:

1 Select Option 4 from the **Global Administration Options** menu (CMNGAMEN). The **Compile Procedure List** panel (CMNPRCNM) is displayed.

The first time you access this panel to define global procedures, the panel is empty. This is an example of the panel after procedures are entered.

```
CMNPRCNM ------------------- COMPILE PROCEDURE LIST -------- Row 1 to 12 of 12
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter * in LANGUAGE or PROCEDURE fields for selection list.

     LANGUAGE  PROCEDURE  DESCRIPTION
'''' ASM_____  CMNASM__   Stage Assembler Source_____________________
'''' ASM_____  CMNMAPGN   Stage CICS BMS Map Source_____________________
'''' COBOL___  CMNCOBOL   Stage OS/VS COBOL_____________________________
'''' COBOL2__  CMNCOB2_   Stage COBOL2__________________________________
'''' COBOLE__  CMNCOBE_   Stage IBM Enterprise COBOL_____________________
'''' JAVA____  CMNJAVA_   Stage Java Source_____________________________
'''' JAVA____  CMNJAR__   Create Java Archive (JAR / WAR)_______________
'''' PLI_____  CMNPLI__   Stage PL/I____________________________________
'''' PLIE____  CMNPLIE_   Stage IBM Enterprise PL/I_____________________
'''' SASC____  CMNSASC_   Stage SAS C Source____________________________
'''' SQL_____  CMNSQL__   Stage DB2 SQL_________________________________
'''' HASM____  CMNHASM_   Stage High Level Assembler Source_____________
****************************** Bottom of data ******************************
```

The following table describes the fields on the **Compile Procedure List** panel.

Column	Description
Line Command	Type a line command to the left of a panel row. I Insert a blank library type row. R Repeat an existing library type row. D Delete an existing library type row.
LANGUAGE	Type * to choose a Language from the Language Selection List.

Column	Description
PROCEDURE	Type the procedure name. The procedure must exist in one of the concatenated skeleton libraries. The procedures listed below are delivered in the SKELS library. You can create custom procedures. **NOTE:** If you create a custom procedure, do not use a numeric or special character in the fourth position of the procedure name. CMN$$OTH Stage "Other" library type CMNASM Stage assembler source CMNASMOB Stage assembler source to object CMNASM2L Stage ASSEMBLER source with double link edit (batch / CICS) CMNCEE Stage C/C++ (not HFS) source CMNCEEOB Stage C/C++ (not HFS) source to object CMNCOBE Stage IBM Enterprise COBOL source CMNCOBE2 Stage IBM Enterprise COBOL source with double link edit (batch / CICS) CMNCOBOB Stage OS/VS COBOL source to object CMNCOBOL Stage OS/VS COBOL source CMNCOB2 Stage COBOL2 source CMNCO2OB Stage COBOL2 source to object CMNDBDGN Stage IMS DBD source CMNJAR Create Java archive CMNJAVA Stage Java source CMNMAPGN Stage BMS MAP source CMNMFSGN Stage IMS MFS source
DESCRIPTION	Type the procedure description, which can be up to 44 alphanumeric characters.

2 On the **Compile Procedure List** panel, use a line command to Insert a new procedure row, or update an existing row on the panel.

a On the **Compile Procedure List** panel, type * (asterisk) in the Language column and press Enter to display the **Language Selection List** panel.

b On the **Language Selection List** panel, type line command S to select one or more languages. Then press Enter to return to the **Compile Procedure List** panel where the language or languages you selected are added.

c On the **Compile Procedure List** panel, if you know the name of the skeleton that you want to pair with the Language name, type the skeleton name in the Procedure field. Otherwise, type * (asterisk) in the Procedure field and press Enter to display the Procedure Selection List, which is a list of the members in the skeleton libraries concatenated in your ZMF started procedure.

d On the **Procedure Selection List** panel, type line command S to select a skeleton. Then press Enter to return to the **Compile Procedure List** panel where the Procedure field is populated with your selection.

e On the **Compile Procedure List** panel, type a description for the Language / Procedure combination.

f On the **Compile Procedure List** panel, continue to add or complete Language / Procedure rows until you have defined all procedures that will be needed in all applications.

3 On the **Compile Procedure List** panel, press PF3, or type End on the Command line and press Enter, to save your updates.

NOTE Procedures are listed on the **Compile Procedure List** panel in the order that they are saved. If you bring up the panel, insert a new procedure anywhere, save the panel, and then reenter the panel, the new procedure appears at the bottom of the list.

Defining Reason Codes

Use this option to enter all available reason codes and descriptions for unplanned permanent or temporary change packages. When creating this change package, the user must choose a code from the Reason Code List.

To define reason codes, take the following steps

1 Select Option 5 on the **Global Administration Options** menu (CMNGAMEN). The **Reason Code List** panel (CMNRSNCD) is displayed.

```
CMNRSNCD ---------------------- REASON CODE LIST ------------- Row 1 to 4 of 4
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

     CODE DESCRIPTION
'''' X37  Dataset space abend_____________________________
'''' OCX  Program abend___________________________________
'''' JC1  JCL error_______________________________________
'''' US1  User error_____________________________________
****************************** Bottom of data ********************************
```

2 Create or update the rows of the list, and type the End command to save your changes. The following tables describes the field on the **Reason Code List** panel.

Column	Description
CODE	Type the reason code in alphanumeric format, for example, E01 or 01E.
REASON DESCRIPTION	Type the reason description with a maximum of 44 alphanumeric characters.

Defining Sites

A site specifies target information for a promotion process or an install process. A site may be local or remote.

Site	Description
Local Site	A target that is on the same LPAR as the development ChangeMan ZMF instance. A target on a different LPAR from the ChangeMan ZMF instance can be defined as a local site if it shares DASD and catalogs with the ChangeMan ZMF development LPAR, and no DB2 binds are required.
Remote Site	A target that is on a different LPAR than the development ChangeMan ZMF instance that does not share DASD and catalogs, or that requires DB2 binds.

You must define a site for each production ChangeMan ZMF environment that is a target for installs. Every promotion level definition must be associated with a site.

Perform the following steps to define a site:

1 On the **Global Administration Options** menu (CMNGAMEN), select Option 6. The **Global Site List Part 1 of 2** panel is displayed.

The first time you access this panel to define global sites, the panel is empty.This is an example of the panel after sites are entered.

```
CMNGRST1 ---------------- GLOBAL SITE LIST PART 1 OF 2 ------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

     SITE NAME
'''' SERT7___
'''' SERT7P1_
'''' SERT7P2_
'''' SERT8___
'''' SERT9___
****************************** Bottom of data ********************************
```

The following table describes the fields on the **Global Site List Part 1 of 2** panel.

Field	Description
Line Command	Type a line command to the left of a panel row. S Select to see the next panel for this site name. I Insert a blank site name row. R Repeat an existing site name row. D Delete an existing site name row.

Field	Description
SITE NAME	Type a SITE NAME for a promotion or install target. The SITE NAME must begin with an alphabetic character. Rules for SITE NAME by environment type: A Sites are defined for promotion only. Production libraries are not associated with a site. SITE NAME cannot be the same as the SITE NODE NAME on the **Global Parameters - Part 1 of 7** (CMNGGP01) panel. DP Sites are defined for promotion and for installation into production libraries. One site can target production libraries on the DP instance, and the SITE NAME is the same as the SITE NODE NAME on the **Global Parameters - Part 1 of 7** (CMNGGP01) panel. All other production installation SITE NAMEs each target a P instance.

The order of site names on the **Global Site List Part 1 of 2** panel is not significant.

2 Type S in the line command field for the site and press Enter.

If the ChangeMan ZMF instance you are using to make this update is DP (Development/Production) environment, the **Site Information Part 2 of 2** panel is displayed.

```
CMNGRST2 ---------- SERT8 SITE INFORMATION - PART 2 OF 2 ----------------------
COMMAND ===>

CHANGE MAN SUBSYSTEM ID   ===> 8
LOGICAL UNIT NAME         ===> C001                                          +
JES NODE NAME             ===> C001
DEFAULT UNIT NAME         ===> SYSDA    (Generic disk unit)
DEFAULT VOLUME SERIAL     ===> SYSDA
CHANGE MAN DELAY FILE     ===> CMNTP.S8.V710.CMNZMF.CMNDELAY
PRD STAGING MODEL DSNAME  ===> CMNTP.S8.V710.PRD.????.#######                +
PRD STAGING MODEL HFS     ===> /cmnstage/????/#######
TRANSMISSION VEHICLE      ===> OTHER    (IEBCOPY or Other)
TIME DIFFERENCE           ===> +0000    (+/-HHMM)
IP ADDRESS                ===> 10.35.11.100
PORT                      ===> 06081

SITE JOB STATEMENT INFORMATION:
===> //SERT78   JOB (),'S7.V710 SERT7563',_____________________________________
===> //         CLASS=A,MSGCLASS=X_____________________________________________
===> //* =A.G.6 PART2 PANEL CMNGRST2 SITE: SERT8_____________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on these panels.

Field	Description
CHANGEMAN SUBSYSTEM ID	Type the subsystem ID of the target ZMF instance for this site. Not required in an A environment, and not displayed on the panel.
LOGICAL UNIT NAME	Type the LOGICAL UNIT OR SYSTEM NAME used in Global Administration Parameters. **Note:** The Logical Unit Name for remote site definitions is 256 characters. However, delivered ZMF skeleton coding for DMBATCH SYSIN input effectively limits the usable length to 63 characters. Skeleton customization can expand the SYSIN input to more than 63 characters.
JES NODE NAME	If you are defining a remote site, type the logical unit or system name (SMF ID) that is used by your transmission software to locate the target site.
DEFAULT UNIT NAME	Type the generic device name for DASD where staging libraries, install JCL libraries, and other package distribution data sets are dynamically allocated. This field is optional if the Default Volume Serial field is used.
DEFAULT VOLUME SERIAL	Type the DASD volume serial number where staging libraries, install JCL libraries, and other package distribution data sets are dynamically allocated. This field is optional if Default Unit Name field is used. This field is required if the Default Unit Name field is blank.
CHANGEMAN DELAY FILE	Type the fully qualified data set name (no quotes) for the VSAM Delay file at the target site. (Not required for A environments.)
PRD STAGING MODEL DSNAME	If you are defining a local site, type the DEV MODEL DSNAME from Global Administration Parameters. If you are defining a remote site, type a model data set name for staging libraries at the target site. For rules for coding a staging model DSNAME, see the field description for "STAGING LIBRARY MODEL DATASET NAME" on page 70.
PRD STAGING MODEL HFS	If you are defining a local site, type the DEV MODEL HFS NAME from Global Administration Parameters. If you are defining a remote site, type a model HFS path for staging directories at the target site. For rules for coding a staging model path name, see the field description for "STAGING LIBRARY MODEL DATASET NAME" on page 70.
TRANSMISSION VEHICLE	If you are defining a local site, type IEBCOPY. If you are defining a remote site, type OTHER to include transmission steps in promote JCL or install JCL.
IP ADDRESS	Type an IP address if you are defining a site that is a P instance or another DP instance. IP ADDRESS is required to initiate package backout and revert for P instances from the D or DP site where the package originated. As a simple rule, always make an entry in this field when it appears on a global site definition panel.
PORT	Type a port number if you made an entry in the IP ADDRESS field. As a simple rule, always make an entry in this field when it appears on a global site definition panel.

Field	Description
TIME DIFFERENCE	Type the difference in system clock time between this site and the development site where change packages are created. Type a positive time difference in hours and minutes (+hhmm) if this site is to the east of the development site. Type a negative time difference (-hhmm) if this site is to the west of the development site. The default time difference is +0000. The time difference parameter is used to verify that the package install date and time that you enter when you create a package is a time that has not already passed at a remote site.
SITE JOB CARD INFORMATION	Type the default job card to be used at the target site.

3 When you finish updating fields on the **Site Definition Part 1 of 2** panel, press Enter to return to the **Global Site List Part 1 of 2** panel.

4 When you finish updating site definitions on the **Global Site List Part 1 of 2** panel, press PF3 or type End and press Enter to store the site definitions in the ChangeMan ZMF package master file.

Locking or Unlocking Application Definitions

As the Global Administrator, you can lock or unlock application definitions with the **Lock/ Unlock Applications** panel. When an application is locked, the Application Administration Options cannot be used to update the application definition, and application administration panels are displayed in browse mode.

The only functions an application administrator can execute when an application is locked are:

- Update the Global Notification File if that function is allowed by the global administration parameters.
- Submit reports from the **Report Selection List** panel.
- Submit the Baseline Analyzer Report and the Link Date Report.

Application Administration Options also display in browse mode when another administrator is updating an application. If that administrator's session is interrupted, the application status may display IN USE, even through no one is currently updating the application. The Global Administrator must unlock the application to make the application definition available for update.

To lock, unlock, or reset an application definition:

1 On the **Primary Option Menu** (CMN@PRIM), select Option A and press Enter. The **Administration Options** menu (CMNADMON) is displayed.

2 On the **Administration Options** menu, select Option G and press Enter. The **Global Administration Options** menu (CMNGAMEN) is displayed.

3 On the **Global Administration Options** panel, select Option 7 and press Enter. The **Lock/Unlock Applications** panel is displayed.

```
CMNGBULP ------------------ LOCK/UNLOCK/RESET IN USE --------- Row 1 to 3 of 3
COMMAND ===>                                                  SCROLL ===> HALF

Enter L  (Lock),  U  (Unlock) or  R  (Reset in use flag).

  APPL  DESCRIPTION                                  STATUS
_ ACTP  ACCOUNTS PAYABLE                             IN USE
_ COMM  COMMON COMPONENTS
_ GENL  GENERAL LEDGER                               LOCKED
****************************** Bottom of data ********************************
```

The following table describes the fields on the **Lock/Unlock Applications** panel.

Field	Description
Line Command	Type a line command to change the application status. L Lock the application to prohibit changes to application administration. U Unlock the application to allow changes to application administration. R Reset the "in use" indicator.
APPL	Displays application mnemonics defined to ChangeMan ZMF.
DESCRIPTION	Displays the application descriptions.
STATUS	Indicates if the application is available for update. LOCKED — The Global Administrator has locked the application. Application administration cannot be changed until the Global Administrator unlocks the application. Application administration panels are displayed in browse mode. UNLOCKED — The Global Administrator has just unlocked the application. Application administration is available for update. IN USE — Another administrator is currently updating application administration. Application administration panels are displayed in browse mode. RESET — The Global Administrator has just reset the "in use" indicator. Application administration is available for update. Blank — Application administration is available for update.

4 On the L**ock/Unlock Applications** panel, type L (lock), U (unlock), or R (Reset) in the line command for an application and press Enter. The STATUS field is updated to LOCKED, UNLOCKED, or RESET. Application availability is changed immediately.

5 Press PF3, or type End on the Command line and press Enter to exit the **Lock/Unlock Applications** panel. You cannot CANCEL changes you made.

Global Component Options

In ChangeMan ZMF administration, you can assign three facilities to components based on component name:

- A general description, which is a 48 line by 72 character area for any text that you want to associate with a component
- A designated compile procedure, which is a fixed build procedure that ensures that the build for a component is performed consistently
- A security rule to restrict access to a component through ChangeMan ZMF by individuals or groups

These three component options are assigned by component name and library type. However, you can extend the scope of any of these options to groups of components that are related by a naming convention by using wild cards in the component name in the option definition.

A component option definition may exist in global administration, in application administration, or in both. A definition in application administration takes precedence over a definition in global administration.

NOTE Prior to ChangeMan ZMF 6.1, component options were entered in application administration, but since there was no application in the component master file key, the definition applied to all applications. When you migrate to ChangeMan ZMF 6.1 or higher from a version prior to Version 6.1, all of the existing application component options are converted into global component options. There is no behavior change with this conversion because when there is no option record at the application level, ChangeMan ZMF looks for the option at the global level.

Follow these steps to access the component options:

1. On the **Primary Option Menu** (CMN@PRIM), select Option A and press Enter. The **Administration Options** menu (CMNADMON) is displayed.
2. On the **Administration Options** menu, select Option G and press Enter. The **Global Administration Options** menu (CMNGAMEN) is displayed.
3. On the **Global Administration Options** panel, select Option C and press Enter. The **Global Component Options** panel is displayed.

```
CMNCMPG0 ------------------ GLOBAL COMPONENT OPTIONS -------------------------
OPTION  ===>

  G  General    - Maintain component general description information
  P  Procedures - Maintain component designated compile procedures
  S  Security   - Maintain component security information

  Press ENTER to process; Enter END command to exit.
```

Component General Description Information

The Component General Description Information function is used to associate a text description with a component.

NOTE There is no facility in the ISPF interface to add a component general description at the global level. If you must add a component general description at the global level, use the following Yellow XML Service: CMPONENT GBL_CDSC CREATE

To update existing global component general descriptions:

1 On the **Global Component Options** panel, select Option G end press enter. The **Global Component General Information** panel is displayed:

```
CMNGENG1 ------------ GLOBAL COMPONENT GENERAL INFORMATION --------------------
OPTION ===>

LIBRARY TYPE ===>       (Blank for list)


Press ENTER to process; Enter END command to exit.
```

2 On the **Global Component General Information** panel, type a library type and press Enter. The **Global Component Information List** panel is displayed.

```
CMNGENG5 ------------- GLOBAL COMPONENT INFORMATION LIST ----- Row 1 to 1 of 1
COMMAND ===>                                                 SCROLL ===> HALF

    NAME                                                       TYPE
_ ACPSRS00                                                   +  SRS
****************************** Bottom of data ********************************
```

3 On the the **Global Component Information List** panel, you can:

- Delete a global general description - Type D on the line command for a component and press Enter.
- Update a component general description - Type S on the line command for a component and press enter. The **Global General Description** panel is displayed.

4 On the **Global General Description** panel, update the text.

```
CMNGENG3 ----------------- GLOBAL GENERAL DESCRIPTION ------ Row 1 to 13 of 60
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save; CANCEL to exit.

Component:   ACPSRS00                                                        +
Libtype:     SRS


     (maximum 48 lines)
'''' Subroutine to obtain transaction date_____________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
'''' _________________________________________________________________________
```

5 When you are finished updating the Global General Description, press PF3 to save your changes and return to the **Global Component Information List** panel.

```
CMNGENG5 ------------ GLOBAL COMPONENT INFORMATION L      INFORMATION CHANGED
COMMAND ===>                                              SCROLL ===> HALF

    NAME                                                     TYPE
_ ACPSRS00                                                +  SRS  CHANGED
****************************** Bottom of data ********************************
```

Component Designated Compile Procedures

Use this panel to designate a compiling procedure for any SRC or Like SRC component. This procedure, and its accompanying parms, can be forced for some or all compiles, depending on the Force Level in effect. Leave the command line blank to display a list of existing designations. This list can be limited by making entries in the Component Name or Library Type fields.

To work with global designated compile procedures:

1 On the **Global Component Options** panel, select Option P and press Enter, the **Global Designated Compile Procedures** panel is displayed.

```
CMNDCPG1 ------------ GLOBAL DESIGNATED COMPILE PROCEDURES --------------------
OPTION ===>

  C     - Change or Add component procedures
  D     - Delete component procedures
  blank - List defined procedures

COMPONENT NAME      ===>                                                    +
                                (Full name or pattern; blank for list)
LIBRARY TYPE        ===>        (Blank for list)
COMPILE PROCEDURE   ===>        (Blank for list)
LANGUAGE NAME       ===>        (Blank for list)
COMPILE PARMS       ===>
LINK EDIT PARMS     ===>
DB2 PRECOMPILE      ===>        (Yes/No)
FORCE LEVEL         ===>        (1-Before Freeze only, 2-Always required)

OTHER OPTIONS       ===>        (Yes/No Display more option panels)

MIXED CASE          ===> NO     (Yes/No)

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on the **Global Designated Compile Procedures** panel:

Field	Description
OPTION	C Change an existing designated procedure definition Add a new designated procedure definition D Delete a designated procedure definition Blank List existing component procedures
COMPONENT NAME	Enter a full component name or pattern. **Note:** When you add or delete a designated procedure, a * wildcard in the component name is considered part of the designated procedure name. However, when you use this panel to filer a list of designated procedures on the **Global Designated Compile Procedures List** panel, a * is considered a wildcard character for the search.
LIBRARY TYPE	Enter the component library type. Leave this field blank to display a Library Type selection list.
COMPILE PROCEDURE	Enter the designated compile procedure for the component. Leave this field blank for a selection list.
LANGUAGE NAME	Enter the language name of the component. Leave this field blank for a Language Name selection list. The LANGUAGE NAME and COMPILE PROCEDURE combination must be valid.
COMPILE PARMS	Enter any extra compile parms as needed (defaults are hardcoded in the compile skeleton for the specified procedure).
LINK EDIT PARMS	Enter any extra link edit parms as needed (defaults are hardcoded in the link edit skeleton for the specified procedure).

Field	Description
DB2 PRECOMPILE	Y Run the DB2 precompile step for this module N Do not run the DB2 precompile step for this module.
FORCE LEVEL	1 When a package freeze is requested, if the designated procedure was not used in the last stage operation, the freeze is failed. This is the default. 2 Every stage operation for this component must use the designated procedure.
OTHER OPTIONS	Y Display additional user option panels where you can enter user options and component user options that are passed as variables to file tailoring for stage JCL. N Do not display additional user option panels
MIXED CASE	N Fold Component Name input to upper case regardless of the case that you type. Y Process Component Name input exactly as you type it, upper and lower case.

2 If you leave the Component Name field blank on the **Global Designated Compile Procedures** panel, or type a pattern, the **Global Designated Compile Procedures List** panel is displayed.

```
CMNDCPG2 --------- GLOBAL DESIGNATED COMPILE PROCEDURES LIST - Row 1 to 3 of 4
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter S line command to select additional options.
Enter * in PROC or LANGUAGE field, for list.

  COMPONENT      LANGUAGE FORCE  DB2 COMPILE PARMS
  NAME      TYPE PROC     OPTION PRE LINK EDIT PARMS
  ------------------------------------------------------------------------
_ ACPSRC*                                                               +
            SRC  COBOL2   1      NO  ____________________________________
                 CMNCOB2             ____________________________________
  ------------------------------------------------------------------------
_ ACPSRC00                                                              +
            SRC  COBOL2   1      NO  ____________________________________
                 CMNCOB2             ____________________________________
  ------------------------------------------------------------------------
_ ACPSRC99                                                              +
            SRC  COBOL2   1      NO  ____________________________________
                 CMNCOB2             ____________________________________
```

Component Security Information

Use these panels to list or create the TSO IDs or Security Entities that are authorized to check out or stage a particular component. If no entries are made, all users having application access are permitted to check out or stage any of the application's components.

To create Global Component Security Information:

1 On the **Global Component Options** panel, select Option S and press enter, the **Global Component Level Security** panel is displayed:

```
CMNSECG1 -------------- GLOBAL COMPONENT LEVEL SECURITY ----------------------
COMMAND ===>

COMPONENT NAME ===>                                                    +
                                (Pattern or blank for list)
COMPONENT TYPE ===>             (Pattern or blank for list)

MIXED CASE     ===> NO          (Yes/No)

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on the **Global Component Level Security** panel:

Field	Description
COMPONENT NAME	Enter the name of the component to secure to specific TSO IDs or entities You may enter a pattern (e.g. PR*), and all the components in the Baseline library that fit the pattern will be protected. To select from the package master list of components which have been protected, leave both fields blank.
COMPONENT TYPE	Enter the component library type
MIXED CASE	N Fold Component Name input to upper case regardless of the case that you type. Y Process Component Name input exactly as you type it, upper and lower case.

2 We select Component Name of ACPTST02 and Component Type of SRC on the **Global Component Level Security Panel**, hit enter, and are presented with the **Global User List** panel for Component ACPTST02.SRC

```
CMNSECG2 ------------ GLOBAL - ACPTST02.SRC USER LIST ------ Row 1 to 31 of 31
COMMAND ===>                                                 SCROLL ===> PAGE

Enter END command to save changes or CANCEL to exit.

      USERID  ENTITY (Y/N; blank=N)
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
'''' _________   _
******************************* Bottom of data ********************************
```

The following table describes the fields on the **Global User List** panel:

Field	Description
LINE COMMAND	Enter one of the following valid line commands: I Insert a new line R Repeat an existing line D Delete an existing line
USERID	Enter the authorized TSO ID or ENTITY to which checkout or staging will be restricted.
ENTITY	Enter 'Y' to identify the USERID as a security ENTITY, or enter 'N' (or blank) to identify it as a TSO ID.

Setting the Planned Installation Calendar

The Planned Installation Calendar limits the number of planned packages that may be scheduled for install on the same calendar day. This restriction does not apply to unplanned packages.

To update the Planned Installation Calendar, perform the following steps:

1 On the **Global Administration Options** menu (CMNGAMEN), type D and press Enter.

- If the ChangeMan ZMF instance you are using to make this update is an A (All) environment, the **Planned Installation Calendar** panel is displayed immediately. This panel is described below.
- If the ChangeMan ZMF instance you are using to make this update is not an A (All) environment, the **Calendar Options** panel is displayed.

```
CMNCLDOM ---------------------- CALENDAR OPTIONS ----------------------------
OPTION  ===>

  1  Site      - Display or update installation calendar by site
  2  Composite - Display a composite installation calendar

Press ENTER to process; Enter END command to exit.
```

2 On the **Calendar Options** panel, type 2 and press Enter, and the **Planned Installation Calendar** panel shows in display mode. This panels displays the total number of installs that may be scheduled across all sites and the total number of installs that have already been scheduled. The # and MAX numbers displayed for each day on this panel represent the sum of the # and MAX numbers for all sites.

3 On the **Calendar Options** panel, type 1 and press Enter. The **Site Selection List** panel is displayed.

```
CMNRMTSL --------------- ACTP - SITE SELECTION LIST ---------- Row 1 to 1 of 1
COMMAND ===>                                                 SCROLL ===> HALF

  SITE NAME
_ C001A
****************************** Bottom of data ******************************
```

4 On the **Site Selection List** panel, type S on the line command for a site name and press Enter. The **Planned Installation Calendar** panel is displayed.

```
CMNCLNDR ----------- C001A PLANNED INSTALLATION CALENDAR -- Row 20 to 52 of 52
COMMAND ===>                                                 SCROLL ===> HALF
Press ENTER to update calendar or END command to exit.
 STARTING     WED     THU     FRI     SAT     SUN     MON     TUE     TOTALS
   DATE      #  MAX  #  MAX  #  MAX  #  MAX  #  MAX  #  MAX  #  MAX   #   MAX
2008/10/22  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/10/29  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/11/05  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/11/12  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/11/19  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/11/26  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/12/03  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/12/10  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/12/17  000 000 000 000 000 000 000 000 000 000 000 000 000 000  0000 0000
2008/12/24  000 000 000 000 000 000 000 000 004 000 000 000 000 000  0004 0000
```

The following table describes the fields on the **Planned Installation Calendar** panel.

Field	Description
STARTING DATE	This is the calendar date for the first day in the row. Each row displays seven days. The Starting Date in an ALL environment is the system date for today. The Starting Date in a D or DP environment is the system date for yesterday. If a package is scheduled for simultaneous installation at multiple sites (for example, at 00:01 GMT everywhere rather than at 00:01 local time everywhere), the installation date might be yesterday at a site because of a time zone difference.
#	Displays the total number of packages scheduled for installed on that day at this site.
MAX	A data entry field for the maximum number of planned packages that may be scheduled for install on that day for this site. The maximums are initially set to zero for all dates. To reset MAX for all dates. type SETALL nnn on the command line. To set MAX for a all occurrences of a day of the week, type SETddd nnn (example: SETMON 123). To reset the MAX for one date, over typing the MAX number for that day. To block scheduling installs for any planned packages on a given date, leave MAX at zero for that day. To set MAX to an unlimited number of unplanned packages for all days or for a specific day, type SETALL 255 or SETddd 255 on the command line. The value of the maximum number of planned packages is displayed as UNL. If a site was created only for promotion to a local site, leave MAX set to zero for all dates.
TOTALS #	Displays the total number of packages scheduled for instal in that week at this site.

Field	Description
TOTALS MAX	Displays the maximum number of planned packages that may be scheduled for install in that week at this site.
The # and TOTALS # fields are automatically incremented when change packages are created. These fields are automatically decremented when change packages are rescheduled or installed.	

Online Housekeeping

You can initiate the following two housekeeping functions online:

- Delete aged packages, staging data sets, and component history.
- Synchronize the implementation calendar.

Select option H, Housekeeping, on the **Global Administration Options** menu (CMNGAMEN). The **Housekeeping Tasks** (CMNHOUS0) panel is displayed.

```
CMNHOUS0 --------------------- HOUSEKEEPING TASKS ----------------------------
OPTION ===>

  1  Delete      - Delete packages/staging datasets/component history
  2  Synchronize - Synch implementation calendar

Press ENTER to process; Enter END command to exit.
```

The options you can select are:

Option	Description
1 Delete	This function deletes: ■ Memo deleted packages (DEL status) and their associated staging libraries and component history. ■ Installed packages (BAS, INS, or TCC status), staging data sets, and component history records whose aging criteria is met. You specify global aging criteria on the **Global Parameters Part 1 of 7** (CMNGGP01) panel. See page 54. You specify application aging criteria on the ***application* Parameters - Part 3 of 3** (CMNGLP03) panel. See page 129. The function file-tailors skeleton CMN$$HKP and submits a batch job that deletes the packages, staging data sets, and component history that meet the deletion criteria. The job writes report CMN920 that details the actions taken.
2 Synchronize	This function resynchronizes the implementation calendar by comparing planned installs for a given date against actual installs performed. The function file-tailors the CMN$$HKP skeleton, submits a batch job that resynchronizes the implementation calendar, and produces report CMN930.

The reports for either of these functions are written to DDname CMNRPORT.You can use a display facility such as the System Display and Search Facility (SDSF) to view the report.

You can capture the JCL that is generated by either of these jobs to build a batch job of your own that you or your job scheduler can submit. See "Delete Aged Packages, Staging Libraries, And Component History" on page 226 and "Synchronize Installation Calendar" on page 228 for details.

Follow these steps to perform these functions:

1 Select the desired option from the Housekeeping Tasks (CMNHOUS0) panel. The **Generate Change Man Housekeeping Job** (CMNHOUS1) panel is displayed.

```
CMNHOUS1 ----------------- GENERATE HOUSEKEEPING JOB -------------------------
COMMAND ===>

APPLICATION ===>      (Full name, pattern or blank for list)

JOB STATEMENT INFORMATION:
===> //WSER2391 JOB (X170,374),'S7.V710',_____________________________________
===> //         CLASS=A,MSGCLASS=X,NOTIFY=WSER239_____________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

2 If you leave the Application field blank, the **Application Selection List** (CMNREPT9) panel is displayed.

```
CMNREPT9 ----------------- APPLICATION SELECTION LIST -------- Row 1 to 4 of 4
COMMAND ===>                                                 SCROLL ===> HALF

  Appl  Description                                   Highest #
_ ACTP  ACCOUNTS PAYABLE                              000002
_ ACTR  ACCOUNTS PAYABLE                              000000
_ CISQ  CICS DB2 SETQUERY                             000001
S GENL  GENERAL LEDGER                                000001
****************************** Bottom of data ********************************
```

3 Type the letter S in the selection field to the left of the application mnemonic and press Enter to submit the jobFill in the panel as follows and press Enter to submit the job:

Field	Description	
Application	Type ...	Meaning
	The mnemonic for the target application	Identifies the target application.
	Pattern ending in an asterisk, for example, G*	Identifies all applications whose mnemonics match the specified pattern.
	blank	Enables you to select the target applications from the **Application Selection List** (CMNREPT9) panel.
JOB Statement Information	Specify an appropriate JOB statement.	

If you leave the Application field blank, the **Application Selection List** (CMNREPT9) panel is displayed. Type the letter S in the selection field to the left of the application mnemonic and press Enter to submit the job.

NOTE You can select only one application from the **Application Selection List** panel. If you select more than one, only the first one on the list is used.

Generating and Updating Impact Analysis Data

The impact analysis LDS contains records that describe relationships among components in ChangeMan ZMF baseline libraries.

Each relationship record in the impact analysis file names two components in a one-to-one relationship. One-to-many relationships and many-to-one relationships are expressed in the impact analysis file as multiple one-to-one relationship records.

The Query Impact and Query Component Bill of Materials functions use these relationship records to tell you what other components might be affected if you make a change to a particular component. ChangeMan ZMF audit programs use impact analysis records to validate the change process that is being used for components in a change package.

Types of Impact Analysis Relationships

This table describes the types of component relationships that are stored in impact analysis data:

Relationship Type	Component That Contains Object of the Relationship	Object of the Relationship
COPYBOOK	Like-source component that contains a COPY or similar statement for a like-copy component.	Like-copy member that is the object of a COPY or similar statement in source code.
SUBROUTINE	Like-load component that contains a statically linked like-load component.	Like-load component statically linked in a composite like-load.
JCL-PROCEDURE	Component type JCL or PRC (or component type designated in an exit as like-JCL) that contains an EXEC statement for a cataloged procedure.	The cataloged procedure following an EXEC statement or following the PROC= parameter in an EXEC statement.
PGM NAME/SYMBOL	Component type JCL or PRC (or component type designated in an exit as like-JCL) that contains a PGM= parameter In an EXEC statement.	Character string in the PGM= parameter. The string can be a program name, or it might be a symbolic parameter.

Relationship Type	Component That Contains Object of the Relationship	Object of the Relationship
DSN NAME/SYMBOL	Component type JCL or PRC (or component type designated in an exit as like-JCL) that contains a DSN= parameter in a DD statement.	Character string in the DSN= parameter. The string can be a data set name, or it might be a symbolic parameter.

Creating / Updating Impact Analysis Data

Impact analysis records are stored in a VSAM LDS. Programs that use impact analysis data create a data space and load it from the LDS.

When you first implement ChangeMan ZMF, you run the impact analysis data extract. The extract parses members in baseline libraries to find relationships between components, and it creates impact analysis records in three sequential files, BUNSPACE, RELSPACE, and CMPSPACE. The data in these files is loaded to the impact analysis LDS with a separate batch job.

After the initial extract and load, impact analysis data is updated dynamically when a change package is installed and its components are baselined. Package master relationship records that were created when package components were staged are used to update the impact analysis data space and LDS with new or changed relationships.

After the impact analysis LDS is populated, if you use application administration to add or remove applications, change baseline libraries, or change library types, you must run the impact analysis data extract again to recreate the data for the impact analysis LDS.

CAUTION! Unlike ChangeMan ZMF releases prior to Version 6.1 with the DB2 Option, there is no "incremental" update for impact analysis data. If you exclude any applications from impact analysis maintenance, relationships for these applications are not created and will be missing from the Impact Analysis LDS.

This is the default processing order used by the impact analysis data extract to create impact analysis relationship records for a component:

1. Generate relationships from package master relationship records for the last package to baseline the component.

   But if there are no package master relationship records because the component is JCL or PRC, or the last package to baseline the component is archived, or if the component has never been processed through the ChangeMan ZMF package life cycle, then...

2. Propagate any existing I/A records for the component.

   But if there are no existing I/A records because the component has never been parsed by the impact analysis data extract, then...

3. Parse the baselined component to discover relationships.

The impact analysis data extract can be initiated through a panel in ChangeMan ZMF global administration, or you can manually submit a batch job to perform the extract.

After you have extracted the impact analysis information, you create and populate the impact analysis LDS through a batch process.

Instructions for executing the impact analysis data extract and loading the impact analysis LDS are provided in the next three topics:

- "Online Impact Analysis Data Extract"
- "Batch Impact Analysis Data Extract" on page 102
- "Impact Analysis LDS Load" on page 102

Online Impact Analysis Data Extract

Execute these steps to submit an impact analysis data extract from global administration.

NOTE This procedure assumes that you have customized skeleton CMN$$IAX according to the instructions in the *ChangeMan ZMF Installation Guide*.

1 Access the **Impact Analysis Data Extraction** panel (CMNGBIM1) using one of these methods.

- **Using the Menu Hierarchy**
  - On the **Primary Option Menu** (CMN@PRIM), choose option **A Admin**.
  - On the **Administration Options** menu (CMNADMON), choose option **G Global**.
  - On the **Global Administration Options** menu (CMNGAMEN), choose option **I Impact**.
- **Using Direct Panel Access**

  On the **Command** or **Option** line of any panel, type **=A.G.I** and press **Enter**.

  The **Impact Analysis Data Extraction** panel (CMNGBIM1) is displayed.

```
CMNGBIM1 -------------- IMPACT ANALYSIS DATA EXTRACTION -----------------------
OPTION  ===>

  1  - Specify applications to be included
  2  - Specify applications to be excluded

       To process all defined applications use option 2,
       select nothing, and hit pf3 to submit the job.

 * * * If you run the Impact Analysis job excluding any applications, * * *
 * * * then relationships for these applications will not be created  * * *
 * * * and loaded into the final Impact Analysis Dataspace.           * * *

 * * * After the I/A job runs, you need to run the LDSLOAD job to     * * *
 * * * load the data into the Dataspace. The LDSLOAD job can be       * * *
 * * * found in the delivered CNTL.                                   * * *

JOB STATEMENT INFORMATION:
===> //WSER2391 JOB (X170,374),'S7.V710 CMNREPT',_____________________________
===> //         CLASS=A,MSGCLASS=X,NOTIFY=WSER239_____________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

2 The **Impact Analysis Data Extraction** panel (CMNGBIM1) offers you the choice between selecting applications to include in the impact analysis data extract, or

selecting applications to exclude. Since you normally want to select all applications, the easiest method is to exclude none.

Choose option **2 - Specify applications to be excluded**. The **Application List** panel (CMNGBIM2) is displayed.

```
CMNGBIM2 ---------------------- APPLICATION LIST ------------- Row 1 to 3 of 3
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to submit impact analysis data extract job.

    APPL  DESCRIPTION                                    STATUS
_   ACTP  ACCOUNTS PAYABLE_____________________________
_   COMM  COMMON COMPONENTS____________________________
_   GENL  GENERAL LEDGER_______________________________
****************************** Bottom of data ********************************
```

3 On the **Application List** panel, *do not select any applications*. Press **PF3**, or type **END** in the Command line, and press **ENTER** to submit a batch job to perform the impact analysis data extract.

4 When the job completes, check the output.

a Verify that the impact analysis data extract created three sequential files: BUNSPACE, CMPSPACE, and RELSPACE.

b Example of SYSPRINT at job step RUNIA:

```
 ChangeMan(R)      CMNIA000 -  7.1.2 I/A Synch  MONDAY FEBRUARY 27, 2012 @ 16:09:07
 CMN2698I - Processed by CMNIA000 version 2011/12/02  02.53
 SYSIN: XTYP=FMT
 SYSIN: XTYP=MFS
 SYSIN: APPL=ACTP
 SYSIN: APPL=COMM
 SYSIN: APPL=GENL
 The following applications will be included in this analysis:
 ACTP
 COMM
 GENL

  B a s e l i n e   L i b r a r y                                          Meta-data        Baseline
 ------------------------------------------------------------------  components         i/a rows        i/a rows
  CMNTP.S7.V710.BASE.ACTP.CPY                                                35                0               0
  CMNTP.S7.V710.BASE.CTC                                                      0                0               0
  CMNTP.S7.V710.BASE.ACTP.DOC                                                 0                0               0
  CMNTP.S7.V710.BASE.JCL                                                     25               77               0
  CMNTP.S7.V710.BASE.ACTP.LCT                                                 3                0               2
  CMNTP.S7.V710.BASE.ACTP.LOD                                                18              196               0
  CMNTP.S7.V710.BASE.ACTP.LOS                                                14                0               0
  CMNTP.S7.V710.BASE.ACTP.LST                                                 0                0               0
  CMNTP.S7.V710.BASE.PRC                                                     24               50               0
  CMNTP.S7.V710.BASE.ACTP.SRC                                                17               28               0
  CMNTP.S7.V710.BASE.ACTP.SRS                                                14               30               0
  CMNTP.S7.V710.BASE.COMM.CPY                                                 0                0               0
  CMNTP.S7.V710.BASE.COMM.LOS                                                 0                0               0
  CMNTP.S7.V710.BASE.COMM.LST                                                 0                0               0
  CMNTP.S7.V710.BASE.COMM.SRS                                                 0                0               0
  CMNTP.S7.V710.BASE.COMM.DOC                                                 0                0               0
  CMNTP.S7.V710.BASE.GENL.CPY                                                 0                0               0
  CMNTP.S7.V710.BASE.GENL.DBB                                                 0                0               0
  CMNTP.S7.V710.BASE.GENL.DBR                                                 0                0               0
  CMNTP.S7.V710.BASE.GENL.LST                                                 0                0               0
  CMNTP.S7.V710.BASE.GENL.PKG                                                 0                0               0
  CMNTP.S7.V710.BASE.GENL.DOC                                                 0                0               0
                                                      TOTAL                 150              381               2

   BUNSPACE records written                  :          34
   CMPSPACE records written                  :         213
   RELSPACE records written                  :         383

0CMNIA000 - Execution has completed -   RC : 00
```

The three counts for each baseline library are derived as follows:

- components - Number of components in the baseline library
- Meta-data i/a rows - Number of I/A rows created from package master relationship records or propagated from rows in the existing impact analysis LDS
- Baseline i/a rows - Number of I/A rows created by parsing components in the baseline library

5 If the data extract job is successful, go to"Impact Analysis LDS Load" on page 102.

Batch Impact Analysis Data Extract

Execute these steps to manually submit a batch job to perform a impact analysis data extract.

1 Ensure that ChangeMan ZMF is running.

2 Ensure that sample JCL member IMPACT has been customized to fit your environment. For information about customizing CNTL member IMPACT, see topic "Batch Impact Analysis Data Extract" in either of the *ChangeMan ZMF 7.1.2 Migration Guides*.

3 Submit job IMPACT.

4 When the job completes, check the output.

a Verify that the job created three sequential files: BUNSPACE, CMPSPACE, and RELSPACE.

b See the example on page 101 of SYSPRINT at job step RUNIA.

5 If the data extract job is successful, go to the next topic.

Impact Analysis LDS Load

Execute these steps to load the impact analysis LDS with data from the three sequential files created by the impact analysis data extract.

1 Shut down ChangeMan ZMF, or close the impact analysis LDS by issuing a DETACH modify command.

See the *ChangeMan ZMF 7.1 Installation Guide* for DETACH command syntax and cautions.

2 Ensure that sample JCL member LDSLOAD has been customized to fit your environment. For information about customizing CNTL member LDSLOAD, see topic "Impact Analysis LDS Load" in either of the *ChangeMan ZMF 7.1.2 Migration Guides*.

3 Submit job LDSLOAD.

4 Examine job LDSLOAD output for problems.

a Example of CMNPRINT from job step CMNIALC0:

```
                  ChangeMan(R) Impact Analysis Component Table Preparation
                                -- CMNIALC0 - 7.1.0 20091215 09.54
20100414 16273409          143 Component records Read
20100414 16273409          143 Component records written
20100414 16273409          159 Component records added
20100414 16273409          159 Relation  records read
20100414 16273409          159 Relation  records written

20100414 16273409 End of run
```

b Example of CMNPRINT from job step CMNIAIN0:

```
                  ChangeMan(R) Impact Analysis Dataspace Analysis and Initialization
                          -- CMNIAIN0 - 7.1.0 20100215 22.31
20100414 16273752           50 B / A / L records read
20100414 16273755          168 component records read
20100414 16273756          159 relation records read
20100414 16273768 I/A dataspace initialization complete
```

c Example of CMNPRINT from job step CMNIALB0:

```
                  ChangeMan(R) Impact Analysis Basline Table Load
                              --    CMNIALB0 - 7.1.0 20090820 09.32
20100414 16274194 I/A baseline load start
20100414 16274194           50 B A L Input records read
20100414 16274194           50 B A L Records loaded
20100414 16274194
20100414 16274194 I/A baseline load complete
20100414 16274195 I/A baseline appl index start
20100414 16274195          100 App/Lib index entries written
20100414 16274195 I/A baseline appl index complete
20100414 16274196 I/A baseline libtype index start
20100414 16274196           50 Lib/App index entries written
20100414 16274196 I/A baseline libtype index complete

20100414 16274198 End of run
```

d Example of CMNPRINT from job step CMNIALR0:

```
                  ChangeMan(R)      Impact Analysis Relation Table Load
                                   -- CMNIALR0 - 7.1.0 20091215 09.57
20100414 16274236 I/A component table load start
20100414 16274236          168 component records read
20100414 16274236          168 component entries built
20100414 16274236 I/A component table load complete
20100414 16274238 I/A relation table load start
20100414 16274239          159 relation records read
20100414 16274239          159 relation entries built
20100414 16274241 I/A relation table load complete
20100414 16274243 I/A table load complete

20100414 16274243 End of run
```

e Example of CMNPRINT from job step CMNIALX0:

```
                  ChangeMan(R) Impact Analysis Relation Index Load
                               CMNIALX0 - 7.1.0 20090820 10.20
20100414 16274356 begin relation table index load
20100414 16274356          159 relation index records read
20100414 16274356          159 superior component relation index entries loaded
20100414 16274356          159 subordinate component relation index entries loaded
20100414 16274358  end  relation table index load

20100414 16274358 End of run
```

5 Start ChangeMan ZMF, or open the impact analysis LDS by issuing an ATTACH modify command.

This is an example of the ATTACH command for ZMF instance SERT3:

```
/F SERT3,CMN,ATTACH,IADS
```

See the *ChangeMan ZMF 7.1 Installation Guide* for ATTACH command details.

Forcing Component Parsing

While it is preferable to generate impact analysis records from package master relationship records that are created in the component build process, some customers may discover that their package master relationship records are unsuitable.

Program CMNIA000 in the impact analysis data extract and program CMNDSPTM in the baseline ripple process accept SYSIN keyword parameters to force component parsing to create impact analysis relationship records.

- CMNIA000 - Use the following SYSIN keyword parameters in skeleton CMN$$IAX or CNTL member IMPACT to force component parsing for the impact analysis data extract.

Keyword Parameter	Source for Impact Analysis Relationships
(default)	1 Generate from package master relationship records for the last package to baseline the component. **But** if there are no package master relationship records because the last package to baseline the component is archived, or if the component has never been through the ZMF package life cycle, then... 2 Propagate any existing I/A records. **But** if there are no existing I/A records because the component has never been analyzed by CMNIA000, then... 3 Parse the baseline component.
PARSE=ALL	Ignore existing impact analysis relationship records: 1 Generate from package master relationship records for the last package to baseline the component. 2 Parse the baseline component.
PARSE=ALL,NOPMAST	Parse the baseline component.

Keyword Parameter	Source for Impact Analysis Relationships
PARSE=ALL,NOPMCPY	Ignore package master ISIC records and all prior I/A information: 1 Generate from package master relationship records for the last package to baseline the component, but ignore copybook-to-source (ISIC) records. 2 Parse the baseline component.
PARSE=ALL,NOPMLOD	Ignore package master ILIC records and all prior I/A information: 1 Generate from package master relationship records for the last package to baseline the component, but ignore subroutine-to-composite load (ILIC) records. 2 Parse the baseline component.

- CMNDSPTM - Use the following SYSIN keyword parameter in the CMN30 job to force component parsing for impact analysis data update.

Keyword Parameter	Generate I/A Records
(default)	Generate from package master relationship records for the package currently being baselined.
PRS=NOPMLOD	Parse baseline like-load members

Increasing I/A Data Space Freespace

When the impact analysis data space is initialized, the space allocated is 12.5% more than what is requested. When the data space is loaded, 1/4 of the relationship rows are allocated as freelist.

Mass delete of relationship rows using XML Services depletes freelist and freespace. You should always reorganize the impact analysis LDS after each such operation.

If you run out of freespace, you can manually increase the allocation with the FREEPCT execution parameter for program CMNIAIN0. Examples:

- Add another 20% of the total request to freespace, and increase the proportion of freelist rows by 20%:

```
//CMNIAIN0 EXEC PGM=CMNIAIN0,PARM='FREEPCT=20'
```

- Add another 100% of the total request to freespace, and increase the proportion of freelist rows by 100%:

```
//CMNIAIN0 EXEC PGM=CMNIAIN0,PARM='FREEPCT=100'
```

Configuring the Global Notification File

Administrators use the Global Notification File to pass information to ChangeMan ZMF users. You can use this facility to inform users about:

- Scheduled down time.
- Scheduled maintenance changes to ChangeMan ZMF.

- Work-arounds for recently discovered problems.
- Upcoming ChangeMan ZMF education or discussion sessions.

When a user connects to ChangeMan ZMF after an administrator updates the Global Notification File, the ISPF short message NOTIFICATION UPDATED displays in the upper right corner of the **Primary Option Menu** (CMN@PRIM).

```
CMN@PRIM ----- SERENA ChangeMan(R) Primary Option Men     NOTIFICATION UPDATED
OPTION  ===>

  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 batch reports
  A  Admin    - Perform administrative functions
  B  Backout  - Back out a package in production
  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
  Q  Query    - Query packages, components and relationships
  R  Revert   - Revert a package to DEV status
  T  Tutorial - Display information about SERENA ChangeMan
  X  Exit     - Exit SERENA ChangeMan

Press ENTER to process; enter END command to exit.
```

If the user presses **PF1**, this message is displayed:

```
CMN1116I - Option-N file last updated 04/21/2010  18:53 last read 04/21/2010 18:52.
```

The short message persists on the **Primary Option Menu** until the user selects option **N Notify** on the **Primary Option Menu** to display the contents of the Global Notification File.

```
 ISRBROBA  CMNTP.A014D.#C5F20DB.#F02849D.OUTLIST      Line 00000000 Col 001 080
 Command ===>                                                Scroll ===> PAGE
******************************** Top of Data ********************************

GLOBAL ADMINISTRATION MESSAGE  04/01/2010
 1. New library types have been added to perform automatic JOBSCANs.
 2. Security request forms have been added to Online Forms. Discontinue
    the use of "paper" form SEC00010.

******************************* Bottom of Data ******************************
```

The global administrator allocates the Global Notification File, enables Global Notification, and updates the messages in the Global Notification File. A global administrator can also grant authority to application administrators to update messages in the file.

Enabling Global Notification

Follow these steps to allocate a Global Notification File and enable Global Notification.

1 Outside of ChangeMan ZMF, allocate a permanent Global Notification File as a partitioned or sequential data set. Use any of these file characteristics:

- Data Set Organization: DSORG=PS or PO
- Record Format: RECFM=FB, FBM, FBA, VB, VBM, or VBA
- Logical Record Length: LRECL maximum 256

Serena recommends that you allocate a small sequential file with a fixed record length of 80 bytes. A single track of 3390 equivalent disk has room for over 600 lines of notification messages.

If you allocate a PDS, ChangeMan ZMF reallocates the library if it ever runs out of extents or directory space. However, the trade-off is that a PDS accumulates unusable space and should be compressed periodically.

NOTE If you allocate the Global Notification File as a PDS, create a member in the library with at least one (blank) record. When you specify the data set name in global administration parameters below, use the fully qualified PDS member name.

2 In your security system, grant the SERNET instance userid UPDATE access to the file you allocated. (Grant ALTER access if you allocated a PDS so ChangeMan ZMF can reallocate this library.) Administrators and users do not need access granted in your security system because they access the file through ChangeMan ZMF.

3 On the **Global Administration Options** menu (CMNGAMEN), select Option 1. The **Global Parameters Part 1 of 7** panel (CMNGGP01) is displayed.

4 Press **Enter**. The **Global Parameters Part 2 of 7** panel (CMNGGP02) is displayed.

5 On the **Global Parameters Part 2 of 7** panel (CMNGGP02), enter information to define the Global Notification Facility.

6 In the *Use Global Notification File* field, type **Y**.

7 In the *Allow Application Update To File* field, type **Y** if you want application administrators to update the Global Notification File that is displayed to all ChangeMan ZMF users.

8 In the *Global Notification File* field, type the data set name of the file you allocated.

9 Press **Enter** continuously until you are returned to the **Global Administration Options** menu (CMNGAMEN).

When Global Notification is activated, option **N Notify** is displayed on the **Primary Option Menu**.

Creating Global Notification Messages

Follow these steps to create your first Global Notification message for ChangeMan ZMF users.

1 On the **Global Administration Options** menu (CMNGAMEN), select Option **N**. An ISPF edit session opens for an empty ChangeMan ZMF temporary file.

```
ISREDDE2   CMNTP.A014D.#C5F20CE.#036F60D.OUTLIST          Columns 00001 00072
Command ===>                                                 Scroll ===> HALF
****** ***************************** Top of Data ******************************
==MSG> -Warning- The UNDO command is not available until you change
==MSG>           your edit profile using the command RECOVERY ON.
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
''''''
****** *************************** Bottom of Data ***************************
```

2 Using ISPF functions, edit the temporary file to create the message that you want ChangeMan ZMF users to see.

```
ISREDDE2   CMNTP.A014D.#C5F20CE.#036F60D.OUTLIST          Columns 00001 00072
Command ===>                                                 Scroll ===> HALF
****** ***************************** Top of Data ******************************
000001
000002 APPLICATION ADMINISTRATION MESSAGE
000003
000004     APPLICATION ACTP  04/15/2010
000005     1. All baseline libraries will be compressed on Sunday.
000006     2. Audit level has been changed to 4.
000007
000008     APPLICATION GENL  05/03/2010
000009     1. Department number is now required when creating a new change
000010        package. Enter your Cost Center number in this field.
000011
****** *************************** Bottom of Data ***************************
```

3 Press **PF3** to exit the edit session. ChangeMan ZMF copies the temporary file back to the Global Notification File. Type **Cancel** to exit the edit session without saving your entries.

Updating the Global Notification Message

Follow these steps to update the Global Notification File with new messages for ChangeMan ZMF users.

1 On the **Global Administration Options** menu (CMNGAMEN), select Option **N**. An ISPF edit session opens for a ChangeMan ZMF temporary file that contains the current contents of the Global Notification File.

NOTE If the global administrator specified **Y** In the Allow Application Update To File field, you can access this function from the **Application Administration Functions** panel (CMNLAMEN).

```
ISREDDE2   CMNTP.A014D.#C5F20C5.#BB7E57E.OUTLIST          Columns 00001 00072
Command ===>                                                Scroll ===> HALF
****** ***************************** Top of Data ******************************
000001
000002 APPLICATION ADMINISTRATION MESSAGE
000003
000004     APPLICATION ACTP  04/15/2010
000005     1. All baseline libraries will be compressed on Sunday.
000006     2. Audit level has been changed to 4.
000007
000008     APPLICATION GENL  05/03/2010
000009     1. Department number is now required when creating a new change
000010        package. Enter your Cost Center number in this field.
000011
****** **************************** Bottom of Data ****************************
```

2 Using ISPF functions, insert lines to type new a new message that you want displayed to all ChangeMan ZMF users. Add new messages at the top of the file.

```
 ISREDDE2   CMNTP.A014D.#C5F20C5.#BB7E57E.OUTLIST          Columns 00001 00072
Command ===>                                                Scroll ===> HALF
****** ***************************** Top of Data ******************************
000001
000002 GLOBAL ADMINISTRATION MESSAGE  04/01/2010
000003  1. New library types have been added to perform automatic JOBSCANs.
000004  2. Security request forms have been added to Online Forms. Discontinue
000005     the use of "paper" form SEC00010.
000006
000007 APPLICATION ADMINISTRATION MESSAGE
000008
000009     APPLICATION ACTP  04/15/2010
000010     1. All baseline libraries will be compressed on Sunday.
000011     2. Audit level has been changed to 4.
000012
000013     APPLICATION GENL  05/03/2010
000014     1. Department number is now required when creating a new change
000015        package. Enter your Cost Center number in this field.
000016
****** **************************** Bottom of Data ****************************
```

3 Press **PF3** to exit the edit session. ChangeMan ZMF copies the temporary file back to the Global Notification File. Type **Cancel** to exit the edit session without saving your entries.

Accessing the Global Selectable Options

Selectable Options of ChangeMan ZMF often require configuration at the global administration level and at the application administration level.

To access global administration for a selectable option, follow these steps:

1 On the **Global Administration Options** menu (CMNGAMEN), select Option O and press Enter. The **Global Selectable Options** panel is displayed.

```
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    - IMS Control Region IDs, and Library Sub-Type information

Press ENTER to process; Enter END command to exit.
```

Licensed selectable options are highlighted on this panel. If no options are highlighted, no ChangeMan ZMF selectable options are licensed for this LPAR

The following table lists selectable options that may be displayed.

Option	Description
DB2	Manage changes to application DB2 components.
INFO	ChangeMan ZMF communication with other applications through: ■ A VSAM interface file. ■ The Tivoli Information Management for z/OS product from IBM.
OFM	Create and utilize customized online forms that are integrated with change packages.
IMS	Manage changes to IMS components.

2 On the **Global Selectable Options** panel, choose the highlighted option you want to configure at the global administration level, and press Enter.

See the ChangeMan ZMF manual for the selectable option for information about configuring the option at the global administration level.

Using Package User Information

Package User Information is an optional facility that stores data in 71 fields of various lengths on the package master. You enter Package User Information on panels that are displayed when you create a package and when you update package information. The information stored in Package User Information fields is available for processing by several exits, and it is available in file tailoring for installation JCL.

The Package User Information facility is designed to be flexible so that you can customize it to meet your needs for package-level user data. You can customize two data entry panels, selecting the fields you want to display, labeling the input fields with names you choose, and coding edit rules and other panel processing to satisfy your requirements.

You can use Package User Information data in program logic in certain ChangeMan ZMF exit programs. You can choose your own names for the variables made available to file tailoring for install JCL.

For a full description of the Package User Information facility, and for instructions for implementing this feature, see the "User Data" chapter in the *ChangeMan ZMF Customization Guide*.

Chapter 5

Setting Up Application Administration

This chapter explains how to set up and change administration for ChangeMan ZMF applications. Entries in application administration define the rules for managing the change lifecycle in each application.

Accessing Application Administration

Perform these steps to access the **Application Administration Options** panel.

1 Go to the ChangeMan ZMF **Primary Option Menu**.

NOTE If option **A Admin** is not shown on the **Primary Option Menu**, you are not authorized in your security system for any ChangeMan ZMF administration functions. See topic "Security Considerations" in the *ChangeMan ZMF Installation Guide* and then consult with your security administrator.

2 On the **Primary Option Menu**, select option **A Admin** and press **Enter**. The **Administration Options** panel (CMNADMON) is displayed.

```
CMNADMON ------------------- ADMINISTRATION OPTIONS --------------------------
OPTION  ===>

  A  Application  - Perform application administration functions
  B  Application  - Browse application administration configuration
  G  Global       - Perform global administration functions
  H  Global       - Browse global administration configuration

Press ENTER to process; Enter END command to exit.
```

The **Administration Options** panel is built dynamically to show only those administration functions that you are authorized to browse or update.

NOTE If option **A Application** is not shown on the **Administration Options** panel, you are not authorized in your security system to update application administration. See topic "Security Considerations" in the *ChangeMan ZMF Installation Guide*, and then consult with your security administrator.

3 On the **Administration Options** panel, select option **A Application** and press **Enter**. The **Application Administration Options** panel (CMNLAMEN) is displayed:

```
CMNLAMEN ------------ APPLICATION ADMINISTRATION OPTIONS ---------------------
OPTION  ===>

  APPLICATION ===>          (Blank for list)

  1  Parms         - Generate application parameters
  2  Library       - Generate library types
  3  Language      - Generate language names
  4  Procedures    - Generate compiling procedures
  5  Pln Approvals - Create planned approval list
  6  Upl Approvals - Create unplanned approval list
  7  Promotion     - Configure promotion libraries
  8  Sites         - Configure site information
  B  Baseline      - Configure baseline libraries
  C  Component     - Update component information, procedures, security
  D  Delete        - Delete an application
  N  Notify        - Update the Global Notification File
  O  Options       - Configure selectable options
  P  Production    - Configure production libraries
  R  Reports       - Generate application batch reports

Press ENTER to process; Enter END command to exit.
```

You can use option **B Application** on the **Administration Options** panel to view application parameters on read-only panels.

Creating a New Application

Perform these steps to create a new application.

1 On the Application Administrative Options panel, type the mnemonic for the new application in the APPLICATION field. The application mnemonic must be three or four characters long, and the first character of the mnemonic must be alphabetic or national (@ $ #).

NOTE Your security administrator must add the new application mnemonic to the resource class you use for ChangeMan ZMF and grant you UPDATE access before you can create the application in ChangeMan ZMF. See "Pre-Implementation Decisions" on page 27.

2 Type 1 on the Option line and press Enter. Popup window Create New *appl* Application (CMNGLP00) is displayed over the Application Administration Options panel.

```
CMNLAMEN ------------ APPLICATION ADMINISTRATION OPTIONS ---------------------
OPTION  ===> 1

  APPLICATION ===> ACTR     (Blank for list)
       +-----------------------------------------------------------------+
  1  P | CMNGLP00      Create New  ACTR  Application                      |
  2  L |                                                                 |
  3  L | COMMAND ===>                                                    |
  4  P |                                                                 |
  5  P | Optional Model to Copy:                                         |
  6  U |                                                                 |
  7  P | Press ENTER to continue; Enter END command to cancel.           |
  8  S |                                                                 |
  B  B +-----------------------------------------------------------------+
  C  Component     - Update component information, procedures, security
  D  Delete        - Delete an application
  O  Options       - Configure selectable options
  P  Production    - Configure production libraries
  R  Reports       - Generate application batch reports

Press ENTER to process; Enter END command to exit.
```

3 If you want to create your new application from Global Administration defaults, leave the fields on the Create New *appl* Application popup window blank. If you want to copy the configuration of an existing application into your new application, type the

application mnemonic of the model into the Optional Model to Copy Forward field. You can modify the copied configuration later using application administration options.

```
+-------------------------------------------------------------+
| CMNGLP00      Create New  ACTR  Application                 |
|                                                             |
| COMMAND ===>                                                |
|                                                             |
| Optional Model to Copy:   ACTP                              |
|                                                             |
| Press ENTER to continue; Enter END command to cancel.       |
|                                                             |
+-------------------------------------------------------------+
```

4 Press Enter, and the *appl* Parameters - Part 1 of 3 panel (CMNGLP01) is displayed with the short ISPF message "Application created".

```
CMNGLP01 ------------ ACTR PARAMETERS - PART 1 OF 3 ----- Application created
COMMAND ===>

APPLICATION DESCRIPTION     ===> ACCOUNTS PAYABLE
OPTIONAL SKELETON RELEASE ID     ===>                    (* for list)
NORMAL BUSINESS HOURS       FROM ===> 0001 TO ===> 0002 (HHMM)
KEEP BASELINE BY SITE            ===> NO                (Y/N)
ALLOW TEMPORARY PACKAGES         ===> YES               (Y/N)
AUDIT LEVEL                      ===> 0                 (0,1,2,3,4,5)
CHECKOUT ENFORCEMENT RULE        ===> 1                 (1,2,3)
  ENTITY CHECK IF RULE 2         ===>
DISALLOW CONCURRENT CHECKOUT     ===> NO                (Y/N)
ALLOW CHECKOUT TO PERSONAL LIB.  ===> NO                (Y/N)
STAGING RESTRICTION LEVEL        ===> 1                 (1,2,3)
  ENTITY CHECK IF LEVEL 2        ===>
OVERLAY PRIOR STAGED MODULE      ===> YES               (Y/N)
VALIDATE VERSION DURING STAGING  ===> NO                (Y/N)
PROMOTION/DEMOTION RULE          ===> 0                 (0,1,2,3,4)
CMNAUDRC ENTITY CHECK            ===>
AUDIT PACKAGE LOCK               ===> OPTIONAL (ALWAYS/NEVER/OPTIONAL)

Press ENTER to continue; Enter END command to exit.
```

5 You can proceed to enter and change application parameters for your new application on this and subsequent *appl* Parameters panels (see "Setting Application Parameters" on page 118), or you can press PF3 to return to the Application Administration Options panel without making changes.

NOTE If you use PF3 to return to the Application Administration Options panel, the short ISPF message "Request Cancelled" is displayed. The message means that any application parameter changes you made are cancelled; the application has still been successfully created.

Updating Existing Applications

There are two ways to access an existing application for update:

- Single application

- Application list

Single Application

1 On the Application Administration Options panel, type the application mnemonic in the APPLICATION field.

2 Type one of the administration options on the Option line, and press Enter. The first panel for that option is displayed.

Application List

1 On the Application Administration Options panel, leave the APPLICATION field blank, leave the Option line blank, and press Enter. The Application List panel (CMNPLST2) is displayed.

```
CMNPLST2 ---------------------- APPLICATION LIST ------------- Row 1 to 4 of 4
COMMAND ===>                                                  SCROLL ===> PAGE

LINE COMMANDS: 1-Gen Parms   2-Libraries   3-Language    4-Procedures
               5-Pln. Apprv  6-Unp. Apprv  7-Promotion   8-Sites
               B-Baseline    C-Component   D-Delete      N-Notify
               O-Options     P-Production  R-Reports

  APPL  DESCRIPTION                                HIGHEST #  STATUS
_ ACTP  ACCOUNTS PAYABLE                            000087
_ ACTR  ACCOUNTS PAYABLE                            000000
_ COMM  COMMON COMPONENTS                           000004
_ GENL  GENERAL LEDGER                              000009
****************************** Bottom of data ********************************
```

The following table describes the fields on the Application List panel.

Field	Description
Line Command	Type a one-character application administration option listed at the top of the panel.
APPL	Displays application mnemonics defined to ChangeMan ZMF.
DESCRIPTION	Displays the application descriptions.
HIGHEST #	Displays the number of change packages that have been created in an application since the application was first defined.
STATUS	Indicates whether or not the application is available for update. LOCKED — The Global Administrator locked the application. Application administration cannot be changed until the Global Administrator unlocks the application. Application administration panels are displayed in browse mode. IN USE — Another administrator is currently updating application administration. Application administration panels are displayed in browse mode. Blank — Application administration is available for update.

2 On the Application List panel, type an application administration option number in the line command for the application you want to update and press Enter. The first panel for that option is displayed.

Locks on Application Administration

You cannot update application administration if the application is locked or in use.

- The Global Administrator can lock access to application administration. In this case, the following message is displayed when you select an Application Administration Option:

  CMN5175I - Application parameters globally locked for update.

  The Global Administrator must unlock the application before you can update the application definition. See "Locking or Unlocking Application Definitions" on page 86.

- Another administrator is currently updating the application definition. In this case, the following message is displayed when you select an Application Administration Option:

  CMN5176I - Application parameters currently being updated by USER238.

  When the other administrator finishes the update, the application definition becomes available for update.

  If message CMN5176I is displayed when no other administrator is updating the application, the Global Administrator must reset the "in use" indicator. See "Locking or Unlocking Application Definitions" on page 86.

How Global Settings Affect Application Settings

Application fields can only be configured within the scope of the corresponding global fields.

For example, a global administration entry of NO might restrict the corresponding application administration to NO, while a global administration entry of YES would allow an application administration entry of YES or NO. In the case of a numeric parameter, a global entry might restrict the corresponding application entry to a value less than the global entry.

There is no general rule for how global administration entries restrict application administration entries. See the field descriptions for each administration field to determine the relationship between global and application settings.

Setting Application Parameters

You set and generate your ChangeMan ZMF application parameters from the Application Parameters panels. Many of the application level parameters are a subset of global parameters, but they are tailored for the individual needs of each of the application developers. The information you enter during this process is used as a default for change package creation; and in some cases, as boundaries for the change package process. By individually defining each application, you manage the implementation process through ChangeMan ZMF.

You can think of the parameter generation as a set of rules by which the users are governed. Many of the parameters set in these panels are originally set at the global level.

Typically, these global parameters are very permissive, allowing the full spectrum of choice. The individual application level parameters can be more restrictive, tightening down on any sensitive application areas while allowing other applications more latitude.

If the parameter is governed by the Global Administrator's choices for the same parameters, a reference back to the global tables has been included.

NOTE If the Global Administrator restricts any settings at the global level, you cannot change the field definition to a less restricted setting at the application level.

1 Select Option 1 on the Application Administration Options menu (CMNLAMEN). The *appl* Parameters Part 1 of 3 panel (CMNGLP01) is displayed.

```
CMNGLP01 ------------- ACTR PARAMETERS - PART 1 OF 3 -------------------------
COMMAND ===>

APPLICATION DESCRIPTION     ===> ACCOUNTS PAYABLE
OPTIONAL SKELETON RELEASE ID     ===>                    (* for list)
NORMAL BUSINESS HOURS       FROM ===> 0001 TO ===> 0002 (HHMM)
KEEP BASELINE BY SITE            ===> NO                (Y/N)
ALLOW TEMPORARY PACKAGES         ===> YES               (Y/N)
AUDIT LEVEL                      ===> 0                 (0,1,2,3,4,5)
CHECKOUT ENFORCEMENT RULE        ===> 1                 (1,2,3)
  ENTITY CHECK IF RULE 2         ===>
DISALLOW CONCURRENT CHECKOUT     ===> NO                (Y/N)
ALLOW CHECKOUT TO PERSONAL LIB.  ===> NO                (Y/N)
STAGING RESTRICTION LEVEL        ===> 1                 (1,2,3)
  ENTITY CHECK IF LEVEL 2        ===>
OVERLAY PRIOR STAGED MODULE      ===> YES               (Y/N)
VALIDATE VERSION DURING STAGING  ===> NO                (Y/N)
PROMOTION/DEMOTION RULE          ===> 0                 (0,1,2,3,4)
CMNAUDRC ENTITY CHECK            ===>
AUDIT PACKAGE LOCK               ===> OPTIONAL (ALWAYS/NEVER/OPTIONAL)

Press ENTER to continue; Enter END command to exit.
```

The following table describes the fields on the panel and the valid information that you can enter on the panel.

Field	Description
APPLICATION DESCRIPTION	Type a 44-character description of this application.
OPTIONAL SKELETON RELEASE ID	Type the release identifier to be used at this site. If you want to select from a list of available release IDs, type ***** to display the **Release ID List**.

Field	Description
NORMAL BUSINESS HOURS	Type a **From** and **To** time in 24-hour clock format (hhmm). Normal Business Hours determine whether an unplanned package is assigned the Planned Approval List or the Unplanned Approval list when the package is created. If you create an unplanned change package during Normal Business Hours, the Planned Approval List is assigned to your package. If you create an unplanned package outside of Normal Business Hours, the Unplanned Approval List is assigned. To force all unplanned packages to use the Unplanned Approval List, set Normal Business Hours to a one minute range sometime when it is unlikely that anyone will create a change package. The settings for Normal Business Hours in Global Administration restrict the entries for these parameters in Application Administration. Normal Business hours at the application level must be the same as the global parameters or times that fall within the global time range. **Note** Normal Business Hours are compared to the time you *create* your package, not the time that your package is frozen or the time that it is scheduled for install.
KEEP BASELINE BY SITE	Type Y to allow the Development (D) or Development (DP) Production site to keep a set of Baseline libraries for each additional site that was generated within the ChangeMan ZMF system. Use if an application has multiple sites, and you want to maintain Baseline libraries at each site. With Y, you receive subsequent prompts at baseline library definition, and package build, to indicate which site is being selected. Type N if remote site Baseline libraries are not to be maintained. When you type N, the Baseline libraries are only kept at the DP or D site. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. N is the recommended option because it: ■ Prevents duplications of DASD ■ Makes the maintenance of skeletons easier ■ Keeps multiple sites synchronized **Note:** You can only select one site at package creation time and all checkouts are from the baselines associated with that site. You cannot install to two sites in the same package when you keep baselines by site. Audit only runs against the baselines/site selected at package create time and only the baseline/site libraries selected at that time are concatenated in batch jobs for that package. Use package query (Option Q.P) to see which sites were included in the package.
ALLOW TEMPORARY PACKAGES	Temporary change packages are placed into production and concatenated ahead of Production libraries. They are never rippled into baseline and are deleted from the production environment after a number of days specified at package creation. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Type Y to allow temporary change packages. Type N to prohibit temporary change packages.

Field	Description
AUDIT LEVEL	Type a one digit code to determine whether you must run package audit before freezing a package and what kinds of out-of-sync conditions are acceptable. The Audit Level does not apply to unplanned packages, which may be frozen without running package audit. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be numerically less than the global setting. 0 Audit is recommended but not required. 1 Audit is required, but any return code (except ABEND) is acceptable. This means that any out-of-sync condition is permitted. This is the default option. 2 Audit is required, and the return code cannot exceed 12. This means out-of-sync conditions between package components and baselined components are permitted, out-of-sync conditions between components in staging libraries are permitted, and package components can be exactly the same as baseline versions. 3 Audit is required, and the return code cannot exceed 8. This means out-of-sync conditions between package components and baselined components are permitted, but out-of-sync conditions between components in staging libraries are not permitted. Package components can be exactly the same as baseline versions. 4 Audit is required, and the return code cannot exceed 8. This means out-of-sync conditions between package components and baselined components are not permitted, and out-of-sync conditions between components in staging libraries are not permitted. Package components can be exactly the same as baseline versions. 5 Audit is required, and the return code cannot exceed 0. This means out-of-sync conditions between package components and baselined components are not permitted, out-of-sync conditions between components in staging libraries are not permitted, and no package components can be exactly the same as the baseline version.
CHECKOUT ENFORCEMENT RULE	Determines whether checkout must be used to bring a component into a change package when it is already in a baseline library. This setting places restrictions on the use of stage from development to populate a package. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be numerically less than the global setting. 1 Checkout is optional. All users can stage a component from development into a package, even when the component is in a baseline library. 2 Checkout is required unless the user has UPDATE access to a security entity specified in application administration. Users with UDPATE access to the security entity can use stage from development even if the component is in a baseline library. 3 Users must always check out a component if it is in a baseline library.

Field	Description
ENTITY CHECK IF LEVEL 2	Specifies the security entity for **Checkout Enforcement Rule 2**.
DISALLOW CONCURRENT CHECKOUT	Determines whether a component can be checked when it is already in another change package. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibits checkout if a component is already in another change package. N There are no restrictions on checking out a component that is already in another package. This rule does not apply to unplanned packages. You can always check out a component into an unplanned package, even if the component is in another package and the **Disallow Concurrent Checkout** indicator is set to **Y**.
ALLOW CHECKOUT TO PERSONAL LIB	Determines whether users can check out components into their personal libraries and edit them there. A copy of the component is kept in a staging library. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Y Allow checkout into personal libraries or data sets. N Prohibit checkout into personal libraries or data sets. **Caution!** Serena discourages the use of personal libraries with change packages. See "ELIMINATE SAVE TO PERSONAL LIB" on page 131.
STAGING RESTRICTION LEVEL	Determines who can use stage from development. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be numerically less than the global setting. 1 There are no restrictions on who can use stage from development. 2 Restricts stage from development to users who have been granted UPDATE access to a security entity specified in application administration. 3 Disables stage from development.
ENTITY CHECK IF 2 ABOVE	Specifies the security entity for **Staging Restriction Level 2**.
OVERLAY PRIOR STAGED MODULE	Determines whether a user can check out a component, or stage a component from development, and overlay a package component that is identified by another person's userid. The compare is between the userid of the person attempting the checkout or stage from development and the userid that is stored in the package component record. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Y Allow a user to check out a component or stage a component from development and overlay a package component identified by another userid in the package component record. N Prohibit a user from checking out a component or staging a component from development and overlaying a package component identified by another userid in the package component record, unless the component is in INACTIV status.

Field	Description
VALIDATE VERSION DURING STAGING	Determines whether a user can edit or stage a package component that was checked out from baseline or promotion if the baseline component has been changed since the checkout. This function is intended to prevent component regression, and it is the equivalent of checking for an audit SYNCH10 before allowing a user to edit or stage a package component. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit stage or discard edit-in-stage changes for package components checked out from baseline or promotion if the baseline component has changed since the checkout. N There are no restrictions on staging a component that was checked out even when the baseline component has changed since the checkout.

Field	Description
PROMOTION/ DEMOTION RULE	Determines how full and selective promote and demote work for all promotion sites and levels in the application. The setting for this parameter in Global Administration restricts Application Administration settings. An application setting cannot be numerically less than the global setting. 0 Full and selective promote and demote are allowed without freezing the package first. Full promote can skip promotion levels. Requires the following sequence to change a promoted package component: Selective unfreeze (only if the package is frozen), edit, stage (restage), selective freeze of the component (only if the package is frozen), selective promotion to any level up to the package promotion level. **Note:** Because there is no requirement to demote a component before editing it, a component in the package staging library may not be the same as the component in a promotion library. 1 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Selective demote of the component, selective unfreeze, edit, stage, audit package, selective freeze of the component, selective promotion back to the package promotion level. 2 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Selective demote of the component, selective unfreeze, edit, stage, audit package, selective freeze of the component, selective promotion through all intermediate levels to the package promotion level. 3 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Full demote of the package, selective unfreeze of the component, edit, stage, audit package, selective freeze of the component, full promotion through all promotion levels up to the original promotion level. 4 Package must be frozen for promote and demote. Full promote cannot skip promotion levels. Requires the following sequence to change a promoted package component: Full demote of the package, revert the package to development status, edit, stage, audit package, freeze package, full promotion through all intermediate levels to the package promotion level.
CMNAUDRC ENTITY CHECK	Specifies a 1 to 8 character security entity name. The default is blank. This entity determines the users that are authorized to run CMNAUDRC in jobs that are outside of ZMF control. Note that CMNAUDRC steps in jobs submitted outside of ZMF control should not have the USER= JCL parameter specified.

Field	Description
AUDIT PACKAGE LOCK	This value dictates whether a package is locked to prevent the contents from being updated while the package is being audited. A setting of ALWAYS or NEVER for this parameter in Global Administration restricts the Application Administration setting to the same value. Enter one of the following values: ALWAYS — Packages must be locked during audit. NEVER — Packages must not be locked during audit. OPTIONAL — The user running the audit job may choose whether or not packages are locked during audit.

2 After you finish entering information in the fields of the panel, press Enter. The *appl* Parameters Part 2 of 3 panel (CMNGLP02) is displayed.

```
CMNGLP02 ------------- ACTR PARAMETERS - PART 2 OF 3 -------------------------
COMMAND ===>

JOB NAME INCREMENT OVERRIDE         ===> NO       (Y/N)
USE ZPREFIX IN BATCH JOBS           ===> NO       (Y/N)
SUPPRESS MSGS IN DIS/INS/BAS JOBS   ===> YES      (Y/N)
CREATE COMPONENT WORK RECORDS       ===> YES      (Y/N)
FORCE AUDIT OF UNPLANNED PACKAGES   ===> NO       (Y/N)
ALLOW LINK PACKAGES                 ===> YES      (Y/N)
MEMO DELETE EMPTY PACKAGES ONLY     ===> YES      (Y/N)

APPROVAL RESTRICTIONS:
  PACKAGE CREATOR CANNOT APPROVE    ===> NO       (Y/N)
  PACKAGE WORKER CANNOT APPROVE     ===> NO       (Y/N)
  ONLY 1 APPROVAL PER USER ID       ===> NO       (Y/N)

INSTALL JOB SCHEDULER:          CMN ===> YES      (Y/N)
                            Manual ===> YES      (Y/N)
                             Other ===> NO       (Y/N)
DEFAULT JOB SCHEDULER               ===> CMN      (CMN, Manual, Other)
USE APPL IN CURRENT HISTORY         ===> NO       (Y/N)

Press ENTER to continue; Enter B to go back 1 screen, or CANCEL to exit.
```

The following table describes the fields on the *appl* Parameters Part 2 of 3 panel (CMNGLP02) and the valid information that you can enter on the panel:

Field	Description
JOB NAME INCREMENT OVERRIDE	Determines whether the job name suffix for staging jobs is incremented to allow multiple jobs to run at the same time. This parameter does not effect job name increment for mass stage jobs initiated from the Stage: Mass Build panel (CMNSTG05). The job name in the Job Statement Information field must consist of the submitter's TSO userid followed by a one character alpha suffix, A-Z. Job name suffixes 0-9, @, #, and $ are not incremented. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y — Do not increment the job name suffix. Force jobs to single thread. N — Increment job name suffix, allowing multiple jobs to run simultaneously.

Field	Description
USE ZPREFIX IN BATCH JOBS	Determines if ChangeMan ZMF uses the userid to construct a TSO profile to identify the variable pools when a TSO session is opened for batch API processing. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Use &ZPREFIX instead of &ZUSER in the PROFILE PREFIX command in batch TSO sessions for batch API functions. N Use &ZUSER in the PROFILE PREFIX command in batch TSO sessions for batch API functions.
SUPPRESS MSGS IN DIS/INS/BAS JOBS	ChangeMan ZMF jobs that perform distribution, installation, baseline ripple, and back-out functions issue TSO SEND messages to inform you of success or failure. If you are distributing, installing, baselining, or backing out a large number of packages concurrently, the large number of TSO SEND messages can degrade system performance. This option enables you to suppress these TSO SEND messages only if a job is successful. If a job fails, you will always receive the TSO notification. Y Suppress status notification messages for success. N Allows all status notification messages. The value you specify for this option is meaningless if the global administrator has set the value for this option to Y. See the Global Parameters - Part 5 of 7 panel (CMNGGP05) in "Setting up Global Parameters" on page 51.
CREATE COMPONENT WORK RECORDS	Enables the Component Work Record facility, which keeps a record of each userid that acted on a component in a change package. Actions which are recorded include checkout, stage, edit in stage, recompile, relink, and delete. Component work records can be accessed from the Stage: *package* Components panel, and they can be used to restrict who can approve a package. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Enable the Component Work Record facility. N Do not create component work records.
FORCE AUDIT OF UNPLANNED PACKAGES	Determines whether audit is required for unplanned packages when the application audit level is greater than 0. If an unplanned package fails audit, users can still freeze, approve, and install the package. This option ensures that users know about potential out-of-sync problems before you install an unplanned package. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Audit is required for unplanned packages when the application audit level is greater than 0, although unplanned packages can still be frozen, approved, and installed if they fail audit. N Audit is never required for unplanned packages.

Field	Description
ALLOW LINK PACKAGES	Determines whether change packages can be linked to other ChangeMan ZMF packages or packages on other platforms using Serena® ChangeMan® ECP. Access to package delete, freeze, approval, and revert through the ISPF interface are restricted for linked packages. A setting of N for this parameter in Global Administration restricts Application Administration settings to N. Y Allow packages linked packages.ChangeMan ECP N Prohibit package linking.
MEMO DELETE EMPTY PACKAGES ONLY	Determines whether change packages that contain components or utility requests (scratch or rename) can be memo deleted. There are two disadvantages to memo deleting packages that contain components: ■ If the package is mistakenly memo deleted, work on the components is lost. ■ Component history makes no distinction between components that were in packages that were installed and aged/deleted, and components that were in packages that were memo deleted and never installed. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit memo delete if a package contains components or utility requests. N Permit packages with components or utility requests to be memo deleted.
APPROVAL RESTRICTIONS	The next three fields on this panel limit approval authority for planned packages, even though a user may be otherwise authorized to approve a package. Approval restrictions controlled by these parameters do not apply to unplanned packages.
PACKAGE CREATOR CANNOT APPROVE	Determines whether the creator of a planned package may approve that package, if they are otherwise authorized. This parameter does not apply to unplanned packages. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit the package creator from approving a planned package. N Allow package creator to approve a planned package if they are otherwise authorized.
PACKAGE WORKER CANNOT APPROVE	Determines whether someone who has worked on a component in a planned package can approve that package, if they are otherwise authorized. This parameter does not apply to unplanned packages. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit anyone who has worked on a component in a planned package from approving the package. N Allow someone who has worked on a component in a planned package to approve the package if they are otherwise authorized.

Field	Description
ONLY 1 APPROVAL PER USER ID	Determines whether an approver can enter more than one approval for a planned package, even if they are otherwise authorized. This parameter does not apply to unplanned packages. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Prohibit an approver from entering more than one approval for a planned package N Allow an approver to enter more than one approval for a planned package if they are otherwise authorized.
INSTALL JOB SCHEDULER	Specify which scheduling systems can be entered when a package is created or updated. The scheduling system controls the submission of package installation jobs. Only schedulers allowed in global administration can be allowed in application administration. CMN Specify whether (Y) or not (N) the ChangeMan ZMF internal scheduler can be enabled in. Manual Specify whether (Y) or not (N) the manual control of the submission of installation jobs can be enabled. Other Specify whether (Y) or not (N) scheduling software such as CA-7, CA-Scheduler, or CA-ADC2 can be enabled.
DEFAULT JOB SCHEDULER	Specify the default scheduling system for the create package function. This initial value can be changed in the create package or update package functions. CMN The ChangeMan ZMF started task will schedule the submission of the package installation jobs. MANUAL The is installation process will begin as soon as the package is approved. MANUAL allows you to install a package before its scheduled install date. OTHER ChangeMan ZMF will perform a batch interface to add the package install job information to the scheduler's internal database.
USE APPL IN CURRENT HISTORY	Determines whether only components within the application will be considered during searches for current history information. Y Only components within the application will be considered N All applications will be considered.

3 After you finish entering information in the fields of the panel, press Enter. The *appl* Parameters Part 3 of 3 panel (CMNGLP03) is displayed.

```
CMNGLP03 ------------- ACTR PARAMETERS - PART 3 OF 3 -------------------------
COMMAND ===>

AGING - INSTALLED PACKAGES       ===> 1        (0 to 9999 days)
      - STAGING DATASETS         ===> 1        (0 to 9999 days)
      - COMPONENT HISTORY        ===> 3650     (0 to 9999 days)
DEFAULT UNIT NAME                ===> SYSDA    (Generic disk unit)
DEFAULT VOLUME SERIAL            ===>
REQUIRE WORK REQUEST NUMBER      ===> NO       (Y/N; affects INFO)
REQUIRE DEPARTMENT NUMBER        ===> NO       (Y/N)
HIERARCHICAL APPROVAL PROCESS    ===> YES      (Y/N)
ELIMINATE SAVE TO PERSONAL LIB   ===> NO       (Y/N)
EDIT STAGING RECOVERY MODE ON    ===> YES      (Y/N)
BUILD INSTALL JCL AT APPROVE     ===> YES      (Y/N)
USE LIKE-LOD IN SYSLIB           ===> YES      (Y/N)
JOB CARD INFORMATION:
===> //SERT3    JOB (X170,374),CMNT,_____________________________________________
===> //             CLASS=A,MSGCLASS=X_____________________________________________
===> //* =A.A.1 CMNGLP03_____________________________________________________________
===> //*_____________________________________________________________________________

Press ENTER to generate application parameters.
Enter B to go back 1 screen or CANCEL to exit.
```

The following table describes the fields of the Application Parameters Part 3 of 3 panel (CMNGLP03) and the information that you can enter on the panel.

Field	Description
AGING - INSTALLED PACKAGES	Type the number of calendar days after a package is installed (status BAS, INS, or TCC) that package records must be retained on the package master. After the specified number of days, package records may be archived or deleted by housekeeping. The setting for this parameter in global administration restricts the setting in application administration. The application setting cannot be less than the global setting. A value of zero (0) days turns off the package aging function, and package records are never archived or deleted. **Note:** The days you specify for Aging - Installed Packages must be equal to greater than the days you specify for Aging - Staging Datasets. Staging data sets cannot be deleted if the package records have been archived or deleted.
AGING - STAGING DATASETS	Type the number of calendar days after a package is installed (status BAS, INS, or TCC) that staging libraries must be retained. After the specified number of days, staging libraries may be deleted by housekeeping. The setting for this parameter in global administration restricts the setting in application administration. The application setting cannot be less than the global setting. A value of zero (0) days turns off the staging library aging function, and staging libraries are never deleted by housekeeping. **Note:** The days you specify for Aging - Staging Datasets must be equal to or less than the days you specify for Aging - Installed Packages. Staging data sets cannot be deleted if the package records have been archived or deleted.

Field	Description
AGING - COMPONENT HISTORY	Type the number of calendar days after a package is installed (status BAS, INS, or TCC) that component history for that package must be retained on the component master. After the specified number of days, component history records may be archived or deleted by housekeeping. The setting for this parameter in global administration restricts the setting in application administration. The application setting cannot be less than the global setting. A value of zero (0) days turns off the component history aging function, and component records are never archived or deleted. Regardless of the value specified, the most recent history record for a baselined component in a library type in an application is preserved in component history to provide information for future build activity and for audit auto resolve. **Note:** The value for **AGING - COMPONENT HISTORY** should be equal to or greater than the value for **AGING - INSTALLED PACKAGES**. Even if you specify an aging value for component history that is less than the aging value for installed packages, component history is not deleted or archived until package records are deleted or archived and the associated component history records are flagged with delete/archive status.
DEFAULT UNIT NAME	Type the generic unit name for DASD to be used for dynamic allocations for this ChangeMan ZMF instance. This field may be left blank if **Default Volume Serial** is used. The **Default Unit Name** in Global Administration sets the **Default Unit Name** used when you create an application, but it can be changed at the application level.
DEFAULT VOLUME SERIAL	Type the DASD volume serial number to be used for dynamic allocations for this ChangeMan ZMF instance. This field may be left blank if **Default Unit Name** is used. The **Default Volume Serial** in Global Administration sets the **Default Volume Serial** used when you create an application, but it can be changed at the application level.
REQUIRE WORK REQUEST NUMBER	Determines whether data must be entered in the Work Request ID field in create package and update package processing. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Require data in the Work Request ID field. N Allow blank Work Request ID field.
REQUIRE DEPARTMENT NUMBER	Determines whether data must be entered in the Department field in create package and update package processing. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Require data in the Department field. N Allow blank Department field.

Field	Description
HIERARCHICAL APPROVAL PROCESS	Determines whether the approval sequence is enforced that is specified in the Order Number field of Planned Approvals and Unplanned Approvals definitions in application administration. (The Order Number on approval list definition panel appears in the Seq field on the Approval List panel.) When the hierarchical approval sequence is enforced, notification for an approval is held until the approval is actually pending. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Enforce the hierarchical structure of approvals defined in the Order Number field on approval list definition panels and displayed in the Seq field on the Approval List panel. N Permit approvals to be entered in any order. Notification for all approvals are sent at package freeze.
ELIMINATE SAVE TO PERSONAL LIB	Determines whether the connection is maintained between members in package staging libraries and: ■ Members checked out to personal libraries ■ Members in development libraries that were staged into the package with stage from development. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. **Note:** If you edit outside of ChangeMan ZMF, your changes are not saved to package staging libraries. Y If a member is *staged from development*, then edited in the package, do not save the edit changes into the member in the development library. If a member is *checked out* to a personal library, then edited in the package, save the changes from the first edit into the member in the personal library and into the member in the staging library, but do not save changes for any subsequent edits into the member in the personal library. N If a member is *staged from development*, then edited in the package, save the changes into the member in the development library and into the member in the package staging library. If a member is *checked out* to a personal library, then edited in the package, save the changes into the member in the personal library and into the member in the package staging library. **Note:** If users edit components *checked out* to a personal library *outside* of ChangeMan ZMF, their changes are never automatically saved to package staging libraries. If you want users to be able to edit in a personal library, then set **Allow Checkout to Personal Lib.** to **Y**, and set **Eliminate Save to Personal Lib** to **N**. Users check out a component to their personal library, then make changes to the member in their personal library. When they want to save the changes into the package staging library so the changes can be promoted, audited, and installed with the package, they use the **ST** or **SB** command on the **Stage: *package* Components** panel to stage the member into the staging library. **Caution!** If a user edits a package component directly in a personal library, their changes will not be promoted, audited, or installed if they forget to stage the member in the package. For this reason, Serena discourages the use of personal libraries with change packages.

Field	Description
EDIT STAGING RECOVERY MODE ON	Determines whether the ChangeMan ZMF edit recovery feature is enabled or disabled. See topic "Automatic Recovery" in the *Serena ChangeMan ZFM User Guide*, Chapter 2, "Using the ISPF Interface". Y Enable the ChangeMan ZMF edit recovery facility. N Disable the ChangeMan ZMF edit recovery facility.
BUILD INSTALL JCL AT APPROVE	Determines whether install JCL is automatically built when a package is frozen or when the last approval for a package is entered. A setting of Y for this parameter in Global Administration restricts Application Administration settings to Y. Y Build install JCL when the last approval is entered for a change package. N Build install JCL when a change package is frozen. An internal package indicator controls whether install JCL is built for a frozen package when you change the **Build Install JCL at Approve** parameter. If install JCL was built when a package was frozen, and you change the **Build Install JCL at Approve** from **N** to **Y**, the install JCL is not rebuilt at final approval if there was no promotion activity after freeze. If install JCL was not built when a package was frozen, and you change the **Build Install JCL at Approve** from **Y** to **N**, the JCL is built at final approval, regardless of whether there was promotion activity after freeze. Package List option **F5 Re-submit** (Freeze option **5 Build**) or Package List option **A5 Re-submit** will both build package install JCL regardless of the setting of the **Build Install JCL at Approve** parameter.
USE LIKE-LOD IN SYSLIB	Determines whether like-load libraries are included in SYSLIB concatenations for link edit (Binder) along with like-object and like-NCAL libraries. A setting of N for this parameter in Global Administration restricts Application Administration settings to N.
JOB CARD INFORMATION	The job statement information on this panel is copied from global parameters, and it is used as the model for installation jobs such as baseline ripple that run in the development environment. You may change this job statement information, but note the following: ■ The job name is replaced in file tailoring by a job name that reflects package number and installation transaction number. ■ You type a REGION parameter in Job Card Information, use a region not less than 6M. The installation jobs that use this job card information execute program CMNDSPTM, which requires a region of at least 6M. Job steps for program CMNDSPTM include a REGION=6M parameter, but a smaller region size specified on the job card overrides the step parameter and may result in an S878 abend.

4 Press Enter to save and generate the application parameters. You are returned to either the Application Administration Options panel (CMNLAMEN) or the Application List panel (CMNPLST2), wherever you started.

If you updated any field on any of the three *appl* Parameters panels, the short ISPF message "Parameters Generated" message is displayed.

If you did not change any fields on these panels, the short ISPF message "Browse Only" is displayed.

Defining Library Types And Staging Library Attributes

A library type definition sets processing rules for the components stored under that library type. The definition also sets the data set attributes for the package stage library that is allocated for the library type. The Application Administrator defines the library types in each application.

Application library types are copied from global library type definitions. Only library types defined in global administration can be defined in an application. However, an application does not have to contain all of the library types defined in global administration, and application library types copied from global administration can be modified.

Defining Library Types for a New Application

Perform these steps to define the library types for a new application.

1 On the Application Administration Options panel, type 2 on the Option line and press Enter. The Application Library Types Part 1 of 2 panel is displayed.

```
CMNCLLT0 ------------ ACTP - LIBRARY TYPES PART 1 OF 2 ----- Row 1 to 11 of 11
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for global staging libraries selection list.

     LIB                                                LKE SEQ  DFR  TARGET SEL.
     TYPE DESCRIPTION                                          (Y/N)  TYPE  OPT.
'''' CPY  Copybooks_____________________________________ C  001   Y    ___   __
'''' DOC  Documentation_________________________________ P  ___   Y    ___   __
'''' CTL  Job Control Statements________________________ P  ___   Y    ___   __
'''' JCL  Execution JCL_________________________________ P  ___   Y    ___   __
'''' LCT  Link Edit Control Statements__________________ P  ___   Y    ___   __
'''' LOD  Executable Load Modules_______________________ L  002   Y    ___   __
'''' LOS  Load for Subprograms to be Statically Linked N  001   Y    ___   __
'''' LST  Compressed Stage Listings_____________________ P  ___   Y    ___   __
'''' PRC  Cataloged Procedures__________________________ P  ___   Y    ___   __
'''' SRC  Source for programs to be Linked Executable_ S  002   Y    LOD   __
'''' SRS  Source for Subpgms to be Statically Linked__ S  001   Y    LOS   __
****************************** Bottom of data ********************************
```

The following table describes the fields on the Application Library Types Part 1 of 2 panel.

Field	Description
Line Command	Type a line command to the left of a panel row. S Select to see the next panel for this library type. I Insert a blank library type row. R Repeat an existing library type row. D Delete an existing library type row. * Display a selection list of available library types.

Field	Description
LIB TYPE	Type a three character library type. The following library types are reserved. These types have built-in attributes, and they are used in particular internal processes. Like-types are defined in the LKE field description later in this table. CPY Copybooks - Requires like-copy, DCB must be RECFM=F/FB, LRECL=80 CTC Control Statements - Requires Like-PDS. DCB must be RECFM=F/FB, LRECL=80. DOC Documentation - Requires Like-PDS. DCB must be RECFM=F/FB/V/VB. JCL JCL - Requires Like-PDS, although libraries with this type are included in Impact Analysis JCL relationships. DCB must be RECFM=F/FB, LRECL=80. LCT Link Edit Control Statements - Requires Like-PDS. DCB must be RECFM=F/FB, LRECL=80. LOD Load Modules - Requires like-load. DCB must be RECFM=U. LST Compressed Stage Listings - Requires Like-PDS. Cannot be explicitly staged. DCB must be RECFM=F/FB, LRECL=80. PRC Cataloged JCL Procedures - Default to Like-PDS, although libraries with this type are included in Impact Analysis JCL relationships. DCB must be RECFM=F/FB, LRECL=80 SRC Source code - Requires like-source. DCB must be RECFM=F/FB, LRECL=80
DESCRIPTION	Type freeform text describing the library type.

Field	Description
LKE	Type a one-character LIKE code to define behaviors and characteristics of a library type. S Like-Source – Components in like-source library types are staged through a batch job defined by a Language and Procedure assigned to the component to create a component in a like-load library type. Every like-source library type must have a TARGET TYPE in its Library Type Definition. There is a source-load relationship between every like-source component and a like-load component. Members in like-source libraries are analyzed for Impact Analysis copybook relationships. C Like-Copy – Components in like-copy library types are not processed through a procedure by stage. Like-copy libraries are included in SYSLIB concatenations for copybook libraries. L Like-Load – Components in like-load libraries are assumed to be the product of a stage procedure performed on a like-source component. Like-load libraries are included in SYSLIB concatenations for load libraries. N Like-NCAL – NCAL load subroutines. Once staged they are concatenated in the SYSLIB for links within the same package (if the library type is present in the package). O Like-Object – Object code subroutines. Once staged they are concatenated in the SYSLIB for links within the same package (if the library type is present in the package). P Like-PDS - Components in Like-PDS library types are not processed through a procedure by stage. Like-PDS libraries are not included in SYSLIB concatenations for copybook or load libraries. Members in Like-PDS libraries are not analyzed for Impact Analysis relationships. Blank Like-Other – If you leave the LIKE field blank in a Library Type Definition, the type is referred to as "like-other". Components in like-other library types are staged through a batch job created from an ISPF skeleton named CMN$$xxx where xxx is the like-other library type. You must code like-other skeletons from a model named CMN$$OTH delivered from Serena. You must also customize skeleton CMN$$CKO to check out components in a like-other library type. Search CMN$$CKO for "OTHER" to see instructions in the skeleton comments. **Note:** Like-other libraries are not analyzed for Impact Analysis relationships. Like-other components are not analyzed by Audit.

Field	Description
SEQ	Type a numeric value from 001 to 255 or leave blank for like-copy-like-source, like-object, like-NCAL, and like-load library types. Sequence number influences two functions: ■ In build processing, sequence numbers that are assigned to like-copy library types determine the order compile SYSLIB library concatenations, and sequence numbers that are assigned to like-object, like-NCAL, and like-load library types determine the order link edit SYSLIB library concatenations. ■ In audit auto-resolve, sequence numbers that are assigned to like-source library types determine the order that stage and recompile jobs are submitted for file-tailoring, and sequence numbers that are assigned to like-load library types determine the order that relink jobs are submitted for file-tailoring. Sequence number can have a numeric value from 001 to 255 or blank, and there is no edit for unique values. Blank sequence numbers sort ahead of numeric values. When sequence numbers are blank, or when the same sequence number is assigned to library types with same like-type, the SYSLIB or audit auto resolve order is determined by how the library types are stored on the package master, which cannot be controlled by the administrator.
DFR (Y/N)	Y Defer allocation of the staging library for this types until the fist component of the type is staged or checked out. N Allocate the stage library for this type when the change package is created, even though there may never be any members of this library type in the package.
TARGET TYPE	Type a like-load, like-object, or like-NCAL target library type for each like-source library type.
SEL. OPT.	Use this field to associate a library type with a ChangeMan ZMF selectable option that you have licensed. The behavior of the library type may require further definition in administration panels or ISPF skeletons. D DB2 Option I IMS Option

2 When the Application Library Types Part 1 of 2 panel is first displayed for a new application, all of the library types defined on the Global Library Types Part 1 of 2 panel display. The definitions displayed on this panel are the same as those in global administration.

3 If a library type is not needed for this application, type D (Delete) in the line command for the library type on the Application Library Types Part 1 of 2 panel and press Enter. The library type is deleted.

4 To add a library type to the Application Library Types Part 1 of 2 panel that you previously deleted:

a Type I (Insert) in the line command above where you want to insert the library type and press Enter. An empty library type entry is inserted on the panel.

b Type * in the line command for the empty library type definition and press Enter. The Global Library Type Selection List panel is displayed.

```
CMNGLTPL ------------ GLOBAL LIBRARY TYPE SELECTION LIST -- Row 1 to 20 of 34
COMMAND ===>                                                 SCROLL ===> HALF

  LIB  DESCRIPTION
_ $CO  Copybooks from Common - HIDDEN LIBRARY
_ $LO  Load for Common Subroutines - HIDDEN LIBRARY
_ COM  Copybooks from Common
_ CPY  Copybooks
_ CTL  Program Control Statements
_ DBB  DB2 BIND PLAN statements
_ DBR  DB2 DBRM
_ DOC  Documentation
_ D2B  DB2 BIND PLAN statements
_ D2P  DB2 BIND PACKAGE ststements
_ D2R  DB2 DBRM
_ HTH  HFS-resident HTML
_ JAR  JAR Files
_ JCL  Execution JCL
_ JCT  JAVA JAR Build Control
_ JC1  Java Class Files
_ JV1  JAVA Source
_ LCT  Link Edit Control Statements
_ LOD  Executable Load Modules
_ LOS  Load for Subprograms to be Linked NCAL
```

c On the Global Library Type Selection List panel, type S in the line command for any global library type that you want to add at the insert point on the Application Library Type Part 1 of 2 panel. You may select multiple library types, but you can not scroll down to select global library types from multiple pages of the Global Library Type Selection List at one time.

d Press Enter to return to the Application Library Type Part 1 of 2 panel, where the new library types have been added at the insertion point.

5 There is a second panel for each library type that defines additional processing rules and the staging library attributes for a library type. Type S in the line command for a

library type and press Enter. The Application Library Types Part 2 of 2 panel is displayed.

```
CMNCLLT1 ------------ ACTR - LIBRARY TYPES PART 2 OF 2 -----------------------
COMMAND ===>

LIBRARY TYPE: CPY - Copybooks
LIKE VALUE:   C     DEFER VALUE:   Y

STAGING DATASET ATTRIBUTES:
  GENERIC UNIT NAME  ===> SYSDA    (Generic group name or unit)
  VOLUME SERIAL      ===>          (Required if GENERIC UNIT unspecified)
  SPACE UNITS        ===> TRK      (TRK, CYL or BLK)
  PRIMARY QUANTITY   ===> 1        (In above units)
  SECONDARY QUANTITY ===> 10       (In above units)
  DIRECTORY BLOCKS   ===> 10
  RECORD FORMAT      ===> FB
  RECORD LENGTH      ===> 80
  BLOCK SIZE         ===> 0
  DATA SET TYPE      ===> PDS      (LIBRARY, PDS, HFS or blank)
OTHER OPTIONS: CHECKOUT COMPONENT DESCRIPTION    ===> NO  (Y/N)
               CHECKOUT COMPONENT ACTIVITY FILE  ===> NO  (Y/N)
               COMPONENT ACTIVITY FILE TYPE      ===>
               SAVE STAGING VERSIONS             ===> PROMPT ALWAYS/NONE/PROMPT

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on the *Application Library Type Part 2 of 2* panel.

Field	Description
GENERIC UNIT NAME	Type the DASD generic group or unit device name to be used for allocating staging libraries for this library type. This field may be left blank if the VOLUME SERIAL field is used.
VOLUME SERIAL	Type the DASD volume serial number where stage libraries are to be allocated for this library type. This field may be left blank if the GENERIC UNIT NAME field is used.
SPACE UNITS	Type the units to be used for the primary and secondary space allocations for staging libraries for this library type. TRK Allocate space in tracks. CYL Allocate space in cylinders. BLK Allocate space in blocks.
PRIMARY QUANTITY SECONDARY QUANTITY DIRECTORY BLOCKS	Type the primary space, secondary space, and directory block allocation to be used for the staging libraries for this library type. Use MINIMUM space allocations, especially the PRIMARY QUANTITY. ChangeMan ZMF dynamically reallocates stage libraries if extents or directory blocks are exhausted as the change package grows. Unused space in PDS stage libraries is freed when the change package is frozen. ChangeMan ZMF does not automatically compress stage libraries, but you can compress stage libraries for a package with the ZP Package List command.

Field	Description
RECORD FORMAT	Type the staging library record format for this library type. Valid values include: F, FA, FB, FBA, FBM, FM, FS, V, VA, VB, VBA, VBM, VM, U Legend: F - Fixed length records V - Variable length records U **-** Undefined format records B - Blocked records S - Standard blocks A - ASA printer control characters M - Machine code printer control characters
RECORD LENGTH	Type the logical record length for components in this library type.
BLOCK SIZE	Type the staging library block size for this library type. Type 0 to let SMS calculate the best block size for the storage device.
DATASET TYPE	Leave blank for PDS staging library, or type one of the following: LIBRARY PDSE library HFS HFS directory PDSE PDS library
CHECKOUT COMPONENT DESCRIPTION	Y Copy the Component General Description from the component master to package component records when a component is checked out. Allow developers to create or update a Component General Description through a change package. N Do not copy the Component General Description from the package master to package component records when a component is checked out, preventing developers from creating or updating a Component General Description in a change package. The Component General Description can always be created or updated through Application Administration.
CHECKOUT COMPONENT ACTIVITY FILE	Y Automatically check out a second component with the same name in a second library type when you check out a component in this library type. The second library type specified below in the COMPONENT ACTIVITY FILE TYPE field. The second library type is called a "Component Activity File" here, but it can be any like-PDS library type defined to this application. If you check out a component to a personal library, the Activity File is checked out to the staging library. If there is no Activity File member with the same name in baseline, you must create one (stage from development) in your package. If there is no matching Activity File member, Audit flags a SYNCH6! N Check out components in this type without checking out a second component with the same name in another library type.
COMPONENT ACTIVITY FILE TYPE	Type the library type of the Component Activity File. This field is only required if Y is specified in the CHECKOUT COMPONENT ACTIVITY FILE field.

Field	Description
SAVE STAGING VERSIONS	Determines whether a component in a staging library is saved before it is overlaid by a new version from edit-in-stage, checkout, or stage from development. ALWAYS — The previous version is always saved in a staging version before overlay. NONE — The previous version is never saved before overlay. PROMPT — The developer may choose not to save a staging version if the following are true: The developer is replacing or overlaying the component in the staging library, not deleting it. The ID on the component in the staging library is the same as the developer's TSO userid.

When this panel is first displayed for a library type in a new application, the fields on the panel are the same as the fields on the Global Library Types Part 2 of 2 panel for the library type.

NOTE You may adjust the values displayed on the Application Library Types Part 2 of 2 to fit the needs of the application you are defining. Library type standardization does not need to include the attributes and rules displayed on this panel.

6 When you finish updating fields on the Application Library Type Part 2 of 2 panel, press Enter to return to the Application Library Types 1 of 2 panel.

7 When you finish creating library type definitions on the Application Library Types Part 1 of 2 panel, press PF3 or type End and press Enter to store the application library type definitions in the package master file.

Updating Application Library Types

Perform these steps to update application library type definitions.

1 On the Application Administration Options panel, type 2 on the Option line and press Enter. The Application Library Types Part 1 of 2 panel is displayed.

```
CMNCLLT0 ------------ ACTP - LIBRARY TYPES PART 1 OF 2 ----- Row 1 to 11 of 11
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for global staging libraries selection list.

     LIB                                                LKE SEQ  DFR  TARGET SEL.
     TYPE DESCRIPTION                                          (Y/N)  TYPE  OPT.
'''' CPY  Copybooks_____________________________________ C  001   Y    ____   __
'''' DOC  Documentation_________________________________ P  ____  Y    ____   __
'''' CTL  Job Control Statements________________________ P  ____  Y    ____   __
'''' JCL  Execution JCL_________________________________ P  ____  Y    ____   __
'''' LCT  Link Edit Control Statements__________________ P  ____  Y    ____   __
'''' LOD  Executable Load Modules_______________________ L  002   Y    ____   __
'''' LOS  Load for Subprograms to be Statically Linked N  001   Y    ____   __
'''' LST  Compressed Stage Listings_____________________ P  ____  Y    ____   __
'''' PRC  Cataloged Procedures__________________________ P  ____  Y    ____   __
'''' SRC  Source for programs to be Linked Executable_ S  002   Y    LOD    __
'''' SRS  Source for Subpgms to be Statically Linked__ S  001   Y    LOS    __
```

See the table that starts on page 133 that describes fields on this panel.

2 To delete a library type from the Application Library Types Part 1 of 2 panel, type D (Delete) in the line command for the library type and press Enter.

3 To add a library type to the Application Library Types Part 1 of 2 panel:

a Type I (Insert) in the line command above where you want to insert the library type and press Enter. An empty library type entry is inserted on the panel.

b Type * in the line command for the empty library type definition and press Enter. The Global Library Type Selection List panel is displayed.

```
CMNGLTPL ------------- GLOBAL LIBRARY TYPE SELECTION LIST -- Row 1 to 20 of 34
COMMAND ===>                                                 SCROLL ===> HALF

  LIB  DESCRIPTION
_ $CO  Copybooks from Common - HIDDEN LIBRARY
_ $LO  Load for Common Subroutines - HIDDEN LIBRARY
_ COM  Copybooks from Common
_ CPY  Copybooks
_ CTL  Program Control Statements
_ DBB  DB2 BIND PLAN statements
_ DBR  DB2 DBRM
_ DOC  Documentation
_ D2B  DB2 BIND PLAN statements
_ D2P  DB2 BIND PACKAGE ststements
_ D2R  DB2 DBRM
_ HTH  HFS-resident HTML
_ JAR  JAR Files
_ JCL  Execution JCL
_ JCT  JAVA JAR Build Control
_ JC1  Java Class Files
_ JV1  JAVA Source
_ LCT  Link Edit Control Statements
_ LOD  Executable Load Modules
_ LOS  Load for Subprograms to be Linked NCAL
```

c On the Global Library Type Selection List panel, type S in the line command for any global library type that you want to add at the insert point on the Application Library Type Part 1 of 2 panel. You may select multiple library types, but you can not scroll down to select global library types from multiple pages of the Global Library Type Selection List at one time.

d Press Enter to return to the Application Library Type Part 1 of 2 panel, where the new library types have been added at the insertion point.

4 To update additional processing rules or the staging library attributes for a library type, type S in the line command for the library type on the Application Library Types Part 1 of 2 panel. The Application Library Types Part 2 of 2 panel is displayed.

```
CMNCLLT1 ------------ ACTR - LIBRARY TYPES PART 2 OF 2 -----------------------
COMMAND ===>

LIBRARY TYPE: CPY - Copybooks
LIKE VALUE:   C     DEFER VALUE:   Y

STAGING DATASET ATTRIBUTES:
  GENERIC UNIT NAME  ===> SYSDA    (Generic group name or unit)
  VOLUME SERIAL      ===>          (Required if GENERIC UNIT unspecified)
  SPACE UNITS        ===> TRK      (TRK, CYL or BLK)
  PRIMARY QUANTITY   ===> 1        (In above units)
  SECONDARY QUANTITY ===> 10       (In above units)
  DIRECTORY BLOCKS   ===> 10
  RECORD FORMAT      ===> FB
  RECORD LENGTH      ===> 80
  BLOCK SIZE         ===> 0
  DATA SET TYPE      ===> PDS      (LIBRARY, PDS, HFS or blank)
OTHER OPTIONS: CHECKOUT COMPONENT DESCRIPTION    ===> NO  (Y/N)
               CHECKOUT COMPONENT ACTIVITY FILE  ===> NO  (Y/N)
               COMPONENT ACTIVITY FILE TYPE      ===>
               SAVE STAGING VERSIONS             ===> PROMPT ALWAYS/NONE/PROMPT

Press ENTER to process; Enter END command to exit.
```

See the table that starts on page 138 that describes fields on this panel.

NOTE You can adjust the values displayed on the Application Library Types Part 2 of 2 to fit the needs of the application you are defining. Library type standardization does not need to include the attributes displayed on this panel.

5 When you finish updating library type definition fields on the Application Library Type Part 2 of 2 panel, press Enter to return to the Application Library Types 1 of 2 panel.

On the Application Library Type Part 1 of 2 panel, press PF3 or type End and press Enter to store the application library type definitions in the ChangeMan ZMF package master file.

Defining Language Names

Build processing for a like-source component is determined by the language name and compile procedure that are assigned to the component. Language names are defined in an application, and the pairs of language name and compile procedure that are defined in the application are verified against application language names.

Only language names defined in global administration can be defined in an application. However, an application does not have to contain all of the language names defined in global administration.

When you create a new application, the initial list of language names depends on how you create the application:

- If you create a new application without copying an existing application, all global language names are copied into the application.

- If you create a new application by copying an existing application, the language names for the new application are copied from the existing application.

Follow this procedure to update the application language names.

1 On the Application Administration Options panel, type 3 on the Option line and press Enter. The *application* - Language Names panel is displayed.

```
CMNCLLNG ----------------- ACTR - LANGUAGE NAMES ------------ Row 1 to 6 of 6
COMMAND ===>                                                 SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for global list.

     LANGUAGE
'''' ASM_____
'''' COBOL___
'''' COBOL2__
'''' PLI_____
'''' SQL_____
****************************** Bottom of data ********************************
```

2 To delete a language name from the *application* - Language Names panel, type D (Delete) in the line command for the language name and press Enter.

3 To add a language name to the *application* - Language Names panel:

a Type I (Insert) in the line command above where you want to insert the language name and press Enter. An empty language name entry is inserted on the panel.

b Type * in the line command for the empty entry and press Enter. The Language Selection List panel is displayed.

```
CMNLNGSL ------------------ LANGUAGE SELECTION LIST -------- Row 1 to 10 of 10
COMMAND ===>                                                 SCROLL ===> HALF

  LANGUAGE
_ ASM
_ HASM
_ COBOL
_ COBOLE
_ COBOL2
_ JAVA
_ PLI
_ SQL
_ PLIE
_ SASC
****************************** Bottom of data ********************************
```

c On the Language Selection List panel, type S in the line command for any global language name that you want to add to the application. You may select multiple language names, but you can not scroll down to select global language names from multiple pages of the Language Selection List at one time.

d Press Enter to return to the *application* - Language Names panel, where the new language name or names are added at the insertion point.

4 Press PF3 to exit the *application* - Language Names panel and define the language names to the application.

Defining Compile Procedures

Build processing for a like-source component is determined by the language name and compile procedure that are assigned to the component. Each compile procedure is paired with one or more language names to create the list of compile procedure that can be assigned to components.

Only compile procedures defined in global administration can be defined in an application. However, an application does not have to contain all of the compile procedures defined in global administration.

When you create a new application, the initial list of compile procedures depends on how you create the application:

- If you create a new application without copying an existing application, all global compile procedures are copied into the application.
- If you create a new application by copying an existing application, the compile procedures for the new application are copied from the existing application.

Follow this procedure to update the application compile procedures.

1 On the Application Administration Options panel, type 4 on the Option line and press Enter. The *application* - Compile Procedures panel is displayed.

```
CMNCLPRC --------------- ACTR - COMPILE PROCEDURES ----------- Row 1 to 6 of 6
COMMAND ===>                                                  SCROLL ===> PAGE

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for global compile procedure list.

     LANGUAGE  PROCEDURE  DESCRIPTION
'''' ASM_____  CMNASM__   Assemble and link assembler source__________
'''' ASM_____  CMNMAPGN   Assemble and link CICS BMS map source________
'''' COBOL___  CMNCOBOL   Compile and link COBOL source_______________
'''' COBOL2__  CMNCOB2_   Compile and link COBOL2 source______________
'''' PLI_____  CMNPLI__   Compile and link PL/I source________________
'''' SQL_____  CMNSQL__   Translate/compile/link SQL stored procedures
****************************** Bottom of data ********************************
```

2 To delete a compile procedure from the *application* - Compile Procedures panel, type D (Delete) in the line command for the compile procedure and press Enter.

3 To add a compile procedure to the *application* - Compile Procedures panel:

a Type I (Insert) in the line command above where you want to insert the compile procedure and press Enter. An empty compile procedure entry is inserted on the panel.

b Type * in the line command for the empty entry and press Enter. The Global Compile Procedure List panel is displayed.

```
CMNGPRCL --------------- GLOBAL COMPILE PROCEDURE LIST ----- Row 1 to 12 of 12
COMMAND ===>                                                  SCROLL ===> PAGE

  LANGUAGE PROCEDURE  DESCRIPTION
_ ASM      CMNASM     Stage Assembler Source
_ ASM      CMNMAPGN   Stage CICS BMS Map Source
_ COBOL    CMNCOBOL   Stage OS/VS COBOL
_ COBOL2   CMNCOB2    Stage COBOL2
_ COBOLE   CMNCOBE    Stage IBM Enterprise COBOL
_ JAVA     CMNJAVA    Stage Java Source
_ JAVA     CMNJAR     Create Java Archive (JAR / WAR)
_ PLI      CMNPLI     Stage PL/I
_ PLIE     CMNPLIE    Stage IBM Enterprise PL/I
_ SASC     CMNSASC    Stage SAS C Source
_ SQL      CMNSQL     Stage DB2 SQL
_ HASM     CMNHASM    Stage High Level Assembler Source
****************************** Bottom of data ********************************
```

c On the Global Compile Procedure List panel, type S in the line command for any global compile procedure that you want to add to the application. You may select multiple compile procedures, but you can not scroll down to select global compile procedures from multiple pages of the Global Compile Procedure List at one time.

d Press Enter to return to the *application* - Compile Procedures panel, where the new compile procedure or procedures are added at the insertion point.

4 Press PF3 to exit the *application* - Compile Procedures panel and define the language names to the application.

Setting Up Planned Approvals

The Planned Approvals definition determines who must approve packages, the order of approvals, and how approvers are notified that their approval is required.

See "Package Approvals" on page 36 for a discussion of the difference between Planned and Unplanned Approval lists.

To create or update a Planned Approvals list, follow these steps.

1 On the Application Administration Options panel, type 5 on the Option line and press Enter. The Planned Approvals Part 1 of 2 panel is displayed.

```
CMNCAPLD ---------- ACTP - PLANNED APPROVALS PART 1 OF 2 ----- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Define an approval list for all planned packages;
Use line command S to supply recipient notification.

Enter END command to save changes or CANCEL to exit.

                                                 SECURITY   ORDER   INT.
     APPROVER DESCRIPTION                         ENTITY     NO.    APR.
'''' Lead Programmer - ACTP Application_____ ACTPLEAD    10     ___
'''' Accounts Payable Manager_____________ ACCTPAY_    20     ___
****************************** Bottom of data ********************************
```

The following table describes the fields on the Application Planned Approvals Part 1 of 2 panel.

Field	Description
Line Command	Type a value line command. S Select to see the next panel for this approval I Insert a blank approval row. R Repeat an existing approval D Delete an existing approval
APPROVER DESCRIPTION	Type a description of the approval. To avoid excessive maintenance, do not use an approver's name.
SECURITY ENTITY	Type the security entity name that is used to grant authority to TSO userids to enter this approval. You must define this security entity in your security system. Grant the appropriate authority to TSO userids in your security system to grant approver authority to individuals. See "Pre-Implementation Decisions" on page 27 for details.
ORDER NO.	Type an order number if an approval hierarchy is required. Order number 00 may be approved at any time. A group of approvals with the same non-zero order number may be approved in any order. Start with order numbers 10 and increment by 10 so that other approvers can be added later. Link Package approvals automatically reset their order numbers to 00.
INT. APR.	Indicates whether this approval is added to a participating package in another application when that package specifies this application as an Affected Application. This approval is added to that package only if it is different from approvals already assigned to the package. YES — Add this approval to participating packages in other applications when those packages specify this application as an Affected Application. Blank or NO — Do not add this approval to participating packages when they specify this application as an Affected Application.

Field	Description
LNK PKG	Indicates whether this approval is added to packages that are linked to other change packages through ChangeMan ECP. YES — Add this approval to linked packages. Blank or NO — Do not add this approval to linked packages.

2 On the Planned Approvals Part 1 of 2 panel, type S on the line command for an approval and press Enter. The Planned Approvals Part 2 of 2 panel is displayed.

```
CMNCAPL1 ---------- ACTP - PLANNED APPROVALS PART 2 OF 2 ----- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Press END to save changes or CANCEL to exit.

APPROVER: Lead Programmer - ACTP Application
ENTITY:   ACTPLEAD
ORDER NO: 10

     Vehicle  User(s) to Notify

'''' EMAIL___ USER25@SERENA.COM;USER25____________________
'''' MVSSEND_ USER25,USER252______________________________
****************************** Bottom of data ********************************
```

The following table describes the fields on the Planned Approvals Part 2 of 2 panel.

Field	Description
Vehicle	Type the vehicle used to notify approvers about packages pending approval. You may use any vehicle activated in Global Administration Parameters. You can also use MVSSEND. BATCH — BATCH - File tailor skeleton CMN$$NTF and submit the generated JCL with Job Card Information defined in Application Administration Parameters. MVSSEND — Issue an MVS SEND message to TSO user IDs. EMAIL — Send notification through SERNET to the internal e-mail server for delivery to the specified recipient. In the e-mail notification, the Sender is: ChangeMan@*mail_server*, where *mail_server* is the one defined in global administration. The Subject is: ChangeMan Package xxxxxxxxxx Awaits Your Approval. To respond to the notification, the notified user can access the approval function in the ISPF client for ChangeMan ZMF or in the TeamTrack for ChangeMan Solution. The IP address of the EMAIL server is defined in global administration on the Global Parameters - Part 5 of 7 (CMNGGP05) panel. See "Setting up Global Parameters" on page 51.

Field	Description	
User(s) to Notify	Type the appropriate user identifications for the notification vehicle. Separate multiple user identifications with commas:	
	E-mail Address or Mailing List	Use with the EMAIL vehicle. Also use with the BATCH vehicle if REXX program CMNSMTP has been activated in skeleton CMN$$NTF.
	TSO Userid	Use for vehicle MVSSEND,

The information on the Planned Approvals Part 2 of 2 panel is used to:

- Notify an approver that there is a package awaiting for his or her approval.
- Allow queries for packages awaiting approval based on TSO userids entered in User(s) to Notify.

These rules apply when you are setting up approval notifications:

- Approver notification is not required for an approval.
- You can create multiple notifications for an approval.
- You can create multiple notifications using the same vehicle.

Setting Up Unplanned Approvals

The Unplanned Approvals definition determines who must approve packages, the order of approvals, and how approvers are notified that their approval is required.

See "Package Approvals" on page 36 for a discussion of the difference between Unplanned and Planned Approval lists.

To create or update an Unplanned Approvals list, follow these steps:

1 On the Application Administration Options panel, type 6 on the Option line and press Enter. The Unplanned Approvals Part 1 of 2 panel is displayed.

```
CMNAAPLD --------- ACTP - UNPLANNED APPROVALS PART 1 OF 2 ---- Row 1 to 1 of 1
COMMAND ===>                                                  SCROLL ===> HALF

This approval list applies to all UNPLANNED packages created during
non-business hours.  Use line command S to supply recipient notification.

Enter END command to save changes or CANCEL to exit.

                                                  SECURITY   ORDER
     APPROVER DESCRIPTION                          ENTITY     NO.
'''' ACTPLEAD_____________________________________ ACTPLEAD    10
****************************** Bottom of data ********************************
```

The following table describes the fields on the Application Planned Approvals Part 1 of 2 panel.

Field	Description
Line Command	Type a line command: S Select to see the next panel for this approval. I Insert a blank approval row. R Repeat an existing approval. D Delete an existing approval.
APPROVER DESCRIPTION	Type a description of the approval. To avoid excessive maintenance, do not use an approver's name.
SECURITY ENTITY	Type the security entity name that is used to grant authority to TSO userids to enter this approval. You must define this security entity in your security system. Grant the appropriate authority to TSO userids in your security system to grant approver authority to individuals. See "Pre-Implementation Decisions" on page 27 for details.
ORDER NO.	Type an order number if an approval hierarchy is required. Order number 00 may be approved at any time. A group of approvals with the same non-zero order number may be approved in any order. Start with order numbers 10 and increment by 10 so that other approvers can be added later. Link Package approvals automatically reset their order numbers to 00.
LNK PKG	Indicates whether or not this approval is added to packages that are linked to other change packages through ChangeMan ECP. YES Add this approval to linked packages. Blank or NO Do not add this approval to linked packages.

2 On the Unplanned Approvals Part 1 of 2 panel, type S on the line command for an approval and press Enter. The Unplanned Approvals Part 2 of 2 panel is displayed.

```
CMNAAPL1 --------- ACTP - UNPLANNED APPROVALS PART 2 OF 2 ---- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Press END to save changes or CANCEL to exit.

APPROVER: ACTPLEAD
ENTITY:   ACTPLEAD
ORDER NO: 10

     Vehicle  User(s) to Notify

'''' EMAIL___ USER25@SERENA.COM;USER25_____________________
'''' MVSSEND_ USER25,USER252_______________________________
****************************** Bottom of data ********************************
```

The following table describes the fields on the Planned Approvals Part 2 of 2 panel.

Field	Description
Vehicle	Type the vehicle used to notify approvers about packages pending approval. You may use any vehicle activated in Global Administration Parameters. You can also use MVSSEND. BATCH — BATCH - File tailor skeleton CMN$$NTF and submit the generated JCL with Job Card Information defined in Application Administration Parameters. EMAIL — Send notification through SERNET to the internal e-mail server for delivery to the specified recipient. In the e-mail notification, the Sender is: ChangeMan@*your_mail_server*. The Subject is: ChangeMan Package *xxxxxxxxxx* Awaits Your Approval. To respond to the notification, the notified user can access the approval function in the ISPF client for ChangeMan ZMF or in the TeamTrack for ChangeMan Solution. MVSSEND — Issue an MVS SEND message to TSO user IDs. The IP address of the EMAIL (or SERNET) server is defined in global administration on the Global Parameters - Part 5 of 7 (CMNGGP05) panel. See "Setting up Global Parameters" on page 51.
User(s) to Notify	Type the appropriate user identifications for the notification vehicle. Separate multiple user identifications with commas.: E-mail Address or Mailing List — Use with the EMAIL vehicle. Also use with the BATCH vehicle if REXX program CMNSMTP has been activated in skeleton CMN$$NTF. TSO Userid — Use for vehicle MVSSEND.

The information on the Unplanned Approvals Part 2 of 2 panel is used to:

- Notify an approver that there is a package awaiting for their approval.
- Allow queries for packages awaiting approval based on TSO userids entered in User(s) to Notify.

These rules apply when you are setting up approval notifications:

- Approver notification is not required for an approval.
- You can create multiple notifications for an approval.
- You can create multiple notifications using the same vehicle.

Defining Application Sites

A site specifies target information for a promotion process or an install process. A site may be local or remote.

Site	Description
Local Site	A target that is on the same LPAR as the development ChangeMan ZMF instance. A target on a different LPAR from the ChangeMan ZMF instance can be defined as a local site if it shares DASD and catalogs with the ChangeMan ZMF development LPAR, and no DB2 binds are required.
Remote Site	A target that is on a different LPAR than the development ChangeMan ZMF instance that does not share DASD and catalogs, or that requires DB2 binds.

Sites are defined in global administration. Application Administrators select sites for an application from those global definitions.

You must define an application site for each production ChangeMan ZMF environment that is a target for installs. Every promotion level definition must include a site.

Defining Sites For A New Application

Perform these steps to defines sites for a new application:

1 On the Application Administration Options panel, type 8 on the Option line and press Enter. The Application Site List Part 1 of 2 panel is displayed. The first time you access this panel to define sites for a new application, the panel is empty:

```
 CMNCLRST -------------- ACTP - SITE LIST PART 1 OF 2 ------- Row 1 to 31 of 31
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter * in line command field for global list.

     SITE NAME
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
'''' _________
******************************* Bottom of data ********************************
```

2 Type * in the line command for the first blank Site Name and press Enter. The Global Site Selection List panel is displayed.

```
CMNGRSTL ----------------- GLOBAL SITE SELECTION LIST -------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> HALF

  SITE NAME
_ SERT7
_ SERT7P1
_ SERT7P2
S SERT8
_ SERT9
****************************** Bottom of data ********************************
```

3 On the Global Site Selection List panel, type S in the line command field for one or more global sites that you want to define in the new application. Press Enter, and all selected sites are added to the Application Site Part 1 of 2 panel at the insertion point.

4 Continue selecting sites from the Global Site Selection List panel until all sites needed for the application are listed on the Application Site Part 1 of 2 panel.

5 There is a second panel of information for each site listed on the Application Site Part 1 of 2 panel. Type S in the line command for a site and press Enter. The Application Site Information List Part 2 of 2 panel is displayed.

```
CMNRSTJB ---------- SERT8 SITE INFORMATION - PART 2 OF 2 ----------------------
COMMAND ===>

SITE JOB STATEMENT INFORMATION:
===> //SERT78   JOB (),'S7.V710 SERT7563',_____________________________________
===> //         CLASS=A,MSGCLASS=X_____________________________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

6 The JOB statement information displayed on the Application Site Information Part 2 of 2 panel is used to build JCL for jobs that run at the selected site. Update this information as required.

7 When you finish updating the jobcard information Application Site Information Part 2 of 2 panel, press Enter to return to the Application Site List Part 1 of 2 panel.

8 When you finish updating site definitions on the Application Site List Part 1 of 2 panel, press PF3, or type End and press Enter, to store the site definitions in the ChangeMan ZMF package master file.

Updating Application Site Information

Perform these steps to update application site definitions:

1 On the Application Administration Options panel, type 8 on the Option line and press Enter. The Application Site List Part 1 of 2 panel is displayed.

```
CMNCLRST ------------- ACTP - SITE LIST PART 1 OF 2 --------- Row 1 to 5 of 5
COMMAND ===>                                                 SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter * in line command field for global list.

     SITE NAME
'''' SERT7___
'''' SERT7P1_
'''' SERT7P2_
'''' SERT8___
'''' SERT9___
****************************** Bottom of data ********************************
```

- To delete an application site on the Application Site List Part 1 of 2 panel, type D (Delete) in the line command for the site and press Enter.
- To add a library type on the Application Site List Part 1 of 2 panel, type I (Insert) in the line command above where you want to insert the site and press Enter. An empty site entry is inserted on the panel.
- Type * in the line command for the site definition and press Enter. The Global Remote Site Selection List panel is displayed.

```
CMNGRSTL ----------------- GLOBAL SITE SELECTION LIST -------- Row 1 to 5 of 5
COMMAND ===>                                                 SCROLL ===> HALF

  SITE NAME
_ SERT7
_ SERT7P1
_ SERT7P2
_ SERT8
_ SERT9
****************************** Bottom of data ********************************
```

On the Global Site Selection List panel, type S in the line command for one or more global sites that you want to add to the application. Press Enter, and all selected sites are added to the Application Site Part 1 of 2 panel at the insertion point.

2 To update JOB statement information for a site, type S in the line command for a site on the Application Site Part 1 of 2 panel and press Enter. The Application Site Information List Part 2 of 2 panel is displayed.

```
CMNRSTJB ---------- SERT8 SITE INFORMATION - PART 2 OF 2 ----------------------
COMMAND ===>

SITE JOB STATEMENT INFORMATION:
===> //SERT78   JOB (),'S7.V710 SERT7563',_____________________________________
===> //         CLASS=A,MSGCLASS=X_____________________________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

The jobcard information displayed on the this panel is used to build JCL for jobs that run at the selected site.

3 When you finish updating the JOB statement information on the Site Information Part 2 of 2 panel, press Enter to return to the Application Site List Part 1 of 2 panel.

4 When you finish updating site definitions on the Application Site List Part 1 of 2 panel, press PF3 or type End and press Enter to store the site definitions in the ChangeMan ZMF package master file.

Configuring Promotion Sites, Levels, and Libraries

The Application Administrator configures promotion for an application by defining a hierarchy of sites, promotion levels, library types, and test library names. When developers, project managers, and test coordinators promote or demote a package in the application, they choose a site and a promotion level as the target for their action.

For a discussion of the promotion function, see "Promotion And Demotion" on page 37.

Promotion Definition Order

The order that promotion sites, levels, and library types appear on application administration panels determines the order that promotion libraries are concatenated in batch job JCL.

The following table lists some library concatenations that depend on the promotion definition order.

JCL ddname	Library Type	Used in batch jobs...
SYSLIB	LIKE-C types	Copybook expansion steps running CMNWRITE Copybook libraries in compile and assemble jobs Copybook libraries in BMS MAP gens Copybook libraries in IMS PSB/DBD gens
SYSLIB	LIKE-L types	Load libraries in link edit Load libraries in IMS PSB/DBD gens
INCLIB	Target Type	Load libraries in link edit.
OBJLIB	Object library types defined in skeleton CMN$$VAR	Object libraries in link edit

Configuring Promotion For A New Application

Perform these steps to set up promotion for a new application:

1 On the Application Administration Option panel, type 7 on the Option line and press Enter. The Application Promotion Site List panel is displayed. When this panel is first accessed for a new application, it is empty:

```
CMNLRPMS --------------- ACTR - PROMOTION SITE LIST -------- Row 1 to 12 of 12
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter * in line command field for local list.

                        FORCE           INTERNAL READER CLASS
     SITE NAME    DEMOTION (Y/N)        SITE       LOCAL
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
'''' _________          _                _           _
******************************* Bottom of data ********************************
```

2 To populate the Application Promotion Site List panel, type * in the line command for the first empty Site Name entry and press Enter. The Application Site Selection List panel is displayed.

```
CMNRMTSL --------------- ACTP - SITE SELECTION LIST ---------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> HALF

  SITE NAME
_ SERT7
_ SERT7P1
_ SERT7P2
_ SERT8
_ SERT9
******************************* Bottom of data ********************************
```

3 On the Application Site Selection List panel, type S in the line command for each site that you want to define as a promotion target for the new application. Press Enter to return to the Application Promotion Site List panel, where the selected sites are displayed.

4 Complete the other fields on the Application Promotion Site List panel. The following table describes the fields on that panel.

Field	Description
Line Command	Type a line command to the left of a panel row. S Select to see the next panel for this site. I Insert a blank site row. R Repeat an existing site. D Delete an existing site. * Display a selection list of available sites.
SITE NAME	Displays the promotion site nickname copied from an application site definition.
FORCE DEMOTION (Y/N)	Defines the rules for promoting a package to more than one site at the same time N Allow a package to be promoted to this site at the same time it is promoted to another site. Y Require a package to be demoted in all other sites before it can be promoted to this site. Require a package promoted to this site to be demoted before it may be promoted in another site.
INTERNAL READER CLASS	Defines the output class for submitting job JCL to the internal reader. Promote/demote to a remote site runs jobs at the target site and on the MVS image where ChangeMan ZMF runs. SITE: Output class for jobs submitted to the internal reader at a remote site. This entry is not used for local sites, but it must always be entered. LOCAL: Output class for jobs submitted to the internal reader on the MVS image where ChangeMan ZMF runs.

5 When you finish entering site information on the Application Promotion Site List panel, it might look like this.

```
CMNLRPMS --------------- ACTP - PROMOTION SITE LIST ---------- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter * in line command field for local list.

                      FORCE           INTERNAL READER CLASS
     SITE NAME    DEMOTION (Y/N)        SITE       LOCAL
'''' SERT7P1_           N                A           A
'''' SERT7P2_           N                A           A
****************************** Bottom of data ********************************
```

6 You must define promotion levels for each promotion site. On the Application Promotion Site List panel, type S in the line command for a Site Name, and press

Enter. The Application/Site Promotion Levels panel is displayed. When this panel is first displayed for a site, it is empty:

```
CMNLRPM2 ------------ ACTR/SERT7P1 - PROMOTION LEVELS ------ Row 1 to 12 of 12
COMMAND ===>                                                  SCROLL ===> PAGE

Enter END command to save changes or CANCEL to exit.


     NICKNAME   ENTITY    LEVEL   PROCEDURE (* for a list)
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
'''' _________  _________  __     _________
****************************** Bottom of data ********************************
```

7 Complete a promotion level entry for each promotion environment you want for this application in this site. The table that follows describes fields on the Application/Site Promotion Levels panel.

Field	Description
Line Command	Type a line command to the left of a panel row. S Select to see the next panel for this promotion level. I Insert a blank promotion level row. R Repeat an existing level. D Delete an existing level.
NICKNAME	Type a nickname for the promotion level. Use a nickname that expresses the function of the promotion level, such as UNIT10 for Unit Test at Promotion Level 10, or SERT5IT for Integration Test at site SERT6.
ENTITY	Type a promotion security entity name. This security entity is used with your security system to authorize a TSO userid to promote/demote to this level.
LEVEL	Type a numeric promotion level. Number promotion levels in increments of 5 or 10 so that more levels can be added in between later.
PROCEDURE	Type the name of the skeleton procedure to be used in ISPF file tailoring to build JCL for promotion jobs. CMN$$PRM For promotion levels with libraries on a local site. If no entry is made, ChangeMan ZMF automatically inserts this skeleton name. CMN$$RPM For promotion levels with libraries on a remote site.

8 When you finish defining promotion levels on the Application/Site Promotion Levels panel, might look like this.

```
CMNLRPM2 ------------ ACTP/SERT7P1 - PROMOTION LEVELS -------- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.


     NICKNAME   ENTITY    LEVEL   PROCEDURE (* for a list)
'''' S7P1UT__   UTCOORD_   10     CMN$$PRM
'''' S7P1IT__   INTCOORD   20     CMN$$PRM
****************************** Bottom of data ********************************
```

9 For each promotion level on the Application/Site Promotion Levels panel you must define target library types and data set names. Type S on the line command of a promotion level, and the Application/Site Promotion Libraries panel is displayed. The first time this panel is displayed for a promotion level it is blank:

```
CMNLRPM3 ----------- ACTR/SERT7P1 - PROMOTION LIBRARIES ----- Row 1 to 3 of 12
COMMAND ===>                                                  SCROLL ===> PAGE

Enter END command to save changes or CANCEL to exit.

PROMOTION NAME: S7P1UT       LEVEL: 10

Enter * in line command field for library type selection list.

         SYSLIB
     LIB EXCLUDE TARGET LIBRARIES
'''' ___   _     _____________________________________________    + Shadow
                 _____________________________________________    + Library 1
                 _____________________________________________    + Library 2
                 _____________________________________________    + Library 3
'''' ___   _     _____________________________________________    + Shadow
                 _____________________________________________    + Library 1
                 _____________________________________________    + Library 2
                 _____________________________________________    + Library 3
'''' ___   _     _____________________________________________    + Shadow
                 _____________________________________________    + Library 1
                 _____________________________________________    + Library 2
                 _____________________________________________    + Library 3
```

10 To add library types on the Application/Site Promotion Libraries panel, type * in the line command for the first blank entry on the panel and press Enter. The Library Type Selection List panel is displayed.

```
CMNLTPSL ---------------- LIBRARY TYPE SELECTION LIST ------ Row 1 to 11 of 11
COMMAND ===>                                                  SCROLL ===> HALF

  LIB  DESCRIPTION
_ CPY  Copybooks
_ CTL  Job Control Statements
_ DOC  Documentation
_ JCL  Execution JCL
_ LCT  Link Edit Control Statements
_ LOD  Executable Load Modules
_ LOS  Load for Subprograms to be Statically Linked
_ LST  Compressed Stage Listings
_ PRC  Cataloged Procedures
_ SRC  Source for programs to be Linked Executable
_ SRS  Source for Subpgms to be Statically Linked
****************************** Bottom of data ********************************
```

11 On the Library Type Selection List panel, type S in the line command for any application library type that you want to add at the insert point on the Application/Site Promotion Libraries panel. You may select multiple library types, but you can not scroll down to select library types from multiple pages of the Library Type Selection List at one time.

NOTE Promotion library types usually include executable library types that are tested. However, you may also wish to promote other types to allow for checkout from promotion.

12 Press Enter to return to the Application/Site Promotion Libraries panel, where the new library types have been added at the insertion point.

13 On the Application/Site Promotion Libraries panel, type information in the remaining fields for each library type. The following table describes the fields on the Application/Site Promotion Libraries panel:

Field	Description
PROMOTION NAME	Promotion nickname that you selected on the previous panel.
LEVEL	Promotion level that is defined on the previous panel.
Line Command	Type a line command to the left of a row: I Insert a blank library type row. R Repeat an existing library type. D Delete an existing library type. * Display a selection list of available library types.
LIB	Application library type for this promotion level.

Field	Description
SYSLIB EXCLUDE	Determines if promotion libraries associated with this library type are excluded from SYSLIB concatenations during stage, recompile, and relink jobs. You can use this parameter to exclude like-copy and like-load libraries from SYSLIB concatenations and to exclude like-copy libraries from audit. If you change this flag during a package lifecycle, audit may find SYNCH15!. Y Exclude promotion libraries from stage, recompile, and relink jobs. Exclude the libraries from audit processing. N Include library in normal processing. **NOTE** Two facilities work together to designate the criteria that audit uses to issue SYNCH15! errors during a package audit: The SYSLIB EXCLUDE flag, which is described here. User exit CMNEX044. Refer to the ChangeMan ZMF Customization Guide and to the comments in module CMNEX044 of the CMNZMF.ASMSRC library for more information about this exit.
TARGET LIBRARIES Shadow Library 1 Library 2 Library 3	Enter the fully qualified data set names of all promotion targets that ChangeMan will associate with the library type for this level of promotion. You can specify up to three libraries. The shadow library resides at the local site for common module and overlay checking (*common* means that the component exists in both promotion history and the target library). You can define the shadow library as one of the three target libraries if the target libraries are located at the local site (accessible with IEBCOPY). If the target libraries are located at a remote site, the shadow library must be defined as a separate data set and you should use the promotion procedure CMN$$RPM (remote site promote/demote) for promotion and demotion purposes rather than CMN$$PRM (local site promote/demote). CMN$$RPM will synchronize the shadow library with the targeted components during promotion and demotion to provide a mirror image of the site promotion data sets. CMN$$PRM does not synchronize the components. Specify NULLFILE as the shadow library if you want to bypass physical member overlay checking and rely only on the data stored in the promotion history records. If you do this, overlay messages will not show a common module overlay and will not show "unknown" (the module exists in the target library but there is no promotion history). It will show the "history" status (module not found in the target library but exists in the promotion history records).

NOTE Promotion library types usually include executable library types. However, you may want to promote other types to allow for checkout from promotion.

14 To save the new application promotion definition:

a On the Application/Site Promotion Libraries panel, press PF3 or type End on the Command Line and press Enter.

b On the Application/Site Promotion Levels panel, press PF3 or type End on the Command Line and press Enter.

c On the Application Promotion Site List panel, press PF3 or type End on the Command Line and press Enter.

Update Promotion For An Application

Perform these steps to update the promotion definitions for an application.

1 On the Application Administration Option panel, type 7 on the Option line and press Enter. The Application Promotion Site List panel is displayed.

```
CMNLRPMS --------------- ACTP - PROMOTION SITE LIST ---------- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter * in line command field for local list.

                      FORCE           INTERNAL READER CLASS
     SITE NAME    DEMOTION (Y/N)        SITE       LOCAL
'''' SERT7P1_           N                A           A
'''' SERT7P2_           N                A           A
****************************** Bottom of data ********************************
```

See the table that starts on page 156 that describes the fields on Application Promotion Site List panel.

- To delete a site from the Application Promotion Site List panel, type D (Delete) in the line command field for the site and press Enter.
- To add a site to the Application Promotion Site List panel, type I (Insert) in the line command field above where you want to insert the site and press Enter. An empty site row is inserted on the panel.
- Type * in the line command field for the empty site definition and press Enter. The Application Site Selection List panel is displayed.

```
CMNRMTSL --------------- ACTP - SITE SELECTION LIST ---------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> HALF

  SITE NAME
_ SERT7
_ SERT7P1
_ SERT7P2
_ SERT8
_ SERT9
****************************** Bottom of data ********************************
```

2 On the *A*pplication Site Selection List panel, type S in the line command for each site that you want to add. Press Enter, and you return to the Application Promotion Site List panel, where the selected sites are displayed.

3 Complete the other fields on the Application Promotion Site List panel.

To update promotion levels for a promotion site:

1 On the Application Promotion Site List panel, type S in the line command field for a Site Name, and press Enter.

The Application/Site Promotion Levels panel is displayed.

```
CMNLRPM2 ------------ ACTP/SERT7P1 - PROMOTION LEVELS -------- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.


     NICKNAME   ENTITY    LEVEL   PROCEDURE (* for a list)
'''' S7P1UT__   UTCOORD_   10     CMN$$PRM
'''' S7P1IT__   INTCOORD   20     CMN$$PRM
****************************** Bottom of data ********************************
```

See the table that starts on page 157 for a description of the fields on this panel.

2 Complete the other fields on the Application/Site Promotion Levels panel.

To update the library types and promotion libraries for a promotion level:

1 On the Application/Site Promotion Levels panel, type S on the line command field for a promotion level.

The Application/Site Promotion Libraries panel is displayed.

```
CMNLRPM3 ----------- ACTP/SERT7P1 - PROMOTION LIBRARIES ----- Row 1 to 3 of 11
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

PROMOTION NAME: S7P1UT       LEVEL: 10

Enter * in line command field for library type selection list.

         SYSLIB
     LIB EXCLUDE TARGET LIBRARIES
'''' CTL   N     CMNTP.S7.V710.PROM.ACTP.S7P1UT.CTL__________    + Shadow
                 CMNTP.S7.V710.PROM.ACTP.S7P1UT.CTL__________    + Library 1
                 ____________________________________________    + Library 2
                 ____________________________________________    + Library 3
'''' DBB   N     CMNTP.S7.V710.PROM.ACTP.S7P1UT.DBB__________    + Shadow
                 CMNTP.S7.V710.PROM.ACTP.S7P1UT.DBB__________    + Library 1
                 ____________________________________________    + Library 2
                 ____________________________________________    + Library 3
'''' DBR   N     CMNTP.S7.V710.PROM.ACTP.S7P1UT.DBR__________    + Shadow
                 CMNTP.S7.V710.PROM.ACTP.S7P1UT.DBR__________    + Library 1
                 ____________________________________________    + Library 2
                 ____________________________________________    + Library 3
```

See the table that starts on page 159 for a description of the fields on this panel.

- To delete a library type with its promotion libraries from the Application/Site Promotion Libraries panel, type D (Delete) in the line command field for the library type and press Enter.
- To add a library type with promotion libraries to the Application/Site Promotion Libraries panel, type I (Insert) in the line command field above where you want to insert the library type and press Enter. An empty library type row is inserted on the panel.

- Type * in the line command field for the empty library type row and press Enter. The Library Type Selection List panel is displayed.

```
CMNLTPSL ---------------- LIBRARY TYPE SELECTION LIST ------ Row 1 to 11 of 11
COMMAND ===>                                                  SCROLL ===> HALF

  LIB  DESCRIPTION
_ CPY  Copybooks
_ CTL  Job Control Statements
_ DOC  Documentation
_ JCL  Execution JCL
_ LCT  Link Edit Control Statements
_ LOD  Executable Load Modules
_ LOS  Load for Subprograms to be Statically Linked
_ LST  Compressed Stage Listings
_ PRC  Cataloged Procedures
_ SRC  Source for programs to be Linked Executable
_ SRS  Source for Subpgms to be Statically Linked
****************************** Bottom of data ********************************
```

2 On the Library Type Selection List panel, type S in the line command for any application library type that you want to add at the insert point on the Application/Site Promotion Libraries panel. You may select multiple library types, but you cannot scroll down to select library types from multiple pages of the Library Type Selection List at one time.

NOTE Promotion library types usually include executable library types that are tested. However, you may also wish to promote other types to allow for checkout from promotion.

3 Press Enter to return to the Application/Site Promotion Libraries panel, where the new library types have been added at the insertion point.

4 Complete the rest of the fields on the Application/Site Promotion Libraries panel.

5 To save your updates to the application promotion definition:

a On the Application/Site Promotion Libraries panel, press PF3 or type End on the Command Line and press Enter.

b On the Application/Site Promotion Levels panel, press PF3 or type End on the Command Line and press Enter.

c On the Application Promotion Site List panel, press PF3 or type End on the Command Line and press Enter.

Configuring Baseline Libraries

Baseline libraries are the permanent repositories for application components. Use the baseline configuration function to specify physical baseline library names and to set the following related parameters:

- The technology or file type used to store current and prior versions of components
- How many prior versions of components are held in baseline libraries

- Whether components are copied to separate production libraries as well as to baseline libraries when a change package is installed.

If you have set Application Parameters to **Keep Baseline by Site =Y** on Part 1 of the Application Parameters panel, baseline libraries must be configured for each site. See "Configuring Remote Sites" on page 253 for details.

Allocating Baseline Libraries

1 Select Option B on the Application Administration Options panel. The Baseline Configuration Part 1 of 2 panel (CMNCBAS1) is displayed.

```
CMNCBAS1 ACTP -  BASELINE CONFIGURATION PART 1 OF 2 -------- Row 1 to 13 of 25
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for library type selection list.

                              BASELINE STORAGE MEANS
                   INSTALL    P-Standard PDS  PV-Panvalet
                   IN PROD    L-Librarian     LA-Librarian Archie
     TYPE  LEVELS  (Y/N/C)    H-HFS           SD-Stacked Reverse Delta
'''' CPY     10_      N       SD
'''' CTL     10_      N       SD
'''' DOC     10_      N       SD
'''' JCL     10_      N       SD
'''' LCT     10_      N       SD
'''' LOD     3__      N       P_
'''' LOS     3__      N       P_
'''' LST     3__      N       P_
'''' PRC     10_      N       SD
'''' SRC     10_      N       SD
'''' SRS     10_      N       SD
****************************** Bottom of data ********************************
```

The following table describes the field of the Application Baseline Configuration Part 1 of 2 panel (CMNCBAS1) and the information that you can enter when you create new libraries.

Field	Description
TYPE	Type the library type. If you want to select from a list of available library types, type ***** to display the Library Type Selection List.
LEVELS	Type the number of previous baseline versions that you want ChangeMan ZMF to maintain for the library type. This number includes the 0 level current version. Considerations: The maximum number of levels for stacked reverse delta is 999. All prior versions are stored in a single library. The maximum number of levels for Librarian is 255. The current and prior versions are stored in one library. The current and prior versions are stored in one Panvalet library. For component types that cannot be compressed, like load modules, you must define a library for each prior version, which might limit the number of prior versions you can afford to maintain.

Field	Description
INSTALL IN PRD	Indicate whether a separate library is maintained to run production, either on the same LPAR where the development ChangeMan ZMF instance runs or on other LPARS. **Note:** Even when production libraries are utilized, not every library type requires a production library. For example, like-copy components are not required to execute production jobs. Y At least one of these is true: Components in this library type are copied to a production library as well as a baseline library when a change package is installed. Temporary packages are allowed for this application and components in this library type are copied to a temporary production library when a temporary package is installed. (This could be true even on an ALL instance where baseline libraries are used to run production jobs, but temporary packages are allowed.) N Components in this library type are stored only in baseline libraries, and components in this library type are never installed into temporary production libraries. C A production library for this library type is maintained at some sites but not others.
STORAGE MEANS	Type one of the following storage means: SD Stacked Reverse Delta - The 0 level baseline version is stored in a PDS or PDSE. All prior versions are stored as reverse delta records in a single PDS or PDSE. **Note:** This is the most efficient storage means for text components that can be compressed with delta technology. P PDS or PDSE - The 0 level baseline library is a PDS or a PDSE, and each prior version level is stored in a separate PDS or PDSE library without compression. H Hierarchical File System - The 0 level baseline library is an HFS directory, and each prior version level is stored in a separate HFS directory with out compression. L CA Librarian LA CA Librarian Archie PV CA Panvalet

2 To update an existing library, type S to select a row to specify the actual data set names for the item. The Application Baseline Configuration Part 2 of 2 panel (CMNCBAS2) is displayed.

```
CMNCBAS2 ACTP -  BASELINE CONFIGURATION PART 2 OF 2 ---------- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

LIBRARY TYPE:  SRC - 10  LEVELS MAINTAINED
STORAGE MEANS: Stacked Reverse Delta
LINE COMMANDS: A - Allocate, V - Verify

 LEVEL DATASET NAME                                    STATUS
_    0 CMNTP.S7.V710.BASE.ACTP.SRC_______     +
_ -009 CMNTP.S7.V710.BASE.ACTP.SRC.DELTA_     +
****************************** Bottom of data ********************************
```

The Application Baseline Configuration Part 2 of 2 panel (CMNCBAS2) specifies the names of an application's baseline libraries. The rows are already generated when you access the panel. From this panel you can verify or allocate the baseline library data sets. ChangeMan ZMF uses these names when it creates batch jobs to ripple an application's baseline libraries after a change package has been installed. ChangeMan ZMF assumes these libraries exist and that it can update them.

If you have set **Keep Baseline by Site = Y** on the Application Parameter Part 1 of 2 panel (CMNGLP01), baseline libraries must be configured for each site. "Configuring Remote Sites" on page 253.

3 In a row of the Application Parameter Part 1 of 2 panel (CMNGLP01), type A or V to allocate or verify a baseline library.

NOTE This option is not available for CA Librarian or CA Panvalet.

- If you typed V in a row, the Dataset Information panel (CMNDSINF) is displayed.

```
CMNDAIPO -------------------- DATASET INFORMATION ----------------------------
COMMAND ===>

LIBRARY TYPE: SRC
DATASET NAME: CMNTP.S7.V710.BASE.ACTP.SRC

GENERAL DATA:                          CURRENT ALLOCATION:
 VOLUME SERIAL:       SRSM33            ALLOCATED TRACKS:         6
 DEVICE TYPE:           3390            ALLOCATED EXTENTS:        5
 ORGANIZATION:   PARTITIONED            MAX. DIR. BLOCKS:        50
 RECORD FORMAT:           FB
 RECORD LENGTH:           80
 BLOCK SIZE:           27920          CURRENT UTILIZATION:
 1ST EXTENT TRACKS:        2            USED TRACKS:              6
 SECONDARY TRACKS:        10            USED EXTENTS:             5
                                        USED DIR BLOCKS:          3
DATASET DATE INFORMATION:               NUMBER OF MEMBERS:       15
 CREATION:          2010/01/20
 EXPIRATION:
 LAST REFERENCED:   2010/05/07
```

- If you typed A, in a row, the Allocate Dataset panel (CMNALCDS) is displayed.

```
CMNALCDS ---------------------- ALLOCATE DATASET -----------------------------
COMMAND ===>

LIBRARY TYPE: SRC
DATASET NAME: CMNTP.S7.V710.BASE.ACTP.SRC

  GENERIC UNIT NAME  ===> SYSDA      (Generic group name or unit)
  VOLUME SERIAL      ===> SRSM33     (Required if GENERIC UNIT unspecified)
  SPACE UNITS        ===> TRK        (TRK, CYL or BLK)
  PRIMARY QUANTITY   ===> 2          (In above units)
  SECONDARY QUANTITY ===> 10         (In above units)
  DIRECTORY BLOCKS   ===> 50         (Must be greater than zero)
  RECORD FORMAT      ===> FB
  RECORD LENGTH      ===> 80
  BLOCK SIZE         ===> 27920
  DATA SET TYPE      ===> PDS        (LIBRARY for PDSE, PDS for pds, or blank)

Press ENTER to allocate; Enter END command to cancel.
```

If a baseline library data set does not exist, the message "Dataset not catalogued" is displayed in the upper right-hand corner, and *ERROR is displayed in the STATUS column next to the data set name.

Specifying Component Description, Procedures, and Security

Use the Component option of Application Administration to define and update optional facilities for a component.

- Component general description - 48 lines of free-form text containing information about the component.
- Designated compile procedure - The language, compile procedure, and other build options that must be used to stage, recompile, or relink a component.
- Component level security - List of userids or security entities that are allowed to check out or stage a component.

The data you specify for these three facilities is stored in component history by component name and library type.

To access these component-level facilities, select option C Component on the Application Administration Options panel, and the *application* - Component Options panel (CMNCMP00) is displayed.

```
CMNCMPA0 ---------------- ACTP - COMPONENT OPTIONS ----------------------------
OPTION  ===>

  G  General    - Maintain component general description information
  P  Procedures - Maintain component designated compile procedures
  S  Security   - Maintain component security information

  Press ENTER to process; Enter END command to exit.
```

Defining Component General Descriptions

A component general description consists of up to 48 lines of free-form text stored on the component master for a component name and library type.

NOTE A component general *description* and component general *information* are the same thing. Most application administration panels use the word *information*, and package panels use *description*.

This description can be created and updated through the Component General Information function in application administration. The information can also be created and updated in change packages if the library type is defined with the Checkout Component Description parameter set to Yes.

To create or update a component information description in application administration, follow these steps:

1 Select option G General on the *application* - Component Options panel to display the *application* - Component General Information panel (CMNGENA1).

```
CMNGENA1 ---------- ACTP - COMPONENT GENERAL INFORMATION ----------------------
OPTION ===>

LIBRARY TYPE ===>       (Blank for list)

  1  Baseline       - Select from baseline libraries
  2  Package Master - Process existing component information records

Press ENTER to process; Enter END command to exit.
```

2 Type a library type (CPY in this case), or leave the Library Type field blank to display the Library Type Selection List panel where you can choose a library type.

3 If you select option 1 Baseline on the *application* - Component General Description panel, the *application* - LIST - *baseline* panel (CMNGENA2) shows you a list of components in the baseline library for the specified library type (CPY).

```
CMNGENA2 ACTP - CMNTP.S7.V710.BASE.ACTP.CPY ---------------- Row 1 to 10 of 25
COMMAND ===>                                                  SCROLL ===> HALF
   NAME     STATUS   VV.MM CREATED    CHANGED    TIME  SIZE   INIT   ID
_ ACPCPY00          04.01 2002/05/07 2010/02/21 10:27 000003 000001 WSER239
_ ACPCPY01          01.01 2008/09/08 2008/09/08 14:14 000003 000003 WSER239
_ ACPCPY1A          03.01 2002/05/07 2010/02/21 10:29 000004 000001 WSER239
_ ACPCPY1B          03.01 2002/05/07 2010/02/21 10:29 000003 000001 WSER239
_ ACPCPY1C          03.01 2002/05/07 2010/02/21 10:30 000003 000001 WSER239
_ ACPCPY1X          03.01 2002/05/07 2010/02/21 10:30 000003 000001 WSER239
_ ACPCPY2A          02.01 2002/05/07 2010/02/21 10:30 000004 000001 WSER239
_ ACPCPY2B          02.01 2002/05/07 2010/02/21 10:30 000003 000001 WSER239
_ ACPCPY2X          02.01 2002/05/07 2010/02/21 10:31 000003 000001 WSER239
_ ACPCPY3A          02.01 2002/05/07 2010/02/21 10:31 000004 000001 WSER239
```

- Type line command S to create or update a component general description.
- Type line command D to delete the component general description.

4 If you select option 2 Package Master on the *application* - Component General Description panel, the Component List panel (CMGENA5) shows you a list of component general descriptions that have been created previously.

```
CMNGENA5 ----------- ACTP - COMPONENT INFORMATION LIST ------- Row 1 to 1 of 1
COMMAND ===>                                                  SCROLL ===> HALF

    NAME                                                        TYPE
_ ACPCPY00                                                   +  CPY
****************************** Bottom of data ********************************
```

- Type line command S to update a component general description.
- Type line command D to delete the component general description.

5 When you select a component on one of the list panels, the *application - component.type* General Description panel (CMNGENA3) is displayed.

```
CMNGENA3 ---------- ACTP - COMPONENT GENERAL DESCRIPTION --- Row 1 to 12 of 12

COMMAND ===>                                                 SCROLL ===> HALF

Enter END command to save; CANCEL to exit.

Component:     ACPCPY00                                                       +
Library Type:  CPY

     (maximum 48 lines)
'''' LINKAGE SECTION copybook for subroutine ACPSRS00 that obtains___________
'''' transaction date._____________________________________________________
'''' ______________________________________________________________________
'''' ______________________________________________________________________
'''' ______________________________________________________________________
'''' ______________________________________________________________________
'''' ______________________________________________________________________
'''' ______________________________________________________________________
```

Type text in the lines provided. Use line commands I (insert), R (repeat), and D (Delete).

6 Press PF3 to exit the *application - component.type* General Description panel and update the component general description. You are returned to previous the selection list panel where the ISPF short message INFORMATION CHANGED is displayed, and the Status of the member is CHANGED.

Defining Designated Compile Procedures

Designated compile procedures can completely eliminate variation in build processing for components before they are installed into production, and designated compile procedures can eliminate variation in development build processing as well. See "Designated Compile Procedures" on page 33.

If you choose to designate compiling procedures for the application's components, any user who wants to freeze a change package with the selected component must stage with the procedures entered on the panel (force level 2). If you designate a compiling procedure with force level 1, ChangeMan ZMF allows staging with alternate procedures during package development. However, the final stage (before you attempt to freeze) should be performed with the designated compile procedure for each component.

Follow these steps to define a designated compile procedure for a component or a group of components.

1 Select Option P on the Component Information Option panel and press Enter. The *application* - Designated Compiling Procedures panel is displayed.

```
CMNDCPA1 ---------- ACTP - DESIGNATED COMPILE PROCEDURES ----------------------
OPTION ===>

  C     - Change or Add component procedures
  D     - Delete component procedures
  blank - List defined procedures

COMPONENT NAME      ===>                                                    +
                                (Full name or pattern; blank for list)
LIBRARY TYPE        ===>        (Blank for list)
COMPILE PROCEDURE   ===>        (Blank for list)
LANGUAGE NAME       ===>        (Blank for list)
COMPILE PARMS       ===>
LINK EDIT PARMS     ===>
DB2 PRECOMPILE      ===>        (Yes/No)
FORCE LEVEL         ===>        (1-Before Freeze only, 2-Always required)

OTHER OPTIONS       ===>        (Yes/No Display more option panels)

MIXED CASE          ===> NO     (Yes/No)

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on the *application* - Designated Compile Procedures panel (CMNDCPA1).

Field	Description
OPTION	C Change an existing designated procedure definition Add a new designated procedure definition D Delete a designated procedure definition Blank List existing component procedures
COMPONENT NAME	Enter a full component name or pattern. **Note:** When you add or delete a designated procedure, a * wildcard in the component name is considered part of the designated procedure name. However, when you use this panel to filer a list of designated procedures on the *application* - Designated Compile Procedures panel, a * is considered a wildcard character for the search.
LIBRARY TYPE	Enter the component library type. Leave this field blank to display a Library Type selection list.
COMPILE PROCEDURE	Enter the designated compile procedure for the component. Leave this field blank for a selection list.
LANGUAGE NAME	Enter the language name of the component. Leave this field blank for a Language Name selection list. The LANGUAGE NAME and COMPILE PROCEDURE combination must be valid.
COMPILE PARMS	Enter any extra compile parms as needed (defaults are hardcoded in the compile skeleton for the specified procedure).
LINK EDIT PARMS	Enter any extra link edit parms as needed (defaults are hard coded in the link edit skeleton for the specified procedure).

Field	Description
DB2 PRECOMPILE	Y Run the DB2 precompile step for this module N Do not run the DB2 precompile step for this module.
FORCE LEVEL	1 When a package freeze is requested, if the designated procedure was not used in the last stage operation, the freeze is failed. This is the default. 2 Every stage operation for this component must use the designated procedure.
OTHER OPTIONS	Y Display additional user option panels where you can enter user options and component user options that are passed as variables to file tailoring for stage JCL. N Do not display additional user option panels
MIXED CASE	N Fold Component Name input to upper case regardless of the case that you type. Y Process Component Name input exactly as you type it, upper and lower case.

2 You can use the *application* - Designated Compile Procedures panel to:

- Define a new designated compile procedure - Choose option C and complete the panel fields.
- Update an existing designated compile procedure - Choose option C, complete the panel fields, and press Enter.
- Delete an existing designated compile procedure - Choose option D, type the Component Name and Library Type fields to match the designated procedure you want to delete, and press Enter.
- Produce a full or filtered list of existing designated compile procedures - Leave the option line blank, use the Component Name and Library Type fields as filter criteria (blank, data, or patterns), and press Enter.

3 If you used the *application* - Designated Compile Procedures panel to list existing designated compile procedures, the results are shown on the *application* - Designated Compile Procedures List panel (CMNDCPA2).

```
CMNDCPA2 ------- ACTP - DESIGNATED COMPILE PROCEDURES LIST --- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter S line command to select additional options or D to delete procedure.
Enter * in PROC or LANGUAGE field, for list.

  COMPONENT      LANGUAGE FORCE  DB2 COMPILE PARMS
  NAME      TYPE PROC     OPTION PRE LINK EDIT PARMS
  ------------------------------------------------------------------------
_ ACPSRC00                                                               +
            SRC  COBOL2   1      NO  ____________________________________
                 CMNCOB2             ____________________________________
  ------------------------------------------------------------------------
_ ACPSRC99                                                               +
            SRC  COBOL2   1      NO  ____________________________________
                 CMNCOB2             ____________________________________
```

4 You can use the *application* - Designated Compile Procedures List panel to:

- Update an existing designated compile procedure - Overtype the fields shown for the designated procedure and press Enter.
- Delete an existing designated compile procedure - Type line command D on a designated procedure and press Enter.

5 If you use line command S on the *application* - Designated Compile Procedures List panel, or if you set Other Options to Y on the *application* - Designated Compile Procedures panel when you create or update a procedure, the Stage: User Options panels are displayed for the component. This is the first User Option panel as delivered from Serena. Your panels are probably customized.'

```
CMNUSR01 -------------------- STAGE: USER OPTIONS -----------------------------
COMMAND ===>

        NAME:                 TYPE:            LANGUAGE: ASM

        COMPILE ONLY        ===> N           IMS DLITxxx ENTRY  ===> N
        CICS PRECOMPILE     ===> N           DROP INCLUDE STMTS ===> N
        EASYTRIEVE OBJECT   ===> N           USER OPTION 06     ===> Y
        USER OPTION 07      ===> Y           USER OPTION 08     ===> Y
        USER OPTION 09      ===> Y           USER OPTION 10     ===> Y
        USER OPTION 11      ===> Y           USER OPTION 12     ===> Y
        USER OPTION 13      ===> Y           USER OPTION 14     ===> Y
        USER OPTION 15      ===> Y           USER OPTION 16     ===> Y
        USER OPTION 17      ===> Y           USER OPTION 18     ===> Y
        USER OPTION 19      ===> Y           USER OPTION 20     ===> Y

Use Y or N to select or deselect additional processing options;
Press ENTER to continue; Enter END command to exit.
```

6 Complete the fields on the Stage: User Options panels, and press Enter to save your changes.

Setting Component Level Security

Use the Component Level Security facility to create rules that are based on component name and library type that restrict who can check out and stage a component or a group of components that are related by component naming patterns and/or library type patterns.

To create, update, or delete a component level security rule:

1 On the *application* - Component Options panel, select Option S and press enter. The *application* - Component Level Security panel is displayed:

```
CMNSECA1 ------------ ACTP - COMPONENT LEVEL SECURITY -------------------------
COMMAND ===>

COMPONENT NAME ===>                                                    +
                                  (Pattern or blank for list)
COMPONENT TYPE ===>               (Pattern or blank for list)

MIXED CASE     ===> NO            (Yes/No)

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on the *application* - Component Level Security panel:

Field	Description
COMPONENT NAME	Type a component name, pattern, or leave the name blank.
COMPONENT TYPE	Type a library type, pattern, or leave the library type blank.
MIXED CASE	N Fold Component Name input to upper case regardless of the case that you type. Y Process Component Name input exactly as you type it, upper and lower case.

NOTE Component level security rules can be generalized by defining them with patterns in the component name and/or library type. For example, if you create a component level security rule for component name ABC* and library type X*, then the rule applies to all components with names starting in ABC in all library types starting with X.

2 You can use the *application* - Component Level Security panel to:

- Define a new component level security rule - Type a component name or pattern, a library type or pattern, and press Enter. The *application* - User List panel is displayed where complete the rule.
- Update an existing component level security rule - Type the component name (which could be a pattern) and library type (which could be a pattern) used in an existing rule and press Enter. The *application* - User List panel is displayed where you update the rule.
- List existing rules - Leave the component name blank, type a library type or pattern, and press Enter. The *application* - Component Level Security List panel is displayed where you can delete a rule or select a rule for update.

3 If you left the component name blank on the *application* - Component Level Security panel to list existing component level security rules, and rules are found, the *application* - Component Level Security List panel is displayed.

```
CMNSECA0 ---------- ACTP - COMPONENT LEVEL SECURITY LIST ----- Row 1 to 1 of 1
COMMAND ===> -                                               SCROLL ===> HALF

  NAME                                                           TYPE
_ ACPSRC00                                                   +   SRC
****************************** Bottom of data ********************************
```

4 You can use the *application* - Component Level Security List panel to:

- Delete a component level security rule - Type D in the line command for a rule and press Enter.
- Select a component level security rule for update - Type S in the line command for a rule and press Enter. The *application* - User List is displayed where update the rule.

5 When you create a new component level security rule or select a rule for update, the *application* - User List is displayed.

```
CMNSECG2 ------------ GLOBAL - ACPTST02.SRC USER LIST ------ Row 1 to 31 of 31
COMMAND ===>                                                   SCROLL ===> PAGE

Enter END command to save changes or CANCEL to exit.

      USERID  ENTITY (Y/N; blank=N)
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
'''' ________   _
****************************** Bottom of data ******************************
```

The following table describes the fields on the *application* - User List panel.

Field	Description
LINE COMMAND	Enter one of the following valid line commands: I Insert a new line R Repeat an existing line D Delete an existing line
USERID	Enter the TSO ID or security entity to which checkout and staging will be restricted.
ENTITY	Type Y to identify the USERID as a security entity Type N (or blank) to identify the USERID as a TSO ID.

6 When you are finished with entries on the *application* - User List, press PF3 to save your changes and return to the previous panel.

Deleting an Application

If there are no package in an application, you can delete the records from the package master that define the application. If packages have been created in the application, these package must be physically deleted:

- Memo deleted packages must be physically deleted.
- Installed packages must be aged and archived or deleted.

The Delete function in global Housekeeping Tasks will physically delete memo deleted packages, and it will delete aged packages. Instructions for executing this function are in "Online Housekeeping" on page 96.

After all packages are deleted from an application, follow these steps to delete the application.

1 On the Application Administration Options panel, type the application mnemonic in the Application field, select Option D, and press Enter. The Confirm Delete panel (CMNDPROJ) is displayed.

```
CMNDPROJ ---------------------- CONFIRM DELETE ------------------------------
COMMAND ===>

APPLICATION:     ACTR
DESCRIPTION:     Accounts Receivable Application
HIGHEST PACKAGE: 000000
RELEASE ID:

Press ENTER key to confirm delete request;
Enter END command to cancel delete request.
```

This table describes the fields of the Confirm Delete panel (CMNDPROJ).

Field	Description
APPLICATION	Displays the application mnemonic.
HIGHEST PACKAGE	Displays the application's highest package number.
RELEASE ID	Displays the release ID.

2 Press Enter to delete the application, or press PF3 to cancel the delete.

Accessing the Application Selectable Options Panel

Selectable Options of ChangeMan ZMF often require configuration at the global administration level and at the application administration level.

To access application administration for an selectable option, follow these steps:

1 On the Application Administration Options panel, type the application mnemonic in the Application field, select Option O, and press Enter. The *application* - Selectable Options panel is displayed.

```
CMNGBSOP ----------------- ACTR - SELECTABLE OPTIONS -------------------------
OPTION  ===>

  2  DB2    - Maintain DB2 information
  3  INFO   - Specify Info/Management change rule
  5  IMS    - IMS Control Region IDs, and Library Sub-Type information

Press ENTER to process; Enter END command to exit.
```

Licensed selectable options are highlighted on this panel. If no options are highlighted, no ChangeMan ZMF selectable options that require application administration are licensed for this LPAR

The following table lists selectable options that may be displayed.

Option	Description
DB2	Manage changes to application DB2 components.
INFO	ChangeMan ZMF communication with other applications through: ■ A VSAM interface file. ■ The Tivoli Information Management for z/OS product from IBM.
IMS	Manage changes to IMS components.

2 On the *application* - Selectable Options panel, choose the highlighted option you want to configure at the application administration level, and press Enter.

See the ChangeMan ZMF manual for the selectable option for information about configuring the option at the global administration level.

Updating the Global Notification File

Administrators use the Global Notification facility to pass information to ChangeMan ZMF users. The global administrator allocates the Global Notification File and enables the Global Notification Facility. Global administrators update the file with information for users, and they can grant application administrators the same privilege.

If option N Notify is displayed on the Application Administration Options panel, then application administrators can update the Global Notification File. Instructions for updating the file are in "Updating the Global Notification Message" on page 108.

Configuring Production Libraries

Baseline libraries are the permanent repository for current and prior versions of application components. In a relatively simple data center environment where production applications have access to ChangeMan ZMF baseline libraries, you may choose to have baseline libraries serve as production execution libraries.

However, if you want to maintain a separate set of production execution libraries, you must configure production libraries in ChangeMan ZMF application administration. If production applications run on other LPARs or CPUs without shared DASD, you must configure ChangeMan ZMF applications to manage one or more installation sites, each with a set of production libraries.

There are three kinds of production libraries

- Production execution libraries - These libraries contain the application components that execute in the production environment.
- Production backup libraries - These libraries contain the prior version of production library components. Before a component is installed in a production library, the existing production component is copied to the backup library. If a package is backed out, components in the backup libraries are copied back into the production libraries.

- Temporary libraries - These production override libraries contain components installed with temporary packages. When the temporary change package duration has passed, package components are removed from the temporary libraries.

Before you configure production libraries in a D or DP environment, you must define installation sites. See "Defining Application Sites" on page 151. For any kind of development environment, you must set the Install In Prod indicator to Y or C for each library type on the Baseline Configuration Part 1 of 2 panel for which you want to set up production libraries. See "Configuring Baseline Libraries" on page 163.

NOTE For the special case of an ALL environment where the only production libraries you need are temporary production override libraries, see "Configuring Temporary Override Libraries for ALL Environments" on page 182.

Defining Production Libraries For A New Application

Perform these steps to set up production libraries for a new application.

1 On the Application Administration Options panel, select Option P and press Enter. If you are configuring a DP environment, the *application* - Site Selection List panel (CMNRMTSL) is displayed.

```
CMNRMTSL --------------- ACTR - SITE SELECTION LIST ---------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> PAGE

  SITE NAME
_ SERT7
_ SERT7P1
_ SERT7P2
_ SERT8
_ SERT9
****************************** Bottom of data ********************************
```

2 On the *application* - Site Selection List panel, select a site by typing S in the line command for the site, and press Enter.

3 The *application - site* Production Libraries panel (CMNCPRDL) is displayed. (If you are configuring an ALL environment, this is the first panel you see.)

```
CMNCPRDL ---------- ACTR - SERT8 PRODUCTION LIBRARIES ------- Row 1 to 5 of 12
COMMAND ===>                                                  SCROLL ===> PAGE

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for library type selection list.

     TYPE PRODUCTION DATASET NAME
          TEMPORARY DATASET NAME
          BACKUP DATASET NAME
'''' ___  ____________________________________________________        +
          ____________________________________________________        +
          ____________________________________________________        +
'''' ___  ____________________________________________________        +
          ____________________________________________________        +
          ____________________________________________________        +
'''' ___  ____________________________________________________        +
          ____________________________________________________        +
          ____________________________________________________        +
'''' ___  ____________________________________________________        +
          ____________________________________________________        +
          ____________________________________________________        +
'''' ___  ____________________________________________________        +
          ____________________________________________________        +
          ____________________________________________________        +
```

This table describes the fields on the *application - site* Production Libraries panel (CMNCPRDL).

Field	Description
Line Command	Valid line commands: I Insert a new set of production library fields for a library type. R Repeat a set of production libraries for a library type. D Delete a set of production libraries for a library type.
TYPE	Type the library type for a set of production libraries.
PRODUCTION DATASET NAME	Type the library data set name or HFS path and directory for production execution components.
TEMPORARY DATASET NAME	Type the library data set name or HFS path and directory for temporary package components.
BACKUP DATASET NAME	Type the library data set name or HFS path and directory for prior versions (backups) of production components.

4 On the *application* - *site* Production Libraries panel, type * in the line command of the first empty library type and press Enter. The Library Type Selection List is displayed.

```
CMNLTPSL ---------------- LIBRARY TYPE SELECTION LIST ------ Row 1 to 11 of 11
COMMAND ===>                                                  SCROLL ===> HALF

  LIB  DESCRIPTION
_ CPY  Copybooks
_ CTL  Job Control Statements
_ DOC  Documentation
_ JCL  Execution JCL
_ LCT  Link Edit Control Statements
_ LOD  Executable Load Modules
_ LOS  Load for Subprograms to be Statically Linked
_ LST  Compressed Stage Listings
_ PRC  Cataloged Procedures
_ SRC  Source for programs to be Linked Executable
_ SRS  Source for Subpgms to be Statically Linked
****************************** Bottom of data ********************************
```

This list includes only those library types for which you specified Y or C in the Install In Prod field on the *application* - Baseline Configuration panel.

5 On the on the Library Type Selection List panel, type S in the line command for every library type and press Enter. You are returned to the *application* - *site* Production Libraries panel, where library types are filled in.

6 On the *application* - *site* Production Libraries panel, complete the set of production library names for each library type.

NOTE Type NULLFILE in the Temporary Dataset Name field if you prohibit temporary packages in this application by setting the Allow Temporary Packages indicator to NO in application administration parameters.

```
CMNCPRDL ---------- ACTP - SERT8 PRODUCTION LIBRARIES ------- Row 1 to 5 of 13
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for library type selection list.

     TYPE PRODUCTION DATASET NAME
          TEMPORARY DATASET NAME
          BACKUP DATASET NAME
'''' CTL  CMNTP.S8.V710.PROD.CTL                              +
          CMNTP.S8.V710.PROD.CTL.TEMP                         +
          CMNTP.S8.V710.PROD.CTL.BKUP                         +
'''' DBB  CMNTP.S8.V710.PROD.ACTP.DBB                         +
          CMNTP.S8.V710.PROD.ACTP.DBB.TEMP                    +
          CMNTP.S8.V710.PROD.ACTP.DBB.BKUP                    +
'''' DBR  CMNTP.S8.V710.PROD.ACTP.DBR                         +
          CMNTP.S8.V710.PROD.ACTP.DBR.TEMP                    +
          CMNTP.S8.V710.PROD.ACTP.DBR.BKUP                    +
'''' JCL  CMNTP.S8.V710.PROD.JCL                              +
          CMNTP.S8.V710.PROD.JCL.TEMP                         +
          CMNTP.S8.V710.PROD.JCL.BKUP                         +
'''' LOD  CMNTP.S8.V710.PROD.ACTP.LOD                         +
          CMNTP.S8.V710.PROD.ACTP.LOD.TEMP                    +
```

7 Press PF3 to save your changes and return to the *site* - Site Selection List (for a D or DP environment) or the Application Administration Options panel (in an ALL environment.).

Updating Production Libraries

Perform these steps to update production libraries for an application.

1 On the Application Administration Options panel, select Option P and press Enter. If you are configuring a DP environment, the *application* - Site Selection List panel (CMNRMTSL) is displayed.

```
CMNRMTSL --------------- ACTR - SITE SELECTION LIST ---------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> PAGE

  SITE NAME
_ SERT7
_ SERT7P1
_ SERT7P2
_ SERT8
_ SERT9
****************************** Bottom of data ********************************
```

2 On the *application* - Site Selection List panel, select a site by typing S in the line command for the site, and press Enter.

3 The *application* - *site* Production Libraries panel (CMNCPRDL) is displayed. (If you are configuring an ALL environment, this is the first panel you see.)

```
CMNCPRDL ---------- ACTP - SERT8 PRODUCTION LIBRARIES ------- Row 1 to 5 of 13
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for library type selection list.

     TYPE PRODUCTION DATASET NAME
          TEMPORARY DATASET NAME
          BACKUP DATASET NAME
'''' CTL  CMNTP.S8.V710.PROD.CTL                              +
          CMNTP.S8.V710.PROD.CTL.TEMP                         +
          CMNTP.S8.V710.PROD.CTL.BKUP                         +
'''' DBB  CMNTP.S8.V710.PROD.ACTP.DBB                         +
          CMNTP.S8.V710.PROD.ACTP.DBB.TEMP                    +
          CMNTP.S8.V710.PROD.ACTP.DBB.BKUP                    +
'''' DBR  CMNTP.S8.V710.PROD.ACTP.DBR                         +
          CMNTP.S8.V710.PROD.ACTP.DBR.TEMP                    +
          CMNTP.S8.V710.PROD.ACTP.DBR.BKUP                    +
'''' JCL  CMNTP.S8.V710.PROD.JCL                              +
          CMNTP.S8.V710.PROD.JCL.TEMP                         +
          CMNTP.S8.V710.PROD.JCL.BKUP                         +
'''' LOD  CMNTP.S8.V710.PROD.ACTP.LOD                         +
          CMNTP.S8.V710.PROD.ACTP.LOD.TEMP                    +
```

This table describes the fields on the *application* - *site* Production Libraries panel (CMNCPRDL).

Field	Description
Line Command	Valid line commands: I Insert a new set of production library fields for a library type. R Repeat a set of production libraries for a library type. D Delete a set of production libraries for a library type.
TYPE	Type the library type for a set of production libraries.
PRODUCTION DATASET NAME	Type the library data set name or HFS path and directory for production execution components.
TEMPORARY DATASET NAME	Type the library data set name or HFS path and directory for temporary package components.
BACKUP DATASET NAME	Type the library data set name or HFS path and directory for prior versions (backups) of production components.

4 If you want to remove a set of production libraries for a library type, type D in the line command for the library type and press Enter. The library type and its production libraries are removed from the *application* - *site* Production Libraries panel.

NOTE If you remove a library type from the *application* - *site* Production Libraries panel, you must reset the Install In Prod indicator to N or C for that library type on the Baseline Configuration Part 1 of 2 panel. See "Configuring Baseline Libraries" on page 163.

5 To add a library type and a set of production libraries to the *application* - *site* Production Libraries panel, follow these steps:

a Type I (Insert) in the line command above where you want to insert the library type and press Enter. An empty library type entry is inserted on the panel.

b Type * in the line command for the empty library type entry and press Enter. The Global Library Type Selection List panel is displayed.

```
CMNLTPSL ---------------- LIBRARY TYPE SELECTION LIST ------ Row 1 to 11 of 11
COMMAND ===>                                                 SCROLL ===> HALF

  LIB  DESCRIPTION
_ CPY  Copybooks
_ CTL  Job Control Statements
_ DOC  Documentation
_ JCL  Execution JCL
_ LCT  Link Edit Control Statements
_ LOD  Executable Load Modules
_ LOS  Load for Subprograms to be Statically Linked
_ LST  Compressed Stage Listings
_ PRC  Cataloged Procedures
_ SRC  Source for programs to be Linked Executable
_ SRS  Source for Subpgms to be Statically Linked
****************************** Bottom of data ********************************
```

This list includes only those library types for which you specified Y or C in the Install In Prod field on the *application* - Baseline Configuration panel.

c On the on the Library Type Selection List panel, type S in the line command for the library type you want to add and press Enter. You are returned to the *application* -

site Production Libraries panel, where the new library type is filled in at the insertion point.

6 On the *application* - *site* Production Libraries panel, add a set of production libraries for each new library type, or change existing library names.

NOTE Type NULLFILE in the Temporary Dataset Name field if you prohibit temporary packages in this application by setting the Allow Temporary Packages indicator to NO in application administration parameters.

```
CMNCPRDL ---------- ACTP - SERT8 PRODUCTION LIBRARIES ------- Row 1 to 5 of 13
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.
Enter * in line command field for library type selection list.

     TYPE PRODUCTION DATASET NAME
          TEMPORARY DATASET NAME
          BACKUP DATASET NAME
'''' CTL  CMNTP.S8.V710.PROD.CTL                              +
          CMNTP.S8.V710.PROD.CTL.TEMP                         +
          CMNTP.S8.V710.PROD.CTL.BKUP                         +
'''' DBB  CMNTP.S8.V710.PROD.ACTP.DBB                         +
          CMNTP.S8.V710.PROD.ACTP.DBB.TEMP                    +
          CMNTP.S8.V710.PROD.ACTP.DBB.BKUP                    +
'''' DBR  CMNTP.S8.V710.PROD.ACTP.DBR                         +
          CMNTP.S8.V710.PROD.ACTP.DBR.TEMP                    +
          CMNTP.S8.V710.PROD.ACTP.DBR.BKUP                    +
'''' JCL  CMNTP.S8.V710.PROD.JCL                              +
          CMNTP.S8.V710.PROD.JCL.TEMP                         +
          CMNTP.S8.V710.PROD.JCL.BKUP                         +
'''' LOD  CMNTP.S8.V710.PROD.ACTP.LOD                         +
          CMNTP.S8.V710.PROD.ACTP.LOD.TEMP                    +
```

7 Press PF3 to save your changes and return to the *site* - Site Selection List (for a D or DP environment) or the Application Administration Options panel (in an ALL environment.).

Configuring Temporary Override Libraries for ALL Environments

Temporary change packages populate temporary override libraries concatenated over production execution libraries. These override libraries are defined in ChangeMan ZMF application administration as production libraries.

If you are configuring an ALL environment where you use baseline libraries for production execution libraries, and you do not need to define a full set of production libraries, follow these steps to define production override libraries for temporary packages.

1 On the Application Administration Option panel, type the application mnemonic in the Application field, type B on the Option line, and press Enter. The *application* - Baseline Configuration Part 1 of 2 panel is displayed.

2 On the *application* - Baseline Configuration Part 1 of 2 panel, type Y or C in the Install In Prod field for each library type for which you want a production execution override library.

3 When you are finished making entries on the *application* - Baseline Configuration Part 1 of 2 panel, press Enter to save your changes, and you are returned to the Application Administration Options panel.

4 On the Application Administration Options panel, type P in the Options field and press Enter. The *application* - Production Libraries panel is displayed.

5 On the *application* - Production Libraries panel, type * in the line command for an empty row. The Library Type Selection List is displayed. This list includes only those library types for which you specified Y in the Install In Prod field on the *application* - Baseline Configuration panel.

6 On the on the Library Type Selection List panel, type S in the line command for every library type and press Enter. You are returned to the *application* - Production Libraries panel.

7 On the application - Production Libraries panel, make these entries for every library type:

a Type NULLFILE in the Production Dataset Name field

b Type the dataset name of the temporary production execution override library in the Temporary Dataset Name field.

c Type NULLFILE in the Backup Dataset Name field

8 Press PF3 to save your changes and return to the Application Administration Options panel.

Chapter 6

Custom Modifications

Serena recommends against including ChangeMan ZMF load libraries in the LINKLIST; therefore, some ISPF skeletons must be modified to add JOB and JOBLIB statements to batch jobs submitted by ChangeMan ZMF. Other skeletons must be modified to provide data set names for system libraries that comply with local data center standards.

Initial skeleton customization is detailed in the *ChangeMan ZMF Customization Guide*.

Customizing ChangeMan ZMF

ChangeMan ZMF provides a rules-based environment for software configuration management. Its architecture and design provide processes based on best practices for managing application components through the development lifecycle to guarantee the integrity of production systems and data. The basic definitions of ChangeMan ZMF processing rules are established by settings in Global and Application Administration.

Serena recognizes that SCM best practices can be expressed differently in different companies. ChangeMan ZMF architecture is intended to provide customers with the opportunity to modify details of the development lifecycle process. User exits provide you with access to core processes to expand the options. While user interfaces have expanded beyond the mainframe, many key functions are based on batch processing that can be modified to fit your requirements.

User Exits In ChangeMan ZMF

ChangeMan ZMF exits are programs that are called by base product programs. Exits permit you to alter the processing of base product programs depending on the information passed to the exit. Using exits, you can:

- Change defaults and settings for interaction with the operating system.
- Alter what ChangeMan ZMF will do under specific component, package, or life cycle conditions.
- Change who has authority to initiate specific ChangeMan ZMF tasks.
- Change when authorized users can initiate certain tasks.

Common reasons for using exits include:

- Adapt ChangeMan ZMF to your data center standards and environment.
- Enforce your company's standards, processes, and procedures for software change management.
- Implement custom processes to manage unique component build processes.
- Add rule-based flexibility to standard ChangeMan ZMF processing.

The use of exits to provide custom ChangeMan ZMF functions is described in the *ChangeMan ZMF Customization Guide*.

ISPF Skeletons In ChangeMan ZMF

ChangeMan ZMF uses standard ISPF services to build batch job JCL from ISPF skeletons. This approach provides extraordinary flexibility through the use of standard IBM facilities. You can build your own batch processes inside ChangeMan ZMF for component builds and other processes. ChangeMan ZMF maintains the integrity of your software change management environment by securing development and production libraries and allowing only authorized access to its functions.

Modification of ISPF skeletons to provide custom ChangeMan ZMF functions is described in the *ChangeMan ZMF Customization Guide*.

ChangeMan ZMF Utilities

Utility programs included in ChangeMan ZMF batch processes run under the control of program parameters and SYSIN keyword parameters. You can change utility parameters in delivered ChangeMan ZMF skeletons to adjust component processing to fit your standards and requirements. These utilities can also be included in custom skeletons to provide unique functions you design.

ChangeMan ZMF utilities are described in the *ChangeMan ZMF Customization Guide*.

Chapter 7

Monitoring Site and Application Packages

ChangeMan ZMF lets you monitor your site and applications for change package discrepancies as well as monitor and override user-provided installation information. To access any of this functionality the security administrator must have given you access to the monitor functional area.

Introduction

ChangeMan ZMF allows you to monitor your applications for change packages that show discrepancies or abnormalities including the following:

- Distribution without distribution acknowledgment
- Installation date has passed
- Package in APR status in ALL environment
- Package in INS status in ALL environment
- Package status not being changed in TCC after duration
- All Complex/Super packages with OPN status

Change packages that have these discrepancies are considered to be in limbo. You can query the applications for these packages, and act upon the package (such as delete it or postpone its installation).

By querying the applications (or the site) for this information and marking them as being in limbo, you provide filtering criteria for the packages that you want to query.

Although the monitor function is similar to the query function, the functionality has been extended to let authorized users:

- Change install dates
- Change a package's status
- Edit and submit jobs to production

If your site uses ChangeMan ZMF for scheduling, you can monitor a list of packages scheduled for installation, and selectively change, hold, or release installation of the package.

The Monitor Option panel (CMNMONIT) allows you to perform the above tasks.

Accessing the Monitor Option Panel

The Monitor Options panel (CMNMONIT) lets you select and monitor packages in limbo or packages under the control of the internal scheduler for installation or promotion. To access this panel, select Option M on the Primary Option Menu.

```
CMNMONIT ---------------------- MONITOR OPTIONS -------------------------------
OPTION  ===>

  1  Limbo     - Packages in limbo
  2  Install   - CMN installation scheduler
  3  Promotion - CMN promotion scheduler

Press ENTER to process; Enter END command to exit.
```

Querying Package Information

The Monitor Packages in Limbo panel (CMNQRYL1) lets you provide Change Package information to query.

1 From the Monitor Option panel, type 1. The Monitor Packages in Limbo panel (CMNQRYL1) is displayed.

```
CMNQRYL1 ----------------- MONITOR PACKAGES IN LIMBO -------------------------
COMMAND ===>

SPECIFY SELECTION CRITERIA:
PACKAGE ID             ===>             (Full name or pattern; blank for list,
                                         or '*' to select all packages)
FROM INSTALL DATE      ===>             (YYYYMMDD)
  TO INSTALL DATE      ===>             (YYYYMMDD)
FROM CREATION DATE     ===>             (YYYYMMDD)
  TO CREATION DATE     ===>             (YYYYMMDD)

Press ENTER to process; Enter END command to exit.
```

2 In the PACKAGE ID field, type the name of the package you are going to monitor, or select a package based on the following filter criteria:

To select from a list of:	Do this:
Applications	**1** Leave the PACKAGE ID field blank, and press Enter. The Application Selection List (CMNRYL3) panel is displayed. **2** Select an application by entering S in the line command field. Press Enter. The Limbo Package List (CMNQRYL2) panel is displayed. **3** Select one or several packages by entering S in the line command field.
All packages at your site	Enter an * in the PACKAGE ID field and press Enter.
All packages of a certain pattern	Use * pattern masking in the PACKAGE ID field and press Enter. For example, ACT* displays all packages in limbo whose names begin with the characters ACT.

To select from a list of:	Do this:
All packages to be installed in a given date range	**1** In year, month, day format (YYYYMMDD), specify the FROM INSTALL DATE and the TO INSTALL DATE to list all packages that are scheduled to be installed in that date range and press Enter. Or, leave the field blank to access all dates and press Enter. The Application Selection List (CMNQRYL3) panel is displayed if you left the PACKAGE ID field blank. **2** Select an application by entering S in the line command field. **3** Press Enter. The Limbo Package List (CMNQRYL2) panel is displayed. **4** Select one or several packages by entering S in the line command field.
All packages created in a given date range	**1** In year, month, day format (YYYYMMDD), specify the FROM CREATION DATE and the TO INSTALL DATE to list all packages that were created during that date range and press Enter. Or, leave the field blank to access all dates and press Enter. The Application Selection List (CMNQRYL3) panel is displayed if you left the PACKAGE ID field blank. **2** Select an application by entering S in the line command field. **3** Press Enter. The Limbo Package List (CMNQRYL2) panel is displayed. **4** Select one or several packages by entering S in the line command field.

Packages in Limbo

To see a list of applications for limbo testing, press enter on The Monitor Packages in Limbo panel (CMNQRYL1), you'll be presented with a list of applications:

```
CMNQRYL3 ----------------- APPLICATION SELECTION LIST -------- Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> PAGE

  APPL  DESCRIPTION                                 HIGHEST #
S ACTP  ACCOUNTS PAYABLE                             000009
_ GENL  GENERAL LEDGER                               000003
****************************** Bottom of data ********************************
```

Place an S next to the APPL to be limbo queried and press enter:

```
CMNQRYL2 --------------------- LIMBO PACKAGE LIST ------------ Row 1 to 2 of 2
COMMAND ===>                                                  SCROLL ===> PAGE

Enter END command to process or CANCEL to exit.

    PACKAGE ID STATUS INSTALL   CREATION  LEVEL      TYPE        REQUEST
    LIMBO DESCRIPTION
__  ACTP000001  INS   20081231  20080429  SIMPLE  PLANNED PERM
    BASELINE RIPPLE JOB FAILED, PACKAGE IS STILL IN INS STATUS.
__  ACTP000007  INS   20081231  20080507  SIMPLE  PLANNED PERM
    BASELINE RIPPLE JOB FAILED, PACKAGE IS STILL IN INS STATUS.
****************************** Bottom of data ********************************
```

Acting on Limbo Packages

The TYPE column on the Limbo Package List panel (CMNQRYL2) displays the reason for flagging a package as limbo.

1 To act on a package in limbo, place the cursor in a desired row and do any of the following:

- Type DE and press Enter to physically delete the package. The package is marked for deletion, which occurs as soon as you leave this panel.
- Type MD and press Enter to memo delete the package. ChangeMan ZMF marks the package for a memo delete.

  Validate that participating packages are not associated with any super or complex package and that super or complex packages have no associated participating packages.
- Type CD and press Enter to change the installation date of the package. Type the new change package installation date in the INSTALL field.
- Type CS and press Enter to change the package status. Type the new status in the STATUS field.
- Type S and press Enter to manually submit a job to install the package. The Submit Job From panel is displayed. "Manually Submitting a Package in Limbo for Installation" on page 194 describes this panel.

2 Press END. This processes the commands. You can type CANCEL at the command line to exit without processing.

Manually Submitting a Package in Limbo for Installation

1 From the Limbo Package List panel, mark a package for installation by typing an S in the first column of the row (the line command field).

```
 CMNQRYL2 --------------------- LIMBO PACKAGE LIST ------------ Row 1 to 2 of 2
 COMMAND ===>                                                  SCROLL ===> PAGE

 Enter END command to process or CANCEL to exit.

     PACKAGE ID STATUS INSTALL   CREATION  LEVEL      TYPE        REQUEST
     LIMBO DESCRIPTION
 S_  ACTP000001  INS   20081231  20080429  SIMPLE  PLANNED PERM
     BASELINE RIPPLE JOB FAILED, PACKAGE IS STILL IN INS STATUS.
 __  ACTP000007  INS   20081231  20080507  SIMPLE  PLANNED PERM
     BASELINE RIPPLE JOB FAILED, PACKAGE IS STILL IN INS STATUS.
 ****************************** Bottom of data ********************************

CMNRMTSL --------------- ACTP - SITE SELECTION LIST ---------- Row 1 to 1 of 1
 COMMAND ===>                                                  SCROLL ===> PAGE

   SITE NAME
 S C001A
 ****************************** Bottom of data ********************************
```

2 Press Enter. A panel similar to the following CMNQRYL2 panel is displayed.

```
CMNQRYL2 --------------------- LIMBO PACKAGE LIST ------------ Row 1 to 2 of 2
COMMAND ===>                                                 SCROLL ===> PAGE

Enter END command to process or CANCEL to exit.

    PACKAGE ID STATUS INSTALL   CREATION  LEVEL      TYPE        REQUEST
    LIMBO DESCRIPTION
__  ACTP000001  INS   20081231  20080429  SIMPLE  PLANNED PERM   SUBMIT
    BASELINE RIPPLE JOB FAILED, PACKAGE IS STILL IN INS STATUS.
__  ACTP000007  INS   20081231  20080507  SIMPLE  PLANNED PERM
    BASELINE RIPPLE JOB FAILED, PACKAGE IS STILL IN INS STATUS.
****************************** Bottom of data ********************************
```

3 Press END. ChangeMan ZMF presents you with a menu for job selection:

```
CMNQRYL4 B FROM CMNTP.SERT7.DEV.ACTP.#000001.X.C001A ------- Row 1 to 16 of 16
COMMAND ===>                                                  SCROLL ===> PAGE
   NAME     STATUS  VV.MM CREATED       CHANGED         SIZE  INIT    ID
_ ACTP1001          01.01 2008/04/29 2008/04/29 11:05     46     46 USER25
_ ACTP1101          01.01 2008/04/29 2008/04/29 11:05     52     52 USER25
_ ACTP1501          01.01 2008/04/29 2008/04/29 11:05     45     45 USER25
_ ACTP1901          01.01 2008/04/29 2008/04/29 11:05     44     44 USER25
_ ACTP2001          01.01 2008/04/29 2008/04/29 11:05     74     74 USER25
_ ACTP2501          01.01 2008/04/29 2008/04/29 11:05     60     60 USER25
_ ACTP2901          01.01 2008/04/29 2008/04/29 11:05     44     44 USER25
S ACTP3001          01.01 2008/04/29 2008/04/29 11:05    311    311 USER25
_ ACTP3701          01.01 2008/04/29 2008/04/29 11:05     63     63 USER25
_ ACTP5001          01.01 2008/04/29 2008/04/29 11:05     59     59 USER25
_ ACTP5401          01.01 2008/04/29 2008/04/29 11:05     45     45 USER25
_ ACTP5501          01.01 2008/04/29 2008/04/29 11:05    354    354 USER25
_ ACTP5701          01.01 2008/04/29 2008/04/29 11:05     63     63 USER25
_ ACTP5901          01.01 2008/04/29 2008/04/29 11:05     44     44 USER25
_ ACTP6401          01.01 2008/04/29 2008/04/29 11:05     56     56 USER25
_ ACTP6501          01.01 2008/04/29 2008/04/29 11:05     45     45 USER25
****************************** Bottom of data ********************************
```

4 Place an S next to the job for submission and press enter:

```
CMNQRYL4 B FROM CMNTP.SERT7.DEV.ACTP.#000001.X.C001A ------- Row 1 to 16 of 16
COMMAND ===>                                                  SCROLL ===> PAGE
   NAME     STATUS  VV.MM CREATED       CHANGED         SIZE  INIT    ID
_ ACTP1001          01.01 2008/04/29 2008/04/29 11:05     46     46 USER25
_ ACTP1101          01.01 2008/04/29 2008/04/29 11:05     52     52 USER25
_ ACTP1501          01.01 2008/04/29 2008/04/29 11:05     45     45 USER25
_ ACTP1901          01.01 2008/04/29 2008/04/29 11:05     44     44 USER25
_ ACTP2001          01.01 2008/04/29 2008/04/29 11:05     74     74 USER25
_ ACTP2501          01.01 2008/04/29 2008/04/29 11:05     60     60 USER25
_ ACTP2901          01.01 2008/04/29 2008/04/29 11:05     44     44 USER25
_ ACTP3001 *SELECT  01.01 2008/04/29 2008/04/29 11:05    311    311 USER25
_ ACTP3701          01.01 2008/04/29 2008/04/29 11:05     63     63 USER25
_ ACTP5001          01.01 2008/04/29 2008/04/29 11:05     59     59 USER25
_ ACTP5401          01.01 2008/04/29 2008/04/29 11:05     45     45 USER25
_ ACTP5501          01.01 2008/04/29 2008/04/29 11:05    354    354 USER25
_ ACTP5701          01.01 2008/04/29 2008/04/29 11:05     63     63 USER25
_ ACTP5901          01.01 2008/04/29 2008/04/29 11:05     44     44 USER25
_ ACTP6401          01.01 2008/04/29 2008/04/29 11:05     56     56 USER25
_ ACTP6501          01.01 2008/04/29 2008/04/29 11:05     45     45 USER25
****************************** Bottom of data ********************************
```

5 Your job is submitted:

```
CMNQRYL1 ----------------- MONITOR PACKAGES IN LIMBO ----------- JOB SUBMITTED
COMMAND ===>

SPECIFY SELECTION CRITERIA:
PACKAGE ID             ===> ACTP        (Full name or pattern; blank for list,
                                         or '*' to select all packages)
FROM INSTALL DATE      ===>             (YYYYMMDD)
  TO INSTALL DATE      ===>             (YYYYMMDD)
FROM CREATION DATE     ===>             (YYYYMMDD)
  TO CREATION DATE     ===>             (YYYYMMDD)

Press ENTER to process; Enter END command to exit.
```

Installation Jobs

The ChangeMan ZMF install process is accomplished by a sequence of batch jobs.

The first job in the sequence is initiated by the Scheduler defined in the package Installation Instructions. The rest of the jobs in the sequence are automatically submitted to the internal reader by the preceding job or by ChangeMan ZMF when successful completion of a preceding job is recorded in the package master.

When you attempt to restart an install process for a package in limbo, you must choose which job to restart and you must know whether or not to submit that job in the development environment or on a ChangeMan ZMF production environment that runs at a remote site.

The following table describes ChangeMan ZMF installation jobs. The table indicates where each job runs. If you do not have remote production environments, a subset of these jobs is used to install your packages.

DEVELOPMENT CENTER		**REMOTE SITE**	
Job	**Action**	**Job**	**Action**
10	■ Package is audited and/or frozen. ■ Jobs are created in X.&node. ■ Package is approved. ■ Job 10 is submitted to initiate the distribution.		
	■ CMNBATCH transaction 10 says distribution initiated and status is changed to DIS. ■ Vehicle is asked to submit job 11 at remote site.		
11	Staging libraries are sent to remote site.	10	■ Staging libraries are received including QSAM package master. ■ Job 11 is submitted.
		11	■ CMNBATCH transaction 11 overlays package records (on the package master) with QSAM package master. ■ Proper node record is time stamped; status is DIS. ■ Job 14 is submitted. (Only if IEBCOPY is not used.)
		14	Job 14 requests vehicle to submit 15 at DEV site.
		17	Job 17 is submitted if external (not internal) scheduler is used.

DEVELOPMENT CENTER		REMOTE SITE	
Job	**Action**	**Job**	**Action**
		18	Job 18 requests vehicle to submit 19 at DEV site.
15	Job 15 is submitted. (Only if IEBCOPY is used.)		
15	CMNBATCH transaction 15 stamps acknowledgment of distribution.		
19	Notification to package creator that distribution failed.		
		21	Perform DB2 bind for production installation. (INSTALL IN PROD = YES).
		20	Job 20 is submitted to check if package was previously installed. If not, package begins installation.
		20	CMNBATCH transaction 20 changes package status to INS.
		20	Job 24 is submitted. (Only if IEBCOPY is not used.)
		20t	If Temporary, Job 20t runs to install members into temporary libraries.
		24	Requests vehicle to submit 25 at DEV site.
		28	Requests vehicle to submit 29 at DEV site.
25	CMNBATCH transaction 25 changes package status to INS.		
29	Notification to package creator that installation failed.		
25	If Permanent, Job 30 is submitted.		
		30	Job 30 is submitted if system environment is ALL.
30	CMNBATCH transaction 30 changes package status to BAS and ripples the baseline.		
30	Delete members from promotion libraries based on promotion level and library type.		
		31	If temporary, Job 31 runs to delete members from temporary libraries.
		31t	CMNBATCH transaction 31 changes package status to TCC (Temporary Change Cycled) and date/time stamps. Submit job 35.

DEVELOPMENT CENTER		REMOTE SITE	
Job	**Action**	**Job**	**Action**
		32	Performs DB2 bind for production installation (INSTALL IN PROD = NO).
		34t	Requests vehicle to submit 35t at DEV site.
35t	Package status updated to TCC and date/time stamped when all remote sites have been cycled.		
		38t	Requests vehicle to submit 39t at DEV site.
39t	Notification to package creator that the package cycle failed.		CASE: A permanent change must be backed out. ■ Operator makes human decision to back out (full) particular package. ■ Operator enters backout reasons on panel. ■ ChangeMan ZMF instance copies package to same flat file that was sent from development center. ■ Job 50 is submitted.
		49	Job 21 runs the DB2 bind for production backout (INSTALL IN PROD = YES).
		50	■ Backs out the change by copying back from BKUP libraries. ■ Changes package status to BAK. ■ Job 54 is submitted if IEBCOPY is used; else job 51 is submitted.
		50	If system environment is ALL, job 55 is submitted.
		51	Job 51 transmits a QSAM package master to the development center and requests a vehicle to submit job 54.
54	■ Reads flat package and transmits reasons. ■ Updates backout reasons into correct package.		

DEVELOPMENT CENTER		REMOTE SITE	
Job	**Action**	**Job**	**Action**
55	Job 55 is submitted to reverse ripple the baseline if all remote sites are backed out.		
55	■ Status is changed to BAK. ■ * node record is date and time stamped.		
		56	Job 32 runs the DB2 bind for production backout (INSTALL IN PROD = NO).
		58	Job 58 requests vehicle to submit 59 at DEV site.
59	Notification to package creator that package backout failed.		
		64	Job 64 requests vehicle to submit 65 at DEV site.
	■ Package is audited and/or frozen. ■ Jobs are created in X.&node. ■ Package is approved. ■ Job 10 is submitted to initiate the distribution.		

Monitoring the ChangeMan ZMF Installation Scheduler

Once a package has been marked for internal scheduling and distributed, it is under the control of the Installation Scheduler. This tool lets the administrator display a list of scheduled jobs (by entering selection criteria, or blanks for the entire list), and to selectively change, hold, or release jobs. Use this panel to enter criteria for displaying the jobs currently under the control of the Internal Scheduler.

1 From the Monitor Option panel, select Option 2. The Monitor Installation Scheduler Part 1 of 2 (CMNMISCH) is displayed.

```
 CMNMISCH ---------- MONITOR INSTALLATION SCHEDULER - PART 1 OF 2 --------------
COMMAND ===>

SPECIFY SELECTION CRITERIA:
PACKAGE ID             ===>             (Full name or pattern; blank for list,
                                         or "*" for all packages)
FROM INSTALL DATE      ===>             (YYYYMMDD)
  TO INSTALL DATE      ===>             (YYYYMMDD)

Press ENTER to process; Enter END command to exit.
```

2 To monitor the Internal Scheduler for a package, type the name of the package you want to monitor in the PACKAGE ID field, or select a package based on the following filter criteria:

To select from a list of:	Do this:
Applications	**1** Leave the PACKAGE ID field blank, and press Enter. The Application Selection List (CMNRYL3) panel is displayed. **2** Select an application by entering S in the line command field. **3** Press Enter. The Monitor Installation Scheduler - Part 2 of 2 (CMNMISC2) panel is displayed. **4** Select one or several packages by entering S in the line command field.
All packages at your site	Enter an * in the PACKAGE ID field and press Enter.
All packages of a certain pattern	Use * pattern masking in the PACKAGE ID field and press Enter. For example, ACT* lists all packages whose names begin with the characters ACT.
All packages to be installed in a given date range	**1** In year, month, day format (YYYYMMDD), specify the FROM INSTALL DATE and the TO INSTALL DATE to list all packages that are scheduled to be installed in that date range and press Enter. Or, leave the field blank to access all dates and press Enter. The Application Selection List (CMNQRYL3) panel is displayed if you left the PACKAGE ID field blank. **2** Select an application by entering S in the line command field. **3** Press Enter. Monitor Installation Scheduler - Part 2 of 2 (CMNMISC2) panel is displayed. **4** Select one or several packages by entering S in the line command field.

Reviewing the Internally Scheduled Packages List

When the Monitor Installation Scheduler - Part 2 of 2 (CMNMISC2) panel is displayed, you see the jobs that were internally scheduled.

```
 CMNMISCH ---------- MONITOR INSTALLATION SCHEDULER - PART 1 OF 2 -------------
COMMAND ===>

SPECIFY SELECTION CRITERIA:
PACKAGE ID             ===> ACTP        (Full name or pattern; blank for list,
                                         or "*" for all packages)
FROM INSTALL DATE      ===>             (YYYYMMDD)
  TO INSTALL DATE      ===>             (YYYYMMDD)

Press ENTER to process; Enter END command to exit.

            EsssssssssssssssssssssssssssssssssssssssssssssssssssN
            e CMN6504I - No information found for this request. e
            DsssssssssssssssssssssssssssssssssssssssssssssssssssM
```

You can also use the following commands:

- Type L (package ID) and press Enter. The list is positioned to that package's job. You can use this command just like the standard ISPF Locate command.
- Type L CGM and press Enter. ChangeMan ZMF positions the job list to the first occurrence of any CGM change package jobs.

Acting on the Packages

1 To act on one of the packages, place the cursor in the appropriate row and perform one of the following actions:

- Type C and press Enter to change the job's installation date or time. Type in the new date or time in the appropriate column. The Request field is flagged with the *CHANGE message.
- Type D and press Enter to delete an individual package from the scheduler. The STATUS field is flagged with the *DELETE message.
- Type H and press Enter to place a hold on the job. The installation for the package cannot be executed until the hold is removed (using the R command below). The STATUS field is flagged with the *HOLD message.
- Type R and press Enter to release a job that has been held. The job is performed at the regularly scheduled date and time, or immediately if these have expired. The STATUS field is flagged with the *RELEASE message.
- Type S and press Enter to submit the deinstall job for temporary packages before the temporary duration has expired. The STATUS field is flagged with the *SUBMIT message.

2 Press END. If you entered line commands to change, delete, hold, release, or submit jobs, this action saves the changes and returns you to the Monitor Installation Scheduler Part 1 of 2 panel (CMNMISCH).

Monitoring the ChangeMan ZMF Promotion Scheduler

The Promotion Scheduler function allows the user to display a list of packages to be promoted under the control of the ChangeMan ZMF internal scheduler. This function can be used to suspend, push back, or push up a package's promotion date.

Select option 3 to monitor the ChangeMan ZMF Promotion Scheduler:

```
 CMNMONIT ---------------------- MONITOR OPTIONS -----------------------------
 OPTION  ===> 3

   1  Limbo     - Packages in limbo
   2  Install   - CMN installation scheduler
   3  Promotion - CMN promotion scheduler

 Press ENTER to process; Enter END command to exit.
```

Enter the package in question, in this case all CISQ packages:

```
CMNMISCH ---------- MONITOR PROMOTION SCHEDULER - PART 1 OF 2 ----------------
COMMAND ===>

SPECIFY SELECTION CRITERIA:
PACKAGE ID             ===> CISQ*       (Full name or pattern; blank for list,
                                         or "*" for all packages)
FROM INSTALL DATE      ===>             (YYYYMMDD)
  TO INSTALL DATE      ===>             (YYYYMMDD)

Press ENTER to process; Enter END command to exit.
```

There is one CISQ package, CISQ000029.

```
CMNMISC2 --------- MONITOR PROMOTION SCHEDULER - PART 2 OF 2 - Row 1 to 1 of 1
COMMAND ===>                                                 SCROLL ===> PAGE

Enter END command to process or CANCEL to exit.

  PACKAGE ID   DATE       TIME    TYPE          REQUEST  STATUS
_ CISQ000029  20081230    1200
****************************** Bottom of data ******************************
```

The following Line commands can be entered:

- H Causes the submission of a package's install job to be suspended. It will remain so until a subsequent R command is issued. When the internal scheduler reviews the list, this package will be bypassed.
- R Releases an install job that had been previously held in the CMN scheduler.
- C Allows the user to change the package's install/promotion date.
- D Allows the user to delete an individual package from the scheduler. The status field is flagged with the *DELETE message.
- S May only be issued against temporary packages. It submits the deinstall job prior to the temporary change duration being met.This feature is available in the installation scheduler only.

Attaching and Detaching TCP/IP Connections

If TCP/IP comes down while ChangeMan ZMF is up, any users connected via TCP/IP cannot sign back on. The following operator commands allow for recovery from a TCP/IP outage. They also provides the means for:

- Gracefully shutting down all TCP/IP connected users while not interrupting cross-memory connected users.
- Forcefully shutting down all TCP/IP connected users without impacting cross-memory connected users. This function is able to execute even in case of a complete TCP/IP failure.
- Re-initializing the API (and subsequent re-logon of TCP/IP users), optionally providing the name of an alternate TCP/IP (stack).

There are three operator commands for TCP/IP are **STOP**, **START**, and **RESTART**:

TCPIP,STOP,[mins]

This command will display the current users that are connected by ports.

If no interval ([mins]) is specified, 0 minutes are assumed.

As soon as the command has been entered, no further TCP/IP connections are accepted.

A warning will be issued to all TCP/IP connected users every minute up to [mins] minutes, after which the TCP/IP users are terminated.

Refer to the SYSLOG and SERPRINT to see the results of these commands. Messages and message formats change, The following screen scrapes were current when this document was written, and are provided as a reference.

```
NC0000000 C001     2008188 11:28:50.97 USER25   00000280  F SERT3TMP,TCPIP,STOP
N FFDF000 C001     2008188 11:28:51.28 S0466400 00000080  SER0916I TCPIP Stop Requested
N FFDF000 C001     2008188 11:28:51.28 S0466400 00000080  SER0920I Current Users:0 Maximum Users:32767
N FFDF000 C001    2008188 11:28:51.28 S0466400 00000080  SER2010I XCH  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier>
S                                                          Users=0
N FFDF000 C001     2008188 11:28:51.28 S0466400 00000080  SER2012I XCH  No active users found
N FFDF000 C001    2008188 11:28:51.30 S0466400 00000080  SER2010I CMN  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier>
S                                                          Users=0
N FFDF000 C001     2008188 11:28:51.30 S0466400 00000080  SER2012I CMN  No active users found


ISFPCU41 UT DISPLAY SERT3TMP S0466400  DSID     2 LINE 50      COLUMNS 02- 161
 COMMAND INPUT ===>                                          SCROLL ===> PAGE
11.28.51 S0466400  SER0916I TCPIP Stop Requested
11.28.51 S0466400  SER0920I Current Users:0 Maximum Users:32767
11.28.51 S0466400  SER2010I XCH  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier> Users=0
11.28.51 S0466400  SER2012I XCH  No active users found
11.28.51 S0466400  SER2010I CMN  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier> Users=0
11.28.51 S0466400  SER2012I CMN  No active users found
```

TCPIP,START,[name]

This command will start TCP/IP communications (INITAPI) provided that the TCP/IP API has not already been initialized.

If the second parameter ([name]) IS specified, this TCP/IP STC stack name is used when initializing the TCP/IP environment.

When [name] has not been specified connection is made to the default TCP/IP stack, or leaves the selection up to the TCP/IP code which parses the SYSTCPD DD statement.

```
N FFDF000 C001     2008188 11:30:52.71 S0466400 00000080  SER0915I TCPIP Start Requested
N FFDF000 C001     2008188 11:30:52.78 S0466400 00000080  SER1000I CMNSTART TCP/IP environment active at 10.35.11.100..6031
N FFDF000 C001     2008188 11:30:52.78 S0466400 00000080  SER1001I CMNSTART TCP/IP local host name: C001

11.30.52 S0466400  SER0915I TCPIP Start Requested
11.30.52 S0466400  SER1000I CMNSTART TCP/IP environment active at 10.35.11.100..6031
11.30.52 S0466400  SER1001I CMNSTART TCP/IP local host name: C001
```

TCPIP,RESTART,[mins],[name]

The RESTART command will display the active TCP/IP users and stop accepting TCP/IP connection requests. It is combination of the STOP and START command and will behave exactly as if the STOP and START commands had been issued one after the other.

The (optional) parameter [mins] defines how long to allow for a voluntary logoff of the TCP/IP connected users. A warning will be issued to all TCP/IP connected users every minute up to [mins] minutes, after which the TCP/IP users are terminated.

An optional TCP/IP STC name [name] may be specified, overriding the TCP/IP default.

The individual usage of STOP and START commands allows the customer to recycle his TCP/IP STC. Before doing so, the existing TCP/IP users can be gracefully disconnected by using the TCPIP STOP command.

The second RESTART format, that is, with [name] specified, is most useful when the customer wishes to switch TCP/IP stacks by specifying the optional name parameter.

```
NC0000000 C001     2008188 11:42:22.36 USER25   00000280  F SERT3TMP,TCPIP,RESTART
N FFDF000 C001     2008188 11:42:22.55 S0468486 00000080  SER0917I TCPIP Restart Requested
N FFDF000 C001     2008188 11:42:22.55 S0468486 00000080  SER0920I Current Users:0 Maximum Users:32767
N FFDF000 C001    2008188 11:42:22.55 S0468486 00000080  SER2010I XCH  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier>
S                                                         Users=0
N FFDF000 C001     2008188 11:42:22.55 S0468486 00000080  SER2012I XCH  No active users found
N FFDF000 C001    2008188 11:42:22.57 S0468486 00000080  SER2010I CMN  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier>
S                                                         Users=0
N FFDF000 C001     2008188 11:42:22.57 S0468486 00000080  SER2012I CMN  No active users found
N FFDF000 C001     2008188 11:42:22.65 S0468486 00000080  SER1000I XCH      TCP/IP environment active at 10.35.11.100..6032
N FFDF000 C001     2008188 11:42:22.65 S0468486 00000080  SER1001I XCH      TCP/IP local host name: C001

ISFPCU41 UT DISPLAY SERT3TMP S0468486  DSID     2 LINE 38      COLUMNS 02- 161
 COMMAND INPUT ===>                                          SCROLL ===> PAGE
11.42.22 S0468486  SER0917I TCPIP Restart Requested
11.42.22 S0468486  SER0920I Current Users:0 Maximum Users:32767
11.42.22 S0468486  SER2010I XCH  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier> Users=0
11.42.22 S0468486  SER2012I XCH  No active users found
11.42.22 S0468486  SER2010I CMN  ###<User_ID><T_Elapsed><T_LastAct><Partner Identifier> Users=0
11.42.22 S0468486  SER2012I CMN  No active users found
11.42.22 S0468486  SER1000I XCH      TCP/IP environment active at 10.35.11.100..6032
11.42.22 S0468486  SER1001I XCH      TCP/IP local host name: C001
```

Chapter 8

Defining and Running ChangeMan ZMF Reports

ChangeMan ZMF reports display information about global and application administration, change packages, and components managed by ChangeMan ZMF.

Introduction

ChangeMan ZMF reports display information about global and application administration, change packages, and components managed by ChangeMan ZMF. Information for reports comes from the package master and from component history file.

Batch report jobs are initiated online, or jobs can be submitted manually. Batch reporting jobs communicate with a running ZMF instance to access package and component data, but report jobs can also use copies of the online data.

ChangeMan ZMF reports are generated by REXX programs that call XML Services. You can run the reports that are supplied with ChangeMan ZMF, or you can customize them to suit the reporting requirements at your site. Refer to the *ChangeMan ZMF Customization Guide* for information about customizing the REXX reports that are shipped with ChangeMan ZMF and for guidance about writing your own reporting programs.

Global administrators, application administrators, and users who have read access to an application can run ChangeMan ZMF reports online or manually from batch JCL:

- The global administrator determines the reports that the application administrator can run.
- The application administrator determines the reports that application users can run.
- See the *ChangeMan ZMF User's Guide* for instructions on running the reports that are available to application users.

Reports Available to Administrators and Users

The following table lists the reports that are delivered with ChangeMan ZMF. The column named Filters Fields and Variables identifies the report filter fields and the Report Variable that you can specify on the Report Selection List panel (CMNREPT6) when you select the report to be run.

Report Number	Title	Filters Fields and Variables	Date Range
010	Summary of Planned and Unplanned Packages	Application Mnemonic	No
050	Installed Package History Report	Application Mnemonic Package Number	Yes
060	Installed Simple Package History Report	Application Mnemonic Package Number	Yes
070	Package Staging Versions[a]	Application Mnemonic Package Number	Yes
080	Package Component Content	Application Mnemonic Package Number	Yes
090	Super/Complex Packages Report	Application Mnemonic Package Number	Yes
100	Application Configuration Report	Application Mnemonic	No

Report Number	Title	Filters Fields and Variables	Date Range
110	Work Request Number Report	Application Mnemonic Package Number Work Change Request Number[b]	Yes
120	Unplanned Packages Pending Post Approval	Application Mnemonic Package Number	Yes
130	Report of Backed Out Packages	Application Mnemonic Package Number	Yes
140	Report of Rejected Packages	Application Mnemonic Package Number	Yes
160	Trend Analysis of Planned Packages	Application Mnemonic Package Number	Yes
180	Component History Report	Application Mnemonic Package Number Component Name[b]	Yes
185	Component Build Report	Application Mnemonic Package Number Component Name[b]	Yes
190	Trend Analysis of Unplanned Packages	Application Mnemonic Package Number	Yes
200	Copies, Source and Load Component Report	Application Mnemonic Package Number	Yes
210	Utility (Scratch/Rename) Report	Application Mnemonic Package Number	Yes
240	Activity Summary by Application	Application Mnemonic	No
260	Implementation Schedule	Application Mnemonic Package Number	Yes
400	Package Promotion Component Report	Application Mnemonic Package Number	Yes
500	Package Information Report	Application Mnemonic Package Number	Yes
900	Designated Procedures Report	Component Name[b]	No
910	Packages Using the CMN Scheduler	Application Mnemonic Package Number	Yes
920	Staging Library Aging Report	Application Mnemonic	[c]
930	Package Aging Report	Application Mnemonic	[d]
940	Component Aging Report	Application Mnemonic	[e]
950	Report of Delinquent Packages	Application Mnemonic Package Number	Yes
960	Component Level Security Report	Application Mnemonic Component Name[b]	No

Report Number	Title	Filters Fields and Variables	Date Range
970	Packages Pending Approval by Application	Application Mnemonic Package Number	Yes
980	Implementation Calendar Report	Site Name[b]	No
990	Global Administration Configuration Report	none	No

a. The Package Staging Versions Report (CMN070) dynamically allocates the staging libraries. The report may take a long time to run if staging libraries have been migrated.
b. Specify this value in the Report Variable field.
c. Date parameters are set by the AGING - STAGING DATASETS field on the *appl* Parameters Part 3 of 3 panel (CMNGLP03) in application administration.
d. Date parameters are set by the AGING - INSTALLED PACKAGES field on the *appl* Parameters Part 3 of 3 panel (CMNGLP03) in application administration.
e. Date parameters are set by the AGING - COMPONENT HISTORY field on the *appl* Parameters Part 3 of 3 panel (CMNGLP03) in application administration.

Accessing Reports in ZMF Administration

This section tells you how to access ZMF report functions in global and application administration.

Accessing Reports in Global Administration

Follow these steps to access ChangeMan ZMF reports in global administration:

1 On the Primary Option Menu, select option A, Admin, and then select option G, Global, from the Administration Options panel (CMNADMOM). The Global Administration Options panel (CMNGAMEN) is displayed.

2 Select option R, Reports, from the Global Administration Options panel (CMNGAMEN). The Define or Generate Change Man Batch Reports panel (CMNREPT0) is displayed.

```
CMNREPT0 --------- DEFINE OR GENERATE ChangeMan(R) BATCH REPORTS --------------
OPTION ===>

  1  Define    - Define ChangeMan(R) Batch Reports
  2  Reports   - Generate ChangeMan(R) Batch Reports
  3  Analyzer  - Submit Baseline Analyzer Report
  4  Link Date - Submit Link Date Report
  5  DB2       - Submit DB2 object dependency Report

Press ENTER to process; Enter END command to exit.
```

- Option 1, Define Change Man Batch Reports, is described in "Defining General Batch Reports" on page 210.
- Option 2, Generate Change Man Batch Reports, is described in "Submitting Batch Report Jobs Online" on page 213.

- Option 3, Submit Baseline Analyzer Report, is described in "Running the Baseline Analyzer Report" on page 218.
- Option 4, Submit Link Date Report, is described in "Running the Link Date Report" on page 221.
- Option 5, Submit DB2 Object Dependency Report, is only functional if you license the ChangeMan ZMF DB2 Option. See the C*hangeMan ZMF DB2 Getting Started Guide* for instructions.

Accessing Reports in Application Administration

Follow these steps to access ChangeMan ZMF reports in application administration:

1 On the Primary Option Menu, select option A, Admin, and then select option A, Application, from the Administration Options panel (CMNADMOM). The Application Administration Options panel (CMNLAMEN) is displayed.

```
 CMNLAMEN ------------- APPLICATION ADMINISTRATION OPTIONS --------------------
OPTION  ===>

  APPLICATION ===>          (Blank for list)

  1  Parms         - Generate application parameters
  2  Library       - Generate library types
  3  Language      - Generate language names
  4  Procedures    - Generate compiling procedures
  5  Pln Approvals - Create planned approval list
  6  Upl Approvals - Create unplanned approval list
  7  Promotion     - Configure promotion libraries
  8  Sites         - Configure site information
  B  Baseline      - Configure baseline libraries
  C  Component     - Update component information, procedures, security
  D  Delete        - Delete an application
  N  Notify        - Update the Global Notification File
  O  Options       - Configure selectable options
  P  Production    - Configure production libraries
  R  Reports       - Generate application batch reports

Press ENTER to process; Enter END command to exit.
```

- You can type the letter R in the Option field on the Application Administration Options panel (CMNLAMEN), type the 1-to-4-character mnemonic for the target application in the Application field, and press Enter.
- Or, you can leave the Option and Application fields blank and press Enter to display the Application List panel (CMNPLIST). You can then select the target application

from the list of applications that are displayed by typing the letter R in the selection field to the left of the target application and pressing Enter.

```
 CMNPLST2 ---------------------- APPLICATION LIST ------------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> HALF

LINE COMMANDS: 1-Gen Parms   2-Libraries   3-Language    4-Procedures
               5-Pln. Apprv  6-Unp. Apprv  7-Promotion   8-Sites
               B-Baseline    C-Component   D-Delete      N-Notify
               O-Options     P-Production  R-Reports

  APPL  DESCRIPTION                                HIGHEST #  STATUS
R ACTP  ACCOUNTS PAYABLE                            000003
_ ACTR  DR83 TESTING                                000001
_ CISQ  CICS DB2 SETQUERY                           000001
_ GENL  GENERAL LEDGER                              000001
_ PAYR  payroll application                         000000
****************************** Bottom of data ********************************
```

2 The Define or Generate Change Man Batch Reports panel (CMNRPT0) is displayed.

```
CMNREPT0 -------- DEFINE OR GENERATE CHANGE MAN BATCH REPORTS -----------------
OPTION ===>

  1  Define    - Define Change Man Batch Reports
  2  Reports   - Generate Change Man Batch Reports
  3  Analyzer  - Submit Baseline Analyzer Report
  4  Link Date - Submit Link Date Report
  5  DB2       - Submit DB2 object dependency Report

Press ENTER to process; Enter END command to exit.
```

- Option 1, Define Change Man Batch Reports, is described in "Defining General Batch Reports" on page 210.
- Option 2, Generate Change Man Batch Reports, is described in "Submitting Batch Report Jobs Online" on page 213.
- Option 3, Submit Baseline Analyzer Report, is described in "Running the Baseline Analyzer Report" on page 218.
- Option 4, Submit Link Date Report, is described in "Running the Link Date Report" on page 221.
- Option 5, Submit DB2 Object Dependency Report, is only functional if you license the ChangeMan ZMF DB2 Option. See the *ChangeMan ZMF DB2 Getting Started Guide* for instructions.

Defining General Batch Reports

The steps for defining the reports that the global administrator, application administration, and user can access are the same for both global and application administration. The only difference is that application administrators do not see the reports that only global administrators are authorized to access.

As a global or application administrator you can:

- Remove standard reports from the ChangeMan ZMF report facility.
- Add reports that you have customized.
- Restrict who can run reports.

Follow these steps to perform these functions:

1 On the Define or Generate Change Man Batch Reports panel (CMNRPT0), select option 1 Define. The Define Global Change Man Reports panel (CMNREPT1) is displayed.

```
CMNREPT1 -------------- DEFINE GLOBAL CHANGE MAN REPORTS --- Row 1 to 31 of 31
COMMAND ===>                                                 SCROLL ===> HALF

Enter END command to process or CANCEL to exit.
Enter * in line command for default report selection list.

      ID  Type  Report Description
''''  010  A    Summary of Planned and Unplanned Packages___
''''  050  A    Installed Package History Report____________
''''  060  A    Installed Simple Package History Report_____
''''  070  A    Package Staging Versions Report_____________
''''  080  U    Package Component Content___________________
''''  090  A    Super/Complex Packages Report_______________
''''  100  A    Application Configuration Report____________
''''  110  A    Work Request Number Report__________________
''''  120  A    Unplanned Packages Pending Post Approval____
''''  130  A    Report of Backed Out Packages_______________
''''  140  A    Report of Rejected Packages_________________
''''  160  A    Trend Analysis of Planned Packages__________
''''  180  A    Component History Report____________________
''''  185  A    Component Build Report______________________
''''  190  A    Trend Analysis of Unplanned Packages________
''''  200  A    Copies, Source and Load Component Report____
''''  210  A    Utility (Scratch/Rename) Report_____________
''''  240  A    Activity Summary by Application_____________
''''  260  A    Implementation Schedule_____________________
''''  400  U    Package Promotion Component_________________
''''  500  U    Package Information Report__________________
''''  900  G    Designated Compile Procedures_______________
''''  910  A    Packages Using the CMN Scheduler____________
''''  920  G    Staging Libray Aging Report_________________
''''  930  G    Package Aging Report________________________
''''  940  G    Component Aging Report______________________
''''  950  A    Report of Delinquent Packages_______________
''''  960  G    Component Level Security____________________
''''  970  A    Packages Pending Approval by Application____
''''  980  G    Implementation Calendar Report______________
''''  990  G    Global Administration Configuration Report__
****************************** Bottom of data ********************************
```

NOTE If you are defining reports in application administration, the Define Application *appl* Change Man Reports panel (CMNREPT2) is displayed instead. The reports you define in global administration apply to all applications; the reports you define in application administration apply only to the target application.

The following table describes the fields on the Define Global Change Man Report panel (CMNREPT1).

Field	Description
Line Command	Type a line command to insert, repeat, or delete a report row. Valid values are: I Insert a new report row below the selection. R Repeat an existing report row. D Delete an existing report. * Display the Default Defined Reports Selection List panel (CMNREPT8) to add a standard report from that list.
ID	If you are inserting a new row, type the 3-character report ID. Report IDs must be unique.
Type	If you are inserting a new row, enter a report type to determine who can run the report online. Valid values are: G Only global administrators can run this report. The report appears only on the list of batch reports that the global administrator can access. A Global and application administrators can run this report. U Users can run this report. (The application administrator can customize the list of reports that users can run for each application.)
Report Description	If you are inserting a new row, type a report description.

2 If you type * in the line command field, the Global Default Defined Report Selection List panel (CMNREPT7) is displayed.

```
CMNREPT8 ----------- DEFAULT DEFINED REPORTS SELECTION LIST- Row 1 to 17 of 31
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to process or CANCEL to exit.

   ID  Type  Report Description
_  010  A    Summary of Planned and Unplanned Packages___
_  050  A    Installed Package History Report____________
_  060  A    Installed Simple Package History Report_____
_  070  A    Package Staging Versions Report_____________
_  080  U    Package Component Content___________________
_  090  A    Super/Complex Packages Report_______________
_  100  A    Application Configuration Report____________
_  110  A    Work Request Number Report__________________
_  120  A    Unplanned Packages Pending Post Approval____
_  130  A    Report of Backed Out Packages_______________
_  140  A    Report of Rejected Packages_________________
_  160  A    Trend Analysis of Planned Packages__________
_  180  A    Component History Report____________________
_  185  A    Component Build Report______________________
_  190  A    Trend Analysis of Unplanned Packages________
_  200  A    Copies, Source and Load Component Report____
_  210  A    Utility (Scratch/Rename) Report_____________
```

Type the letter S in the line command field of the report or reports that you want to select and press Enter. You return to the Define Global Change Man Reports panel (CMNREPT1). The selected reports will have been inserted on this panel.

3 To save your updates, press PF3 or type END on the Command line and press Enter.

Generating ChangeMan ZMF Batch Reports

This section provides instructions for requesting ChangeMan ZMF general batch reports online and manually submitting batch reporting jobs.

Submitting Batch Report Jobs Online

Follow these steps to run batch reports from global administration. (The same steps apply to application administration.)

1 On the Define or Generate Change Man Batch Reports panel (CMNRPT0), select option 2 Reports. The Generate Changeman(R) Batch Reports panel (CMNREPT4) is displayed.

```
CMNREPT3 -------------- GENERATE ChangeMan(R) BATCH REPORTS -------------------
COMMAND ===>

JOB STATEMENT INFORMATION:
===> //USER2394 JOB (X170,374),'S4.V712',_____________________________________
===> //         CLASS=A,MSGCLASS=Y,NOTIFY=USER239_____________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

NOTE In application administration, the Generate Application *appl* Batch Report panel (CMNREPT4) is displayed. Fill in the panel in the same way that is described for panel CMNREPT3.

2 Supply an appropriate JOB statement to be used when the selected report is submitted for execution and press Enter. The Report Selection List panel (CMNREPT6) is displayed. All reports that you have defined in the global administration report definition process described in "Defining General Batch Reports" on page 210 will

appear on this panel. (If you are accessing this panel in application administration, only the reports defined for the target application appear on the list.)

```
CMNREPT6 ------------------- REPORT SELECTION LIST --------- Row 1 to 10 of 31
COMMAND ===>                                                SCROLL ===> HALF

Enter END command to process or CANCEL to exit.

Application Mnemonic   ===>               Package Number         ===>
 (Optional, can be masked)                 (Optional, can be masked)
Report Variable        ===>                                                +
 (Optional, can be masked)                Extended Report        ===>   (Y/N)
Report Date Range From ===>               To ===>
 (YYYYMMDD, both optional)
Mixed Case             ===> NO   (Yes/No)

  ID   Report Description
_ 010  Summary of Planned and Unplanned Packages
_ 050  Installed Package History Report
_ 060  Installed Simple Package History Report
_ 070  Package Staging Versions Report
_ 080  Package Component Content
_ 090  Super/Complex Packages Report
_ 100  Application Configuration Report
_ 110  Work Request Number Report
_ 120  Unplanned Packages Pending Post Approval
_ 130  Report of Backed Out Packages
```

The following table describes the fields on the Report Selection List panel (CMNREPT6).

Field	Description
Application Mnemonic	The full 4-character application mnemonic or a pattern that consists of one or more characters of the application mnemonic followed by an asterisk. If you specify a pattern, all applications that match the pattern are included in the report. Use a period to preserve a blank space if the application mnemonic consists of fewer than 4 characters. For example: GEN. Identifies an application named GEN. GENL Identifies an application named GENL. GE* Identifies all applications whose names begin with the letters GE.

Field	Description
Package Number	The 6-character package number or a pattern that consists of one or more characters of the package number followed by an asterisk. If you specify a pattern, all packages that match the pattern are included in the report. A blank assumes *. The value of the Application Mnemonic and the Package Number field together determine the package or packages to include in the report. The Package Number is ignored if you specify a pattern for the Application Mnemonic. For example: ■ If Application Mnemonic is GENL and Package Number is 000022, the report only contains information about package GENL000022. ■ If Application Mnemonic is GEN*, all packages in all applications whose names begin with the characters GEN are included in the report. ■ If Application Mnemonic is GENL and Package Number is 00002*, all packages whose names match the pattern GENL00002*x* are included in the report.
Report Variable	A variable (other than the Application Mnemonic or the Package Number) or a pattern that consists of one or more characters of the variable value followed by an asterisk. If you specify a pattern, all items that match the pattern are included in the report. Blank assumes *.
Report Date Range From	Optionally type a From date in the format yyyymmdd. If you omit this field, the date 19600101 (January 1, 1960) is used by default
Extended Report	Y Append an 'E' to the selected report ID to execute a version of the REXX report program that expands component names to 256 bytes, and dataset names to 1024 bytes. Use this option when managing HFS components. N Execute the standard REXX report program that assumes 8 character component names and 44 character dataset names.
Report Date Range To	Optionally type a To date in the format yyyymmdd. If you omit this field, today's date is used by default.
Mixed Case	N Fold Component Name input to upper case regardless of the case that you type. Y Process Component Name input exactly as you type it, upper and lower case.
report selection field	Type one of the following values in the selection field to the left of the Report ID: S Select this report. D Deselect a report that you have selected by mistake.
Report ID	The 3-character report identification number.
Report Description	Description of report content.

3 To run the selected report or reports, press PF3 or type End on the Command line and press Enter.

Manually Submitting a Batch Report Job

Instead of submitting ChangeMan ZMF report jobs online through the ISPF interface, you can submit your own batch job outside of ChangeMan ZMF to generate a report.

1 Customize the REPORTS member of the CNTL library according to the JCL comments:

- Provide a valid JOB statement.
- Specify the appropriate filter fields and variable for the specified report.
- Specify the appropriate library names in job DD statements.

2 Submit the JCL.

NOTE The ChangeMan ZMF ISPF client does not have to be running, but the started task does. The batch job connects directly to the SERNET started task.

Viewing Report Output

Report output is written to DDname SYSTSPRT, which is defined with attributes RECFM=FBA and LRECL=133. The first character of each report record is a print control character.

If you request multiple reports in the same job, each report is executed in a separate job step that is named REP*nnn*, where *nnn* is the report number.

Use an ISPF facility such as the System Display and Search Facility (SDSF) to view report output online.

Running Reports Against Backup Data

Sample job REPORTS can be run with package master and component master backup data if three DD statements are added:

- CMNPMAST - VSAM file in the same format as the package master attached to the started task.
- CMNELDSP - VSAM LDS in the same format as the component LDS attached to the started task.
- MAPDATA - Sequential file created by sample job XMLLOAD when the XMLSPACE file is created.

Sample JCL for running ChangeMan ZMF when the ZMF instance is down:

```
//USER2394 JOB (X170,374),'S4.V712',
//         CLASS=A,MSGCLASS=Y,NOTIFY=USER239
//*
//JOBLIB    DD DISP=SHR,                                    * Custom Load
//             DSN=CMNTP.S4.V712.CMNZMF.CUSTOM.LOAD
//          DD DISP=SHR,                                    * Custom Load
//             DSN=CMNTP.S4.V712.SERCOMC.CUSTOM.LOAD
//          DD DISP=SHR,                                    * Vendor Load
//             DSN=CMNTP.S0.V712.CMNZMF.LOAD
//          DD DISP=SHR,                                    * Vendor Load
//             DSN=CMNTP.S0.V712.SERCOMC.LOAD
//*
//REP050 EXEC PGM=IRXJCL,REGION=0M,
// PARM='CMN050 * 4 USER239 . .'
//SYSEXEC  DD DISP=SHR,                                      * Custom Prod
//             DSN=CMNTP.S4.V712.CMNZMF.CUSTOM.REX
//          DD DISP=SHR,                                      * Vendor Prod
//             DSN=CMNTP.S0.V712.CMNZMF.REX
//          DD DISP=SHR,                                      * Vendor Prod
//             DSN=CMNTP.S0.V712.SERCOMC.CEXEC
//SER#PARM  DD DISP=SHR,DSN=CMNTP.S4.V712.SERCOMC.TCPIPORT
//SYSPRINT DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*,DCB=(RECFM=FBA,LRECL=133)
//SERPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//CMNPMAST  DD DISP=SHR,                                  * Package Master
//             DSN=CMNTP.S4.V712.CMNZMF.CMNPMAST,
//             AMP=('STRNO=255,BUFND=255,BUFNI=66')
//CMNELDSP  DD DISP=SHR,                             * Component Master LDS
//             DSN=CMNTP.S4.V712.CMNZMF.CMNELCTX
//MAPDATA   DD DISP=SHR,                                  * XML dataspace
//             DSN=CMNTP.S4.V71201T4.SERCOMC.MAPDATA
```

The XML MAPDATA dataset is the same as that used by XMLSERV.

Notes on Batch Report Job JCL

Note the following regarding JCL that is file tailored from ZMF skeleton CMN$$RPT when you initiate a ZMF report online or when you manually submit a batch reporting job modeled on CMNZMF CNTL member REPORTS:

- REXX report programs are located in the library concatenation at the SYSEXEC DD statement. Serena ships the source for ZMF REXX report programs. If you use the REXX compiler at your installation, you can compile the delivered source into a CEXEC library and add that library to the SYSEXEC DD concatenation.
- You always need a SER#PARM DD statement to locate the ZMF instance to which you want to connect.
- TCP/IP is used for communication across address spaces when a report is run. TCP/IP messages are written to SYSPRINT.
- Diagnostic messages are written to SERPRINT.
- Report output is written to SYSTSPRT.
- If an abend should occur when you are running a report, information about the abend is written to SYSABEND.

Running the Baseline Analyzer Report

Baseline Analyzer is a utility that examines the integrity of your source and load relationships. It identifies components that have not yet been properly migrated by ChangeMan ZMF as well as discrepancies between source components and executable components.

As a global or application administrator, use the Baseline Analyzer to:

- Analyze baseline libraries after you install a package into production
- Periodically inspect applications for potential issues
- Analyze the entire ChangeMan ZMF subsystem on a periodic basis

Follow these steps to run the Baseline Analyzer Report from global or application administration.

1 On the Define or Generate Change Man Batch Reports panel (CMNREPT0), select option 3 Analyzer.

```
CMNREPT0 --------- DEFINE OR GENERATE ChangeMan(R) BATCH REPORTS --------------
OPTION ===>

  1  Define    - Define ChangeMan(R) Batch Reports
  2  Reports   - Generate ChangeMan(R) Batch Reports
  3  Analyzer  - Submit Baseline Analyzer Report
  4  Link Date - Submit Link Date Report
  5  DB2       - Submit DB2 object dependency Report

Press ENTER to process; Enter END command to exit.
```

2 The Generate Change Man Baseline Analyzer Report panel (CMNBLA03) is displayed.

```
CMNBLA03 ------------- GENERATE BASELINE ANALYZER REPORT ----------------------
COMMAND ===>

APPLICATION ===>      (Full name or pattern)

JOB STATEMENT INFORMATION:
===> //USER2394 JOB (X170,374),'S4.V712',_____________________________________
===> //         CLASS=A,MSGCLASS=Y,NOTIFY=USER239_____________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

In application administration, the Generate Baseline Analyzer Report for Application *appl* panel (CMNBLA04) is displayed.

The following table describes the fields on the panel.

Field	Description
Application	Type the application mnemonic or a pattern ending in an * (asterisk). For example, G* selects all applications whose mnemonics begin with the letter G. Type * in this field to select all applications. This field does not appear on panel CMNBLA04 in application administration.
JOB Statement Information	Type a valid JOB statement to be used when the batch report job is submitted.

3 Press Enter to submit the job.

Baseline Analyzer Report Format

The body of the Baseline Analyzer Report is written to DDname BASLNRPT. Use an output display facility such as SDSF to view report output.

The components are listed by application and like-load library type. The application, library type, and the name of the corresponding baseline library is displayed in a section header.

```
 ChangeMan(R)      CMNBASLN - 7.1.2 Baseline Analyzer  WEDNESDAY OCTOBER 10, 2012 @ 17:06:22   Page 1


Application = ACTP    Library Type = LOD
Baseline Library Name = CMNTP.S4.V711.BASE.ACTP.LOD

Load       Source    Library Package    Directory Package  Baseline          Package
ACPSRCCA   ACPSRCCA   SRC    ACTP000050 62931CB2  62931CB2 9914D4F0000003C2
ACPSRCCC   ACPSRCCC   SRC    ACTP000050 629317B3  629317B3 06CCA516000002F9
ACPSRCCE   ACPSRCCE   SRC    ACTP000076 630B73E8  630B73E8 A0D81AED00000305  A0D81AED00000305
ACPSRCD1   n/a        n/a    n/a        604A78FA  n/a      n/a               n/a
  Orphan/new component - this component has not been baseline rippled by Change Man
ACPSRCSA   ACPSRCSA   SRC    ACTP000053 6297B75B  6297B75B C73D902E000002A1  C73D902E000002A1
ACPSRC1A   ACPSRC1A   SRC    ACTP000007 61118F95  61118F95 6E1E9BDD0000035A  6E1E9BDD0000035A
ACPSRC2A   ACPSRC2A   SRC    ACTP000007 60AFDAB5  60AFDAB5 0BDCE5E7000002A6  0BDCE5E7000002A6
ACPSRC30   ACPSRC30   LOS    ACTP000026 6213DA42  6213DA42 n/a               0000000000000000
ACPSRC4A   ACPSRC4A   SRC    ACTP000081 63348DFA  63348DFA BBACD55800000649  BBACD55800000649
ACPSRC50   ACPSRC50   LOS    ACTP000007 61118EFA  61118EFA n/a               0000000000000000
ACPSRC6A   ACPSRC6A   SRC    ACTP000082 6335736E  6335736E 64C1C8C400000629  64C1C8C400000629
ACPSRC80   ACPSRC80   SRC    ACTP000007 60AFD85C  60AFD85C EFC3226000000239  EFC3226000000239
ACPSRC90   ACPSRC90   SRC    ACTP000007 60AFD87D  60AFD87D AB65F11B00000282  AB65F11B00000282
ACPSRC91   ACPSRC91   SRC    ACTP000018 6111713D  6111713D 289A2E9D000002F7  289A2E9D000002F7
ACPSRC92   ACPSRC92   SRC    ACTP000018 6111714F  6111714F 289612CD000002F7  289612CD000002F7
ACPSRC93   ACPSRC93   SRC    ACTP000018 6111716E  6111716E BBCCE3D1000002AE  BBCCE3D1000002AE
ACPSRC94   ACPSRC94   SRC    ACTP000007 60AFD872  60AFD872 E7CB2A2000000239  E7CB2A2000000239
ACPSRC95   ACPSRC95   SRC    ACTP000007 60AFD873  60AFD873 C7CB0A4000000239  C7CB0A4000000239
ACPSRC96   ACPSRC96   SRC    ACTP000007 60AFD87E  60AFD87E F7CB3A4000000239  F7CB3A4000000239
ACPSRC97   ACPSRC97   SRC    ACTP000007 60AFD872  60AFD872 D7CB1A2000000239  D7CB1A2000000239
ACPSRC98   ACPSRC98   SRC    ACTP000007 60AFD87D  60AFD87D AFCB622000000239  AFCB622000000239
ACPSRC99   ACPSRC99   SRC    ACTP000007 60AFD85C  60AFD85C B3A56F3600000254  B3A56F3600000254
SAMSRC1A   SAMSRC1A   SRC    ACTP000051 6296587E  6296587E 000AAA380000025A  000AAA380000025A

CMN5400I - Time of day at end of job: 17:06:22 - Condition Code on exit: 00
```

When the Baseline Analyzer Report detects a potential problem, a status condition message is printed below the component detail line. This table provides a description of the status condition messages.

Condition Message	Description
Blank status line	The load component is in-synch with the source component.
Baseline/Package SETSSI not matching	The SETSSI number within the baseline directory does not match the SETSSI in the package master load record. A third-party vendor product could have changed the baseline component SETSSI entry or the load module in baseline has been copied over.
Baseline/Package HASH not matching	The hash token for the baseline component does not match the hash token in the package master source and load records. Someone could have changed the source component outside of ChangeMan ZMF, using ISPF edit, or the package master's source and load records could have been corrupted.
Last baseline rippled package information not in the component history record	This load component is currently part of an active ChangeMan ZMF package. The package has not been through the life cycle, or baseline rippled.
Source baselines not defined	The library type of this source component no longer exists with the application
Source Records not in package master	The originating source and load component records are not in the package master or that package record within the package master could be corrupted.
Components not found in source baseline	The originating source component for this load module is not in the SOURCE baseline library. The component was deleted or renamed in the baseline library.
Stand alone load modules	The load component was not created by compiling a source component within a ChangeMan ZMF package. It is probably a vendor load module
Orphan/hew components	This component has not been baseline rippled by ChangeMan ZMF. This load component has never been part of a ChangeMan ZMF package. There is no history record or information for this component.

The summary section of the Baseline Analyzer Report is written to DDname SUMRYRPT.

```
ChangeMan(R)      CMNBASLN - 7.1.2 Baseline Analyzer  WEDNESDAY OCTOBER 10, 2012 @ 17:06:22    Page 1

Summary of Baseline Analyzer Activity:

Number of Components Processed                    =           23
Number of Baseline/Package SETSSI does not match  =            0
Number of Baseline/Package HASH does not match    =            0
Number of Last baseline rippled Package not found =            0
Number of Source Baseline not defined             =            0
Number of Source Record not in Package Master     =            0
Number of Component not found in Source Baseline  =            0
Number of Stand alone load module                 =            0
Number of Orphan/New Components                   =            1
Number of Components with non-standard directory  =            0
Number of Components in Synch                     =           22

CMN5400I - Time of day at end of job: 17:06:22 - Condition Code on exit: 00
```

Running the Link Date Report

The Link Date report lists the contents of every library concatenated in the STEPLIB DD statement of the SERNET started task that runs a ChangeMan ZMF instance. The purpose of the report is to help Serena diagnose problems you may report to Customer Support.

The report is the same whether it is run from global or application administration.

Follow these steps to run the Link Date report from global administration.

1 Select option 4, Link Date, from the Define or Generate Change Man Batch Reports panel (CMNREPT0).

```
 CMNREPT0 -------- DEFINE OR GENERATE CHANGE MAN BATCH           JOB SUBMITTED
OPTION ===>

  1  Define    - Define Change Man Batch Reports
  2  Reports   - Generate Change Man Batch Reports
  3  Analyzer  - Submit Baseline Analyzer Report
  4  Link Date - Submit Link Date Report
  5  DB2       - Submit DB2 object dependency Report

Press ENTER to process; Enter END command to exit.
```

2 The Generate Change Man Link Date Report panel (CMNLNKD1) is displayed.

```
CMNLNKD1 ------------ GENERATE CHANGE MAN LINK DATE REPORT --------------------
COMMAND ===>

JOB STATEMENT INFORMATION:
===> //S3ACTPLD JOB (ACCOUNT),'CHANGE MAN',     <=== CHANGE ACCORDINGLY______
===> //             CLASS=A,                      <=== CHANGE ACCORDINGLY_____
===> //             NOTIFY=USER25,                <=== CHANGE ACCORDINGLY_____
===> //             MSGCLASS=A                    <=== CHANGE ACCORDINGLY_____

Press ENTER to process; Enter END command to exit.
```

3 Review the job card statement information, make any necessary changes, and press Enter. A message is displayed that indicates that the job was submitted.

Here is a sample Link Date Report. The ChangeMan ZMF version is printed in the first line of the report. The rest of the information displayed on the report is self explanatory.

```
CMN6310I - No Change Man components to list within DSN610.SDSNLOAD.
CMN5400I - Time of day at end of job: 12:49:33 - Condition Code on exit: 00
CMNLNKDT has a compile date/time of 20080522   00.51

Change Man Component Link Date Report (MVS - 6.1.0)  SUNDAY JULY 6, 2008 @ 12:49:33                                    Page 1


  Data set being processed ===> CMNTP.SERT3.CMNZMF.CUSTOM.LOAD

   Member                  Link
    Name               Date    Time       SETSSI
  CMNEXINS


  Data set being processed ===> CMNTP.SERT3.CMNZMF.V6R1M0.LOAD

   Member                  Link
    Name                Date    Time       SETSSI
  CDF$ISPF            20080521 225252     5B049F44
  CDFBATCH            20080511 075952     5AF69EF8
  CDFPANEL            20080511 080018     5AF69F12
  CMN$AAPR            20080521 235740     5B04AE74
  CMN$ACGD            20080521 235739     5B04AE73
  CMN$ACPM            20071214 021055     5A31DDAF
  CMN$ACSC            20080521 225329     5B049F69
  CMN$ADBA            20080521 235739     5B04AE73
  CMN$ADBL            20080521 235739     5B04AE73
  CMN$ADCP            20080521 235739     5B04AE73
```

Running the DB2 Object Dependency Report

The DB2 Object Dependency report is a batch report that analyzes DB2 stored procedures and user defined functions for dependencies that will interfere with the automatic DROP that is issued before a CREATE SQL is executed at package promote, demote, install, or backout.

NOTE The DB2 Object Dependency report is available only if you have licensed the DB2 Option. Refer to the *ChangeMan ZMF DB2 Option Getting Started Guide* for more information about this report.

Chapter 9

Batch Housekeeping Tasks

You must perform periodic maintenance on files used by ChangeMan ZMF, particularly the VSAM files used to store package information, component information, and user activity information.

This chapter describes the steps required to create and install batch housekeeping jobs, and it lists critical housekeeping functions.

Build and Install Housekeeping Jobs

Build housekeeping jobs, install them in production, and add them to your production schedule before you begin using ChangeMan ZMF to manage production applications and before you allow developers to start changing application components in ChangeMan ZMF.

Sample JCL for batch housekeeping jobs is delivered in the CMNZMF CNTL library on the distribution CD. Perform these steps to transform the sample JCL into production jobs:

1. Repackage the functions in the sample JCL provided by Serena. Group housekeeping functions together that have the same requirements:
   - Execute with ChangeMan ZMF running
   - Execute when ChangeMan ZMF is down
   - Run on the same schedule or frequency
2. Add steps to automatically stop or start the SERNET started task, if your environment allows you to automate this function.
3. Transform the revised JCL into cataloged procedures, job execution JCL, and control library members that comply with your standards for production jobs. Ensure that the jobs you create are restartable and re-runable.
4. Add the housekeeping jobs to your production schedule. SERNET and ChangeMan ZMF must be down to run some housekeeping jobs. Developers cannot make changes to components and packages cannot be installed when ChangeMan ZMF is down. Schedule down time when package installs are unlikely and when it is unlikely that developers will need ChangeMan ZMF to perform emergency fixes for production problems.
5. Create job documentation, request production schedule changes, request report distribution, create GDG indexes, and install the new job components into production libraries.

Summaries of critical housekeeping functions are given below.

Backup/Restore And Unload/Load

For several data stores, you have a choice between running a VSAM IDCAMS backup or a proprietary ChangeMan ZMF program that unloads the data to formatted sequential records. Consider these facts when you decide which kind of job to schedule.

IDCAMS Backup (Restore)	ZMF Program Unload (Load)
■ Runs faster than proprietary program. ■ For VSAM KSDS, backup and restore reorganizes the data, recovers space, and improves efficiency. ■ For LDS, creates a physical copy of the byte addressable space.	■ Formatted records are required for forward recovery process. ■ For LDS, unload and load reorganizes the data and recovers space with physical deletes. ■ For LDS, unload and load is the only way to change the physical file allocation.

Package Master Housekeeping

This section describes housekeeping jobs that maintain the package master VSAM file.

Unload Package Master

Unload package master VSAM files to a QSAM file.

Sample JCL Member	BACKUP
Utilities	CMNBKRST with the BACKUP parameter
Suggested Frequency	Daily
SERNET Status	The SERNET instance where the VSAM files are used should be down.
Comments	Use utility CMNBKRST to backup and restore the package master VSAM file. The QSAM copy of the package master created by CMNBKRST is required to apply recovery file records to rebuild a corrupted package master. You cannot apply recovery file records to an IDCAMS backup.

Load And Forward Recover Package Master

Define and initialize the package master VSAM file, and then forward recover the package master by applying recovery file records to the last unload file created by program CMNBKRST. If you use the current package master unload file as input, no recovery file records are applied.

Sample JCL Member	RESTORE
Utilities	IDCAMS CMNVINIT CMNBKRST with RESTORE parameter
Suggested Frequency	On request.
SERNET Status	The SERNET instance where the VSAM files are used must be down.
Comments	Use utility CMNBKRST to backup and restore the package master VSAM file. The QSAM copy of the package master created by CMNBKRST is required to apply recovery file records to rebuild a corrupted package master. You cannot apply recovery file records to an IDCAMS backup.

Reorganize Package Master

Unload the package master VSAM file, define and initialize a new VSAM file, and then forward recover the package master by applying recovery file records to the unload file created by program CMNBKRST. (No recovery file records are applied because the unload file is current.)

Sample JCL Member	Combine BACKUP and RESTORE.
Utilities	CMNBKRST with the BACKUP parameter IDCAMS CMNVINIT CMNBKRST with RESTORE parameter
Suggested Frequency	Weekly
SERNET Status	The SERNET instance where the VSAM files are used must be down.
Comments	Use utility CMNBKRST to backup and restore the package master VSAM file. The QSAM copy of the package master created by CMNBKRST is required to apply recovery file records to rebuild a corrupted package master. You cannot apply recovery file records to an IDCAMS backup.

Forward Recover Package Master From Backup

See "Load And Forward Recover Package Master" on page 225.

Delete Aged Packages, Staging Libraries, And Component History

Delete package master records for aged installed packages. Scratch aged staging libraries. Delete aged component history records. Delete all elements of memo deleted packages.

CAUTION! If you license the ChangeMan ZMF ERO Option, a release is deleted when the last change package attached to the release is aged and deleted. There is no indication in the housekeeping job sysout that releases have been deleted.

JCL for this job is file tailored from skeleton CMN$$HKP by the Delete housekeeping task in Global Administration.

Create JCL for a batch housekeeping job by executing these steps on a ChangeMan ZMF 7.1 instance:

1 From the **Primary Option Menu**, select **A Admin**, then **G Global**, **H Housekeeping**, and then **1 Delete**. (=A.G.H / 1) The **Generate Housekeeping Job** panel (CMNHOUS1) is displayed.

2 Follow the instructions on the panel to prepare the housekeeping job. (Use ***** in the **Application** field to run the job for all applications.)

3 Press **Enter** to submit and run the job. To generate JCL for the job without running the job, add TYPRUN=SCAN to the job statement, then press **Enter**.

4 Find the job output in SDSF. Enter line command **SJ** (show JCL) by the job name and press **ENTER**. The generated job JCL is shown in an ISPF edit session.

5 Copy the JCL to your CUSTOM CNTL library and edit it to suit your needs.

Sample JCL Member	File tailored from skeleton CMN$$HKP
Utilities	CMNBKRST with the BACKUP parameter CMNBAT10, Report CMN920 CMNBATCH
Suggested Frequency	Weekly
SERNET Status	ChangeMan ZMF can be running. If it is not running, the CMNBATCH transactions are written to the Delay file and CMNBATCH gives RC=06. When ChangeMan ZMF is started, the transactions in the Delay file are processed, and package master records are removed and staging libraries are scratched.
Comments	If you want to archive aged package and component records, run the job described in "Archive Aged Package And Component Records" on page 227 before you run this job. The aging thresholds for installed packages, staging libraries, and component history are defined in application administration. There is no aging for memo deleted packages (status DEL). All elements of memo deleted packages are physically deleted when you run the online housekeeping delete function. When program CMNBATCH processes transaction 95 records generated by CMNBAT10 to delete aged component history, the last history record for a baselined component in a library type in an application is not deleted so that information is available for build processing and audit auto resolve. You can run a CMNBAT10 (report CMN920) to see what packages and staging libraries are aged and eligible for delete. Package records and staging libraries are not physically deleted until CMNBATCH processes a transaction file created by CMNBAT10.

Archive Aged Package And Component Records

Unload package master VSAM KSDS records and component master VSAM LDS records. Split aged package and component records from the unloaded files. Sort/merge the split records into the cumulative sequential files containing archived package and component records.

Delete, define, initialize, and load the package master VSAM file with package records that were not aged. Delete, define, initialize, and load the component master LDS with component records that were not aged.

Sample JCL Member	Combine BACKUP, ELSUNLD, ARCHIVE1, RESTORE, and ELSLOAD.
Utilities	CMNBKRST with the BACKUP parameter CMNECLU0 CMNBAT40 SORT IDCAMS CMNVINIT CMNBKRST with RESTORE parameter IDCAMS CMNECLP0 CMNELIN0 CMNECLN0 CMNELLN0 ICEMAN CMNELLX0 CMNECLC0
Suggested Frequency	Weekly
SERNET Status	ChangeMan ZMF must be down.
Comments	The aging threshold for installed packages and component records is defined in application administration. **Note:** This job does not remove memo deleted packages, and it does not scratch aged staging libraries. See "Delete Aged Packages, Staging Libraries, And Component History" on page 226 to perform those functions.

Synchronize Installation Calendar

Synchronize the installation calendar with the actual count of jobs scheduled for install on each date.

JCL for this job is file tailored from skeleton CMN$$HKP by the Synchronize housekeeping task in Global Administration.

Create JCL for a batch housekeeping job by executing these steps on a ChangeMan ZMF 7.1 instance:

1 From the **Primary Option Menu**, select **A Admin**, then **G Global**, **H Housekeeping**, and then **2 Synchronize**. (=A.G.H / 2) The **Generate Housekeeping Job** panel (CMNHOUS1) is displayed.

2 Follow the instructions on the panel to prepare the housekeeping job. (Use ***** in the **Application** field to run the job for all applications.)

3 Press **Enter** to submit and run the job. To generate JCL for the job without running the job, add TYPRUN=SCAN to the job statement, then press **Enter**.

4 Find the job output in SDSF. Enter line command **SJ** (show JCL) by the job name and press **ENTER**. The generated job JCL is shown in an ISPF edit session.

5 Copy the JCL to your CUSTOM CNTL library and edit it to suit your needs.

Sample JCL Member	File tailored from skeleton CMN$$HKP
Utilities	CMNBKRST with the BACKUP parameter CMNBATCH, Report CMN930 CMNBATCH
Suggested Frequency	Weekly
SERNET Status	ChangeMan ZMF can be running. If it is not running, the CMNBATCH transactions are written to the Delay file and CMNBATCH gives RC=06. When ChangeMan ZMF is started, the transactions in the Delay file are processed, and the installation calendar is updated.

Component LDS Housekeeping

This section describes housekeeping jobs that maintain the Component LDS VSAM files.

Unload Component LDS

Unload long name data to a sequential file and unload component records to a second sequential file.

Sample JCL Member	ELSUNLD
Utilities	CMNECLU0
Suggested Frequency	Daily
SERNET Status	The SERNET instance where the LDS VSAM file is used should be down.
Comments	This job does not reference record store LDS files through the JCL, so changes in the number of record store files have no impact on this job.

Load Component LDS

Delete, define, initialize, and map the component control LDS and the component record store LDS files, and then populate these files from the long name and component record sequential unload files from the ELSUNLD job. Create the long name index and add to the

component control LDS file. Delete, allocate, and initialize the component forward recovery log file

Sample JCL Member	ELSLOAD
Utilities	IDCAMS CMNECLP0 CMNELIN0 CMNECLN0 CMNELLN0 ICEMAN CMNELLX0 CMNECLC0
Suggested Frequency	On request.
SERNET Status	The SERNET instance where the LDS VSAM file is used must be down.
Comments	This job is considered a file maintenance job because it remaps the LDS VSAM files, reorganizes the data in those files, recovers space by executing physical deletes, etc.

Backup Component LDS And Log

Back up the component control LDS, all component record store LDS files, and the component forward recovery log file to sequential files with IDCAMS.

Sample JCL Member	ELSBKUP
Utilities	IDCAMS
Suggested Frequency	Daily
SERNET Status	The SERNET instance where the LDS VSAM file is used should be down.
Comments	Unlike the ELSUNLD job, this job references the record store LDS files by data set name, so you must change the JCL for this job if you change number of record store LDS files.

Restore Component LDS And Log

Define the component control LDS, the component record store LDS files, and the component forward recovery file, and then populate all files from IDCAMS backups.

Sample JCL Member	ELSREST
Utilities	IDCAMS
Suggested Frequency	On request.

SERNET Status	The SERNET instance where the LDS VSAM file is used must be down.
Comments	This job must be kept aligned with the backup job based on ELSBKUP. This job does not reorganize the data in the LDS VSAM files.

Reorganize Component LDS

Unload long name data to a sequential file and unload component records to a second sequential file. Delete, define, initialize, and map the component control LDS and the component record store LDS files, and then populate these files from the long name and component record sequential unload files. Create the long name index and add to the component control LDS file. Delete, allocate, and initialize the component forward recovery log file

Sample JCL Member	ELSREORG
Utilities	CMNECLU0 IDCAMS CMNECLP0 CMNELIN0 CMNECLN0 CMNELLN0 ICEMAN CMNELLX0 CMNECLC0
Suggested Frequency	Weekly
SERNET Status	The SERNET instance where the VSAM files are used must be down.
Comments	This job remaps the LDS VSAM files, reorganizes the data in those files, recovers space by executing physical deletes, etc.

Forward Recover Component Master LDS from Backup

Restore or load the component master LDS with component data from a previous LDS. Forward recover the component master by applying records from the CMNELLOG file.

Sample JCL Member	Start by loading the LDS with sequential files unloaded by job ELSUNLD: ELSLOAD ELSFWDR	Start by restoring the LDS from an IDCAMS backup created by job ELSBKUP: ELSREST ELSFWDR
Utilities	IDCAMS CMNECLP0 CMNELIN0 CMNECLN0 CMNELLN0 ICEMAN CMNELLX0 CMNECLC0 CMNECLF0	IDCAMS IDCAMS CMNECLF0
Suggested Frequency	On request	
SERNET Status	The SERNET instance where the LDS is used must be down.	
Comments	The execution PARM for program CMNECLF0 in job ELSFWDR includes subparameters FROM and TO in this format: yyyymmddhhmmssthuuuu where yyyy year mm month dd day of month hh hour mm minute ss second t tenths of second h hundredths of second uuuu uuuu micro second The timestamps in the FROM and TO subparameters are inclusive. The FROM subparameter may be omitted if you restore the component LDS from IDCAMS backups because the last component activity date is restored with the component data. If you load the component LDS from unload files CMNLNAME and CMNCMAST, you must provide the FROM= subparameter. **Caution:** When using job ELSLOAD or ELSREST as a building block for this housekeeping job, ensure that you do not delete the CMNELLOG file that you need for input to program CMNECLF0.	

Delete Aged Component Records

Aged component records are deleted by the job described in "Delete Aged Packages, Staging Libraries, And Component History" on page 226.

Archive Aged Component Records

Aged component records are archived by the job described in "Archive Aged Package And Component Records" on page 227.

Component LDS Space Utilization Report

Analyze each record store LDS related to a component control LDS and report actual usage.

Sample JCL Member	ELSCRP
Utilities	CMNECRP
Suggested Frequency	On request.
SERNET Status	The SERNET instance where the LDS VSAM file is used may be running or stopped.
Comments	The allocated space of a component record store LDS is completely formatted (mapped). Even if all of the space is not filled with data, an IDCAMS LISTCAT will always report the file as 100% full. Utility program CMNECRP analyzes all record store LDS files associated with a component control LDS, and it reports how much of the physical file space is filled with data and how much space is free.

NOTES Program CMNECRP can be added to any ZMF housekeeping job that populates the component LDS to warn you about impending capacity issues.

Impact Analysis Housekeeping

This section describes housekeeping jobs that maintain the impact analysis VSAM LDS.

Unload Impact Analysis LDS

Unload the Impact Analysis LDS to sequential files BUNSPACE, CMPSPACE, and RELSPACE.

Sample JCL Member	LDSUNLD
Utilities	IDCAMS CMNIALU0
Suggested Frequency	Daily

SERNET Status	The SERNET instance where the LDS is used may be up and the IADS subtask attached. However, the best data integrity is obtained when the SERNET instance is down or the IADS subtask is detached. For details about the ATTACH and DETACH modify commands, see the Modify Commands appendix in the *ChangeMan ZMF Installation Guide*.
Comments	You can also back up the Impact Analysis LDS with IDCAMS sample job LDSBKUP, and then build your own job to restore the IDCAMS backups.

Load Impact Analysis LDS

Restore the Impact Analysis LDS by processing a set of sequential BUNSPACE, CMPSPACE, and RELSPACE files, mapping the impact analysis dataspace, and then deleting, defining, and loading a new VSAM LDS.

Sample JCL Member	LDSLOAD
Utilities	CMNIALC0 ICEMAN IDCAMS, CMNIAIN0 CMNIALB0 CMNIALR0 CMNIALX0 IDCAMS
Suggested Frequency	Daily
SERNET Status	The SERNET instance where the LDS is used must be down or the IADS subtask must be detached. For details about the ATTACH and DETACH modify commands, see the Modify Commands appendix in the *ChangeMan ZMF Installation Guide*.
Comments	If you back up the Impact Analysis LDS with sample IDCAMS job LDSBKUP, you can build an IDCAMS restore job using the VSAM LDS DEFINE statements in the LDSLOAD sample JCL.

NOTE Also use this job to load the Impact Analysis LDS with the BUNSPACE, CMPSPACE, and RELSPACE files created by the job initiated by the online Impact Analysis Maintenance function and file tailored from skeleton CMN$$IAX.

Back Up Impact Analysis LDS

Create sequential copy of the contents of the impact analysis LDS for records retention and disaster recovery.

Sample JCL Member	LDSBKUP
Utilities	IDCAMS
Suggested Frequency	Daily
SERNET Status	The SERNET instance where the LDS is used must be down or the IADS subtask must be detached. For details and cautions about the ATTACH and DETACH commands, see the *ChangeMan ZMF 7.1 Installation Guide*.
Comments	Restoring an IDCAMS backup of the impact analysis LDS creates an exact physical copy of the original file.

Restore Impact Analysis LDS

Define impact analysis LDS and populate it from an IDCAMS backup.

Sample JCL Member	None
Utilities	IDCAMS
Suggested Frequency	On request
SERNET Status	The SERNET instance where the LDS is used must be down or the IADS subtask must be detached. For details and cautions about the ATTACH and DETACH commands, see the *ChangeMan ZMF 7.1 Installation Guide*.
Comments	Restoring an IDCAMS backup of the impact analysis LDS creates an exact physical copy of the original file.

Reorganize Impact Analysis LDS

Unload the impact analysis LDS into sequential files BUNSPACE, CMPSPACE, and RELSPACE. Perform multiple steps to delete and define the LDS, map a data space and initialize the LDS, load the LDS, and build indexes.

Sample JCL Member	LDSREORG
Utilities	IDCAMS CMNIALU0 CMNIALC0 ICEMAN (SORT) CMNIAIN0 CMNIALB0 CMNIALR0 CMNIALX0
Suggested Frequency	The impact analysis LDS should be rebuilt weekly. Run either this job or the housekeeping job that executes program CMNIA000 on a weekly basis.
SERNET Status	The SERNET instance where the LDS is used must be down or the IADS subtask must be detached. For details and cautions about the ATTACH and DETACH commands, see the *ChangeMan ZMF 7.1 Installation Guide*.
Comments	Backup and clear the IALOG file when you reorganize the IADSP file.

Forward Recover Impact Analysis LDS from Backup

Forward recover an impact analysis LDS from a previous backup by applying IALOG records with more recent timestamps.

Sample JCL Member	LDSFWDR
Utilities	CMNIALF0
Suggested Frequency	On request
SERNET Status	The SERNET instance where the LDS is used must be up and the IADS subtask attached.
Comments	By default, program CMNIALF0 applies all transactions in the IALOG dataset with timestamps later than the last save time recorded in the IADSP LDS. This behavior can be overridden by supplying FROM= or TO= values in the PARM= field.

Backup And Clear Impact Analysis Log File

Copy the sequential IALOG file to back up, then reinitialize the IALOG file.

Sample JCL Member	LDSLOGR
Utilities	IDCAMS CMNIALP0
Suggested Frequency	Schedule at the same time as the impact analysis LDS unload.
SERNET Status	The SERNET instance where the LDS is used must be down or the IADS subtask must be detached. For details and cautions about the ATTACH and DETACH commands, see the *ChangeMan ZMF 7.1 Installation Guide*.
Comments	Run this job when you run housekeeping jobs to backup or reorganize the impact analysis LDS.

Load DB2 Tables With Data From Impact Analysis LDS

Unload the impact analysis LDS into sequential files BUNSPACE, CMPSPACE, and RELSPACE. Perform multiple steps to load the impact analysis data to DB2 tables CMNBASE and CMNBUN and build indexes.

This housekeeping job is intended for customers who created their own processes that use DB2 tables CMNBASE and CMNBUN. These DB2 tables are not used in ChangeMan ZMF 7.1.

Sample JCL Member	LDSUNLD LDS2DB2
Utilities	IDCAMS CMNIALU0 CMNIALD0 DSNUPROC
Suggested Frequency	As needed.
SERNET Status	The SERNET instance where the LDS is used may be up and the IADS subtask attached. However, the best data integrity is obtained when the SERNET instance is down or the IADS subtask is detached. For details and cautions about the ATTACH and DETACH commands, see the *ChangeMan ZMF 7.1 Installation Guide*.
Comments	Do not use the BUNSPACE, CMPSPACE, and RELSPACE files output from program CMNIA000 as input to the DB2 table load process. Instead, use files unloaded from the impact analysis LDS as described here.

Synchronize Impact Analysis Data

Extract impact analysis data from the ChangeMan ZMF package master and component master files to create sequential files BUNSPACE, CMPSPACE, and RELSPACE. Perform multiple steps to delete and define the LDS, map a data space and initialize the LDS, load the LDS, and build indexes

Sample JCL Member	IMPACT LDSLOAD
Utilities	CMNIA000 CMNIALC0 ICEMAN CMNIAIN0 CMNIALB0 CMNIALR0 CMNIALX0
Suggested Frequency	On request whenever one of these occurs: ■ Library types or baseline libraries are changed in application administration. ■ The Impact Analysis Dataspace Index Integrity Report in the baseline ripple CMN30 job indicates a problem with the LDS indexes.
SERNET Status	The SERNET instance where the LDS is used must be down or the IADS subtask must be detached. For details and cautions about the ATTACH and DETACH commands, see the *ChangeMan ZMF 7.1 Installation Guide*.
Comments	Program CMNIA000 parses a component for relationships only if the component has never been baselined in a change package.

Check Impact Analysis LDS Indexes

Validate the indexes in the impact analysis LDS.

Sample JCL Member	LDSIXCHK
Utilities	CMNIAIXC
Suggested Frequency	On request
SERNET Status	The SERNET instance where the LDS is used must be up and the IADS subtask attached.
Comments	Serena Support may ask you to run this job to help diagnose issues with impact analysis. The Impact Analysis Dataspace Index Integrity Report is written to DD statement CMNIADSX.

Log And Recovery File Housekeeping

This section describes housekeeping jobs that maintain the Log and Recovery VSAM files.

Back Up And Clear the Recovery File

Copy VSAM recovery file to QSAM, then create and initialize an empty recovery file.

Sample JCL Member	CLEARRCV
Utilities	IDCAMS CMNVINIT
Suggested Frequency	Schedule at the same time as the package master unload.
SERNET Status	The SERNET instance where the VSAM file is used must be down.
Comments	You use a recovery file and the RESTORE function of utility CMNBKRST to recreate Package and component master files from previous backups.

Back Up And Clear the Log File

Copy VSAM log file to QSAM, then create and initialize an empty log file

Sample JCL Member	CLEARLOG
Utilities	IDCAMS CMNVINIT
Suggested Frequency	Monthly, or as often as needed to keep the Log function efficient.
SERNET Status	The SERNET instance where the VSAM file is used must be down.
Comments	After you clear the log file, the online Browse Activity Log query returns no data until users and administrators execute ChangeMan ZMF functions.

Staging Versions Housekeeping

This section describes housekeeping jobs that maintain the three staging versions VSAM master files.

Back Up Staging Versions VSAM Files

Copy three staging versions VSAM files to QSAM.

Sample JCL Member	SVBKUP
Utilities	IDCAMS

Suggested Frequency	Daily
SERNET Status	The SERNET instance where the VSAM files are used should be down or the SSV subtask must be detached. For details about the ATTACH and DETACH modify commands, see the Modify Commands appendix in the *ChangeMan ZMF Installation Guide*.

Restore Staging Versions Master

Delete, define, and load three staging versions masters from QSAM backup files.

Sample JCL Member	SVRSTOR
Utilities	IDCAMS
Suggested Frequency	On request.
SERNET Status	The SERNET instance where the VSAM files are used must be down or the SSV subtask must be detached. For details about the ATTACH and DETACH modify commands, see the Modify Commands appendix in the *ChangeMan ZMF Installation Guide*.

Reorganize Staging Versions VSAM Files

Copy three staging versions VSAM files to QSAM, create new VSAM files, then restore the VSAM files from QSAM.

Sample JCL Member	Combine SVBKUP and SVRSTOR
Utilities	IDCAMS
Suggested Frequency	Weekly
SERNET Status	The SERNET instance where the VSAM files are used must be down.

Delete Staging Versions Members

Delete Staging Version members that are no longer needed from the Delta Master.

The Delta Master is a VSAM data set that stores ChangeMan ZMF staging versions. When a developer saves a staging version, a delta member of the changes is added to the Delta Master.

When ChangeMan ZMF ages and deletes staging libraries as specified in application administration, it automatically deletes staging versions associated with those staging libraries. The purpose of this job is to:

- Delete staging versions that belong to change packages that are never installed.

- Reduce the number of staging versions saved from packages that have an extended lifecycle.
- Reduce the number of staging versions for package components that have many saved staging versions.

Sample JCL Member	SVMAINT
Utilities	HPSMAINT IDCAMS
Suggested Frequency	Weekly
SERNET Status	The SERNET instance where the Staging Versions VSAM files are used must be down.

Synchronize Staging Versions Masters

Analyze three staging versions VSAM files for discrepancies and report problems. Make corrections to synchronize the three files.

Sample JCL Member	SVINTEG
Utilities	HPSINTEG
Suggested Frequency	Weekly
SERNET Status	The SERNET instance where the VSAM file is used must be down or the SSV subtask must be detached. For details about the ATTACH and DETACH commands, see the *ChangeMan ZMF 7.1 Installation Guide*.
Comments	Program HPSINTEG is executed three times in this sample: 1 With execution parameter SIMULATE to report conditions that should be repaired. 2 Without execution parameter SIMULATE to repair inconsistencies. 3 Without execution parameter SIMULATE to repair inconsistencies because some repairs may create new inconsistencies.

Run the ChangeMan ZMF Reports

Run REXX-based reports against Package and component master files when ChangeMan ZMF is running.

Sample JCL Member	REPORTS
Suggested Frequency	As required.

SERNET Status	ChangeMan ZMF must be running.
Comments	Report selection is by control statement, so daily, weekly, monthly reporting should be run in separate jobs.

Chapter 8, "Defining and Running ChangeMan ZMF Reports" on page 205 describes the reports.

Clean Up Production Backup Libraries

Backup libraries are associated with ChangeMan ZMF production libraries. When a package is installed, the current version of a component is copied from the production library to the backup library so it can be restored if package is backed out.

There are three ways to handle cleanup of backup libraries, and thereby manage the growth of components that accumulate in these data sets. By specifying the appropriate option as a PARM parameter on the JCL EXEC statement when running program CMNBATCH, you can do one of the following:

- Bypass cleanup of backup libraries (the default).
- Perform package processing.
- Perform commit processing.

Bypass Cleanup of Backup Libraries

To bypass cleanup of backup libraries, specify the parameter 'BACKUPLIB=N' for program CMNBATCH. This is the default, so specifying the BACKUPLIB parameter is optional. When CMNBATCH runs, the CMN920 transactions delete the staging libraries, but no attempt is made to delete components from the backup libraries:

```
//CMNBATCH  EXEC PGM=CMNBATCH,
//          PARM='SUBSYS=?,BACKUPLIB=N'
```

Perform Package Processing for Backup Library Cleanup

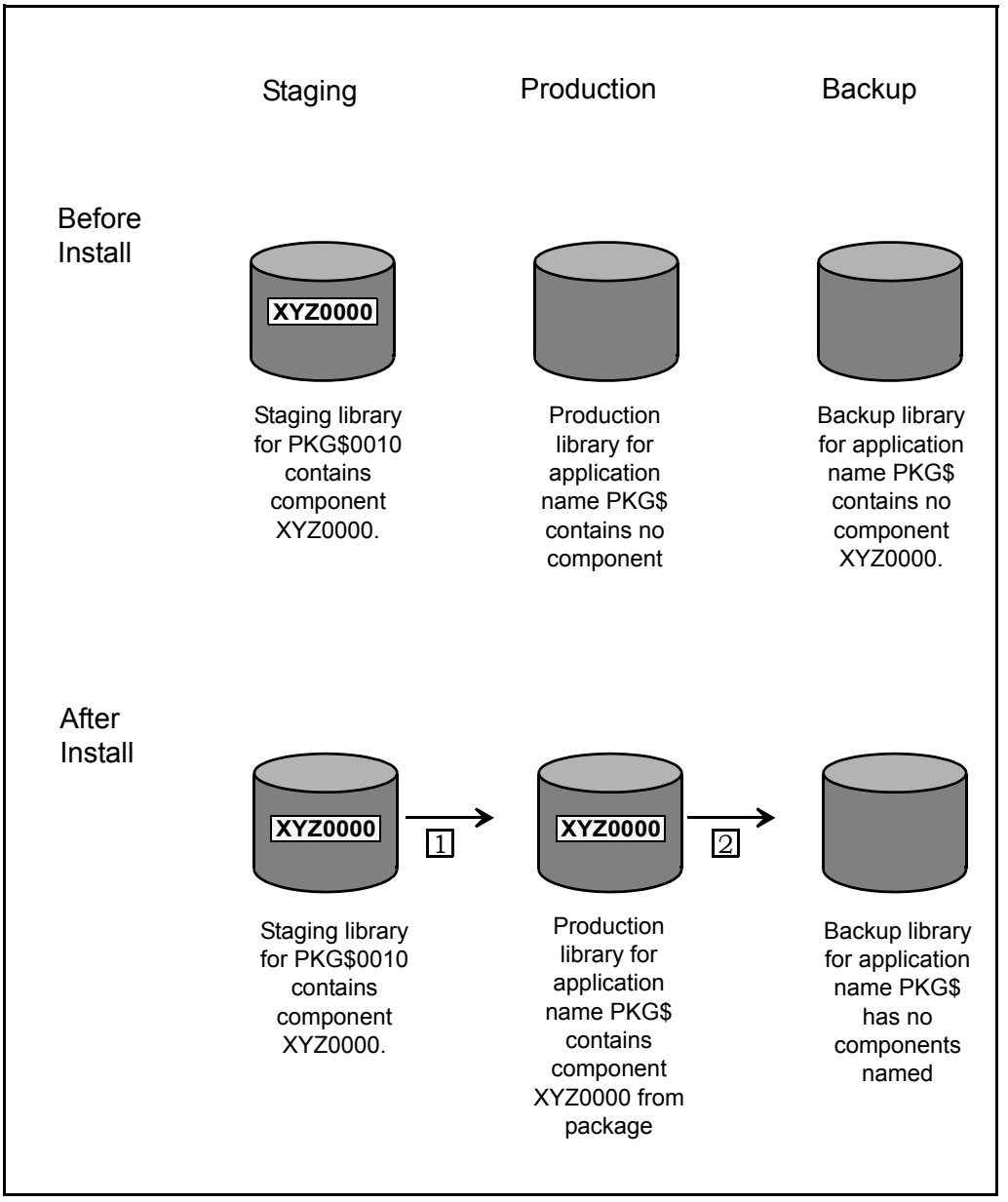
If cleanup processing is required for your site and you plan to process backup libraries by package association, use package processing for cleanup of backup libraries. You can do this by specifying 'BACKUPLIB=P' in program CMNBATCH when executing this program for housekeeping purposes, as in the following JCL:

```
//CMNBATCH  EXEC PGM=CMNBATCH,
//          PARM='SUBSYS=?,BACKUPLIB=P'
```

During package processing, CMNBATCH calls the program CMNCLNUP. The component being deleted in the backup library is first compared to its corresponding component in the staging library. If the directory entries for both components match, CMNCLNUP deletes the component from the backup library. Because this only happens to packages that have been ‘memo deleted’ or have ‘aged’, you ensured that a component deleted from the backup library came only from a specific staging library in a specific package.

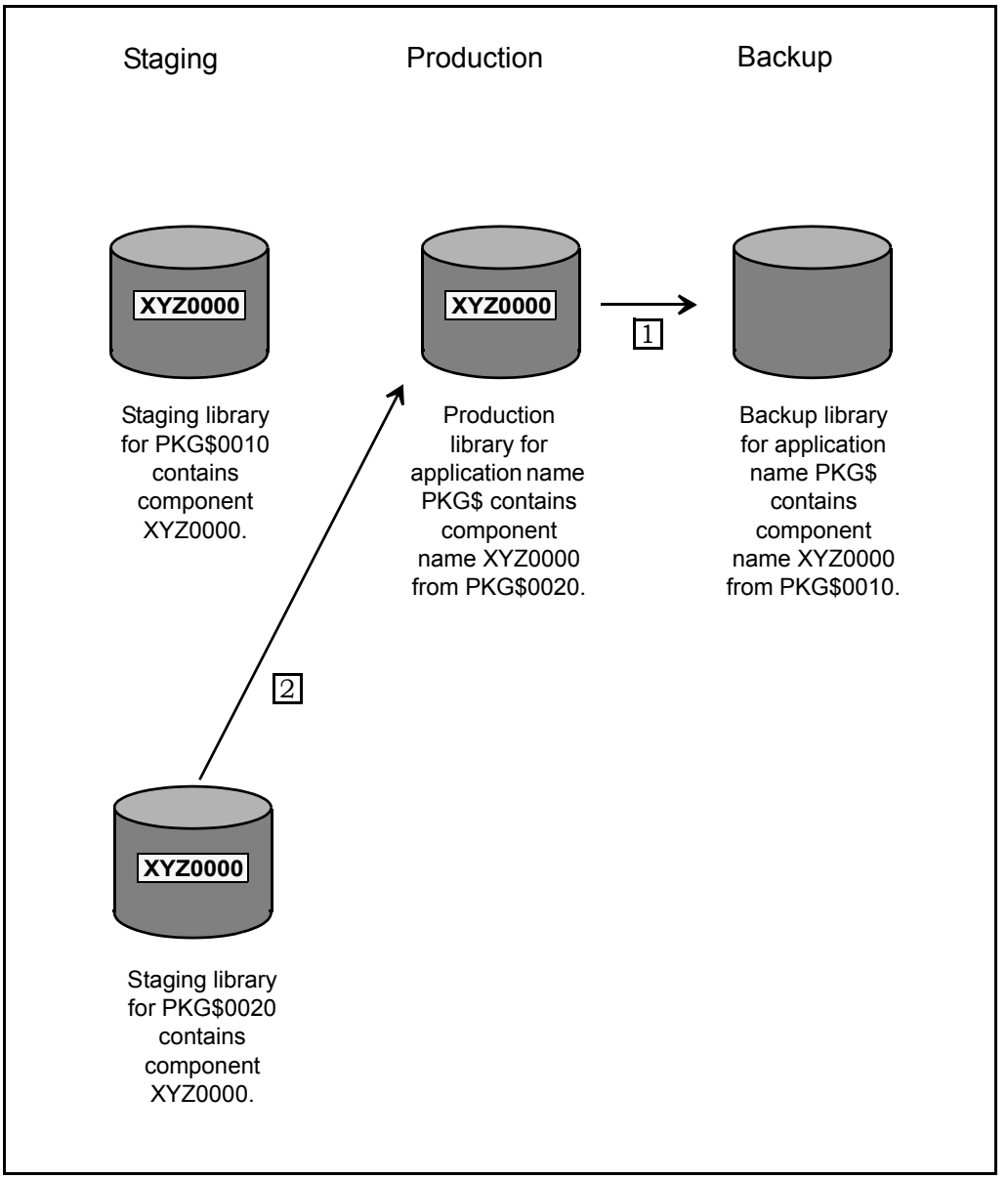
The following discussion describes this type of clean up operation:

1 Assume that you created a package named PKG$000010 that contains the unique-named component 'XYZ0000'. When package PKG$000010 is installed, ChangeMan ZMF attempts to copy component 'XYZ0000' from the production library associated with this package to the backup library in the CMN20 job. Because this component is unique and never resided in the production library, the IEBCOPY step that copies the component from the production library to the backup library ends with an RC=0004. At this time, the backup library has no component named 'XYZ0000'. When CMN20 runs, the component 'XYZ0000' is copied from the staging library to the production library. When CMN20 completes successfully and CMN30 executes, the baseline ripple happens.



2 Assume that you created a package named PKG$000020 that contains component 'XYZ0000' in the staging library. You make changes to the component, and schedule the package for installation. When the package is installed, the CMN20 job attempts to copy the component 'XYZ0000' from the production library associated with this

package to its corresponding backup library. Because a same-named component was previously-placed in the same production library by package PKG$000010, the IEBCOPY step backs up the component by performing a copy from the production library to the backup library. When IEBCOPY ends with an RC=0000, the backup library contains a component named 'XYZ0000' from package PKG$000010. In the install step of CMN20, the next component 'XYZ0000' from package PKG$000020 is copied from its staging library to the production library. As a result, the component 'XYZ0000' from package PKG$000020 overlays the same-named component that was there previously from package PKG$000010. When CMN20 completes successfully and CMN30 executes, baseline ripple happens.



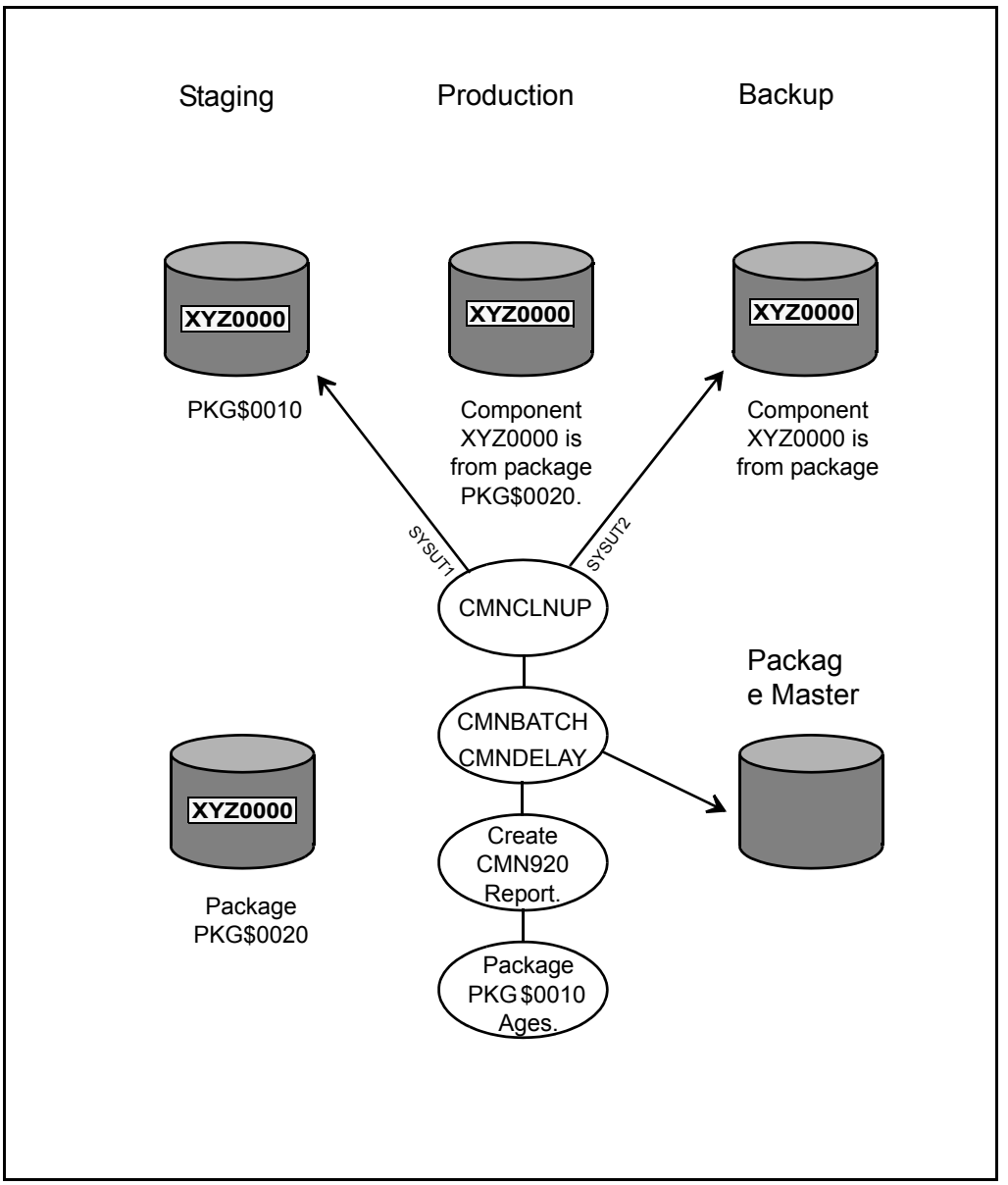
3 Assume that package PKG$000010 in BAS status aged, so that the package is included in the CMN920 report, thereby creating the delete Staging Libraries transaction record for this package. This record becomes part of the SYSIN input for

program CMNBATCH. PKG$000020 remains because it was installed at a later time and has not yet aged.

During housekeeping, the CMN920 report generates a delete staging library transaction record for PKG$000010. When CMNBATCH reads the delete Staging Libraries transaction record, it builds a table from the package master listing all the components in package PKG$000010 that reside in a single staging library. Thereafter, the data set names for the staging library, the production library, and the backup library (associated with package PKG$000010 for one library type) are placed in another table. Then, CMNBATCH calls program CMNCLNUP to pass the component list and library list tables. Program CMNCLNUP then opens (1) the staging data set for package PKG$000010 under the DDname of SYSUT1, and (2) the backup library for package PKG$000010 under the DDname of SYSUT2.

Next, program CMNCLNUP obtains the component name 'XYZ0000' from the component list and compare the directory entry for component 'XYZ0000' (from the staging library of package PKG$000010) to the directory entry of component 'XYZ0000' (in the backup library). If they match, you have ensured that component 'XYZ0000' in the backup library could only have arisen from package PKG$000010. Component 'XYZ0000' is deleted from the backup library. Alternatively, if the entries

do not match, no deletion occurs. This ensures that any component being deleted from the backup library is directly associated only with the specific package.



Once all components are processed, CMNCLNUP returns to the CMNBATCH program, which builds a component list for the next library type of package PKG$000010, and calls CMNCLNUP again until all library types have been processed. Thereafter, the Staging Libraries are deleted for the package, and the next transaction record is read, and housekeeping resumes.

Because a component is tied directly to the package that is scheduled for deletion, this method of cleaning up the Backup Libraries is termed 'package processing'.

When a site has been running ChangeMan ZMF for an extended period of time and cleanup of Backup Libraries has not been performed, the Backup Libraries might have grown substantially and they are populated with many components from many packages. By running prior housekeeping jobs without 'clean up,' many packages and their corresponding Staging Libraries have probably been deleted, leaving many of their associated components in their respective Backup Libraries. This might result in retaining

many orphan components (in the backup library) that are not deleted when you run a cleanup. This is because before cleanup processing became available as a new feature, prior housekeeping jobs may have deleted the package records and staging library for an old component in the backup library.

As future packages are installed with the same named components as those in the backup library, the CMN20 job overlays old components in the backup library with the components being copied from the production library. Over time, the cleanup process matches components in the Backup Libraries from recently aged packages. This could take a long time, and if a component in a backup library never gets replaced it will always remain there.

Perform Commit Processing for Backup Library Cleanup

If your site requires that the cleanup of Backup Libraries to be handled by 'commit' processing, specify the keyword 'BACKUPLIB=C' for program CMNBATCH when executing this program for housekeeping, as follows:

```
//CMNBATCH  EXEC PGM=CMNBATCH,
//          PARM='SUBSYS=?,BACKUPLIB=C'
```

Commit processing differs from Package processing in that the latter is a two-library compare and delete operation whereas former is a three-library operation. Commit processing means that once a component has been installed in the production library and the package for that component has reached its aging criteria, you intend to commit that component to production and to remove any same-named components in the backup library regardless of the originating package. You are essentially committing the component in the production library. Provided the components for all aged packages in production are functionally stable, committing the components enables you to manage growth in the Backup Libraries for your ChangeMan ZMF system.

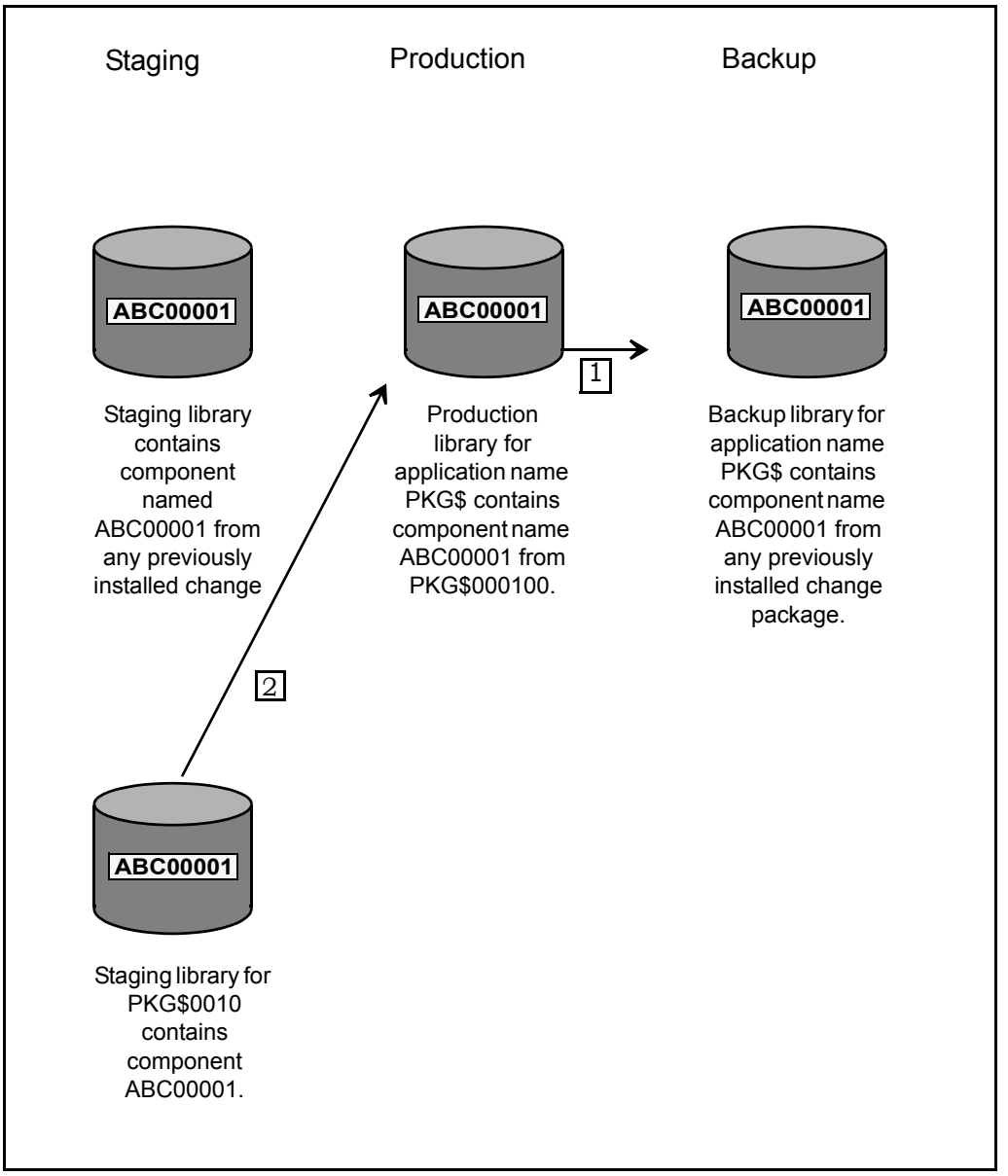
During commit processing, a component in the staging library is compared to the same-named component in the production library. If the directory entries for these components match, then the component is arbitrarily deleted from the backup library. During package cleanup, in contrast, the staging library and the backup library are compared to determine if the component is in the backup library.

The following steps describe commit processing.

1 Assume that you create a package called PKG@000100 that contains component 'ABC00001' in the staging library. Next, you change the component and schedule the package for installation. When the package is installed, the CMN20 job attempts to copy a component named 'ABC00001' from the production library associated with this package to its corresponding backup library.

If a same-named component was previously-placed in the same production library by a previously installed package, the IEBCOPY step backs up the component by copying it from the production library to the backup library. The backup library then has a component named 'ABC00001' from a previous package. When CMN20 runs, the same-named component 'ABC00001' from package PKG@000100 is copied from its staging library to the production library. As a result, the component 'ABC00001' from package PKG@000100 overlays the same-named component that was there

previously. When CMN20 completes successfully, the CMN30 job executes a baseline ripple for package PKG@000100, with the following result:



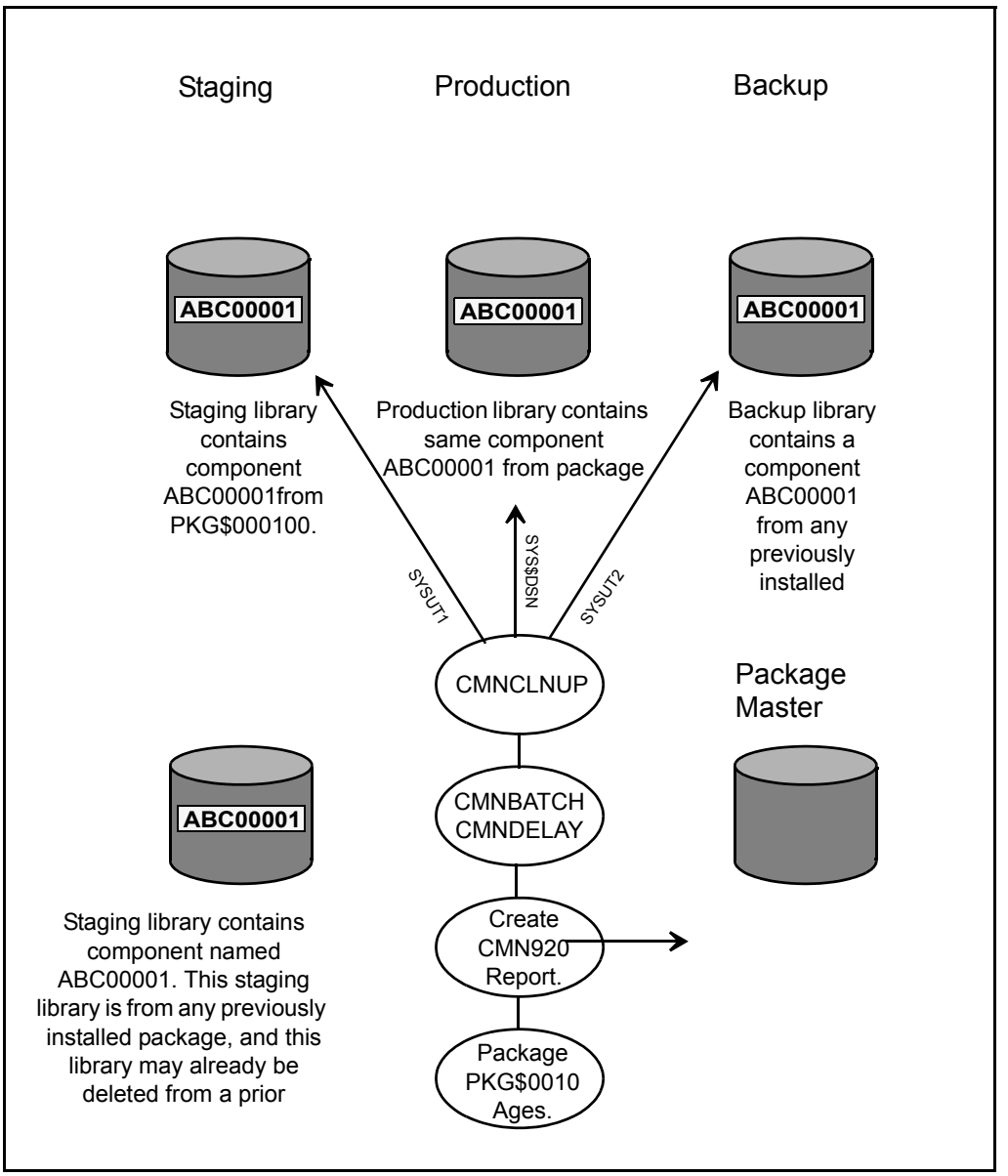
2 Assume that package PKG@000100 in BAS status has reached its aging criteria so that it is included in the CMN920 report that creates the delete Staging Libraries transaction record for this package. Next, program CMNBATCH is executed with the parm keyword of 'BACKUPLIB=C' in the EXEC statement. Then, the package that will be cleaned up is identified from the delete Staging Libraries transaction record. Next, program CMNBATCH extracts information from the package master to build a table listing all the components for package PKG@000100 that reside in a single staging library. The component name list only contains components that are known to ChangeMan ZMF for that package.

In this example, the component list only contains 'ABC00001' because it was the only component in package PKG@000100. Next, the data set names for the staging library, the production library, and the backup library associated with package PKG@000100 (for one library type) are placed in another table. Finally, CMNBATCH calls program CMNCLNUP and passes the component list and library names list.

Once CMNCLNUP accesses the data set names table, it opens the following:

- Staging data set for package PKG@000100 under the ddname of SYSUT1.
- Production library for package PKG@000100 under the ddname of SYSC$DSN.
- Backup library data set for package PKG@000100 under the ddname SYSUT2.

Next, CMNCLNUP accesses the component names list table to obtain the component 'ABC00001'. Program CMNCLNUP compares the directory entry for component 'ABC00001' from the SYSUT1 staging library of package PKG@000100 to the directory entry of the same-named component in the SYSC$DSN production library. If the entries match, you have verified that the component 'ABC00001' in the production library must have come from package PKG@000100, and component 'ABC00001' is deleted from the backup library represented by ddname SYSUT2 regardless of the source package.



If the directory entries do not match, then deletion does not occur. This means that any component residing in the backup library with the same name as the component being compared in the Staging and Production Libraries is deleted if the components match.

Considerations for Cleaning up Backup Production Libraries

Cleanup to the Backup Libraries whether by package processing or commit processing results in you being unable to perform a Backout. In deciding whether or not to use package processing or commit processing, consider that the time packages are aged and the length of time that packages remain in development before they are eventually installed in production. Commit processing of the Backup Libraries is the most conservative implementation of a cleanup process because deletion occurs based on aging of the package currently in production. In setting the aging of the staging library by number of days, the installation can judge when the component in the production library has reached a point of functional stability such that the component in the backup library is no longer required and can be safely removed. This means stability in a component is based on its execution in production over a period of time with no problems after which you can release space occupied by the Staging Libraries and delete the backup component from the backup library. In commit processing whatever number of days you specify to age the Staging Libraries is the number of days that a backup component can be expected to remain in the backup library.

With package processing, deletion occurs based only on aging of the package. Package processing is used less often than commit processing. Low activity packages with long aging criteria and short install intervals with infrequent housekeeping runs can use package processing to manage the Backup Libraries. With package processing there is the possibility that a package could start its 90 day aging on June 1 when it is installed. A second package containing the same component name could be created on June 1 and installed on August 30 resulting in the old component from the first package being copied from the production library to the backup library. Housekeeping could run that night where the first package installed June 1 has now aged resulting in the backup component being deleted within a day of the second package being installed. This would impact your ability to back out from the second package. For high activity applications containing many packages in motion with varying install intervals and short aging criteria where you run housekeeping frequently, use commit processing to ensure that the backup for a component in production remains in the backup library for at least the number of days specified in Application Administration for the aging of the Staging Libraries.

Cleanup performs all comparisons between the directory entry for each member in their respective library. Every field in the directory entry for a member is compared to its corresponding field in the directory entry for the same named member in the other library. Cleanup does not read the entire PDS directory for the staging library and compare for all members found. Cleanup gets its member list from the package master for the package that has aged and searches the staging library for the member name. If you allow the staging library to be used as a repository for members outside of ChangeMan ZMF, the cleanup process does not include them. Since only components known to ChangeMan ZMF are included, the comparison process between members based on only the directory entry is accurate.

Consider when a site has been running ChangeMan ZMF for an extended period of time and the cleanup of the Backup Libraries has not been implemented. The Backup Libraries may have experienced substantial growth over this time period, and the Backup Libraries are populated with many components from many packages. With the running of prior

housekeeping jobs without cleanup of the Backup Libraries many packages and their corresponding Staging Libraries have probably been deleted leaving their associated components residing in their respective Backup Libraries. This results in the possibility of leaving orphan components in the backup library which are not deleted when you start running a new cleanup process with your housekeeping task.

This is because there is no package record or staging library available to perform a compare against what resides in the backup library for a package that prior housekeeping has deleted. As packages are installed in the future with the same named components as those that exist in the backup library, the result is old components are overlaid in the backup library with the components being copied from the production library as part of the CMN20 job. Over time the cleanup process catches up with delete processing as it encounters more hits in the Backup Libraries from recently aged packages. This catch up process could take an extended period of time, and if a component in a backup library never gets replaced it will always remain.

The cleanup process follows the parameters specified at Application Administration, Option B, Baseline Configuration, Panel CMNBAS1 where the customer site sets the 'Install in Prod' indicators to 'N', 'Y', or 'C'. During the cleanup process a read is performed to the package master for General Record 4 (library types) to identify all of the library types defined just to the package that has aged or is in memo delete status. Then a read is performed to Local Record 4 (baseline libraries) where the baseline install indicator is checked. If the library type is defined to the package but the 'Install in Prod' indicator is set to 'N', then cleanup excludes the library. The cleanup process picks up only the library types defined in General Record 4 that have a corresponding library type in Local Record 4 with the install indicator set to 'Y' or 'C'. Next Local Record 5 (Production Libraries) is read to obtain the data set names of the production libraries.

When cleaning up the Backup Libraries (for packages) with either package or commit processing, consider the following:

- From the Baseline Configuration Panel (CMNCBAS1) during Application Administration, check the "Install in Prod" indicator setting. If the baseline library type is defined to the package but the indicator is set to N, then cleanup excludes the backup library for that same library type.
- From the Production Libraries Panel (CMNCPRDL) during Application Administration, check whether or not the production libraries are defined. The cleanup process checks for the baseline install indicator and for the presence of production libraries defined in the package master to decide which Backup Libraries are subject to cleanup processing.
- From the Application Parameters Panel (CMNGLP02), during Application Administration, check the aging criteria established for Installed Packages and Staging Data Sets.
- Changing this number might generate two separate transactions on different dates, one to remove package records from the package master and one to delete the Staging Libraries. Cleanup processing reads the package records and requires the Staging Libraries for the comparison.
- The package records and the Staging Libraries must both exist during cleanup processing. So, for proper housekeeping, the Installed Packages value must be greater than or equal to the Staging Data Sets value.
- Because the cleanup process deletes components from the backup library, you have no backout capability. Furthermore, you must maintain unique component names if you choose to perform commit processing and share the same backup library among different applications.

Chapter 10

Configuring Remote Sites

This chapter contains information about configuring remote sites for ChangeMan ZMF on a global as well as an application level and outlines how to enable the Network Data Mover.

Overview of Remote Sites

Remote sites are additional STCs where ChangeMan ZMF installs components. The additional STC can be on:

- A separate computer in another building
- A separate computer in the same building
- A logical CPU on the same machine as part of an LPAR (logical partition) without shared DASD

Any of these remote site configurations enables you to develop components on one CPU and distribute and install production level components onto a different CPU.

All ChangeMan ZMF functions are performed from the defined development site. The remote site acts only as a receiver of production components. In fact, the only time developers interact with remote sites is when they select which remote site to distribute and install production components to.

How does it Work?

When you request remote promotion, ChangeMan ZMF constructs execution JCL based on the administration fields that you specified. (You can have execution JCL libraries similar to the installation JCL libraries.) Next, it invokes your transmission vehicle (IEBCOPY or NDM) to transmit the execution JCL library and copies of any needed Staging data sets to the remote system (site). Then, it uses the remote site's internal reader to invoke jobs (in the execution JCL library) to copy members from the Staging to the remote promotion libraries. After these jobs complete, ChangeMan ZMF 'cleans up' the execution JCL and staging libraries at the remote site. When it returns successfully, ChangeMan ZMF copies the staging library members to the shadow library on the originating site (a shadow library as a duplicate or copy of what exists on the remote site). Next, it 'cleans up' the execution JCL that resides on that site. Finally, it notifies the user of the success or failure of the promotion request and updates the package master.

At installation time, ChangeMan ZMF only needs to transmit execution JCL to the remote site. This is because the execution JCLs sole function is to delete members. (This is similar to demotion). So, ChangeMan ZMF cleans up your promotion libraries at the remote site, as well as the shadow libraries that reside on the originating site. This means that if your remote site is only a test site, but you want it to simulate your production site, you must install ChangeMan ZMF on the test site. By doing this, you 'synch up' your production libraries. If you do not want to install ChangeMan ZMF on the test site and you do not want to 'clean up' the test promotion libraries, you must edit the installation skeletons to remove this functionality.

As delivered, the only program that is required at the remote site is CMNDELRN. This program must reside in an APF authorized library. The skeletons can be changed to use CMNxxxx or SERxxxx programs also, but that would also require those programs to be in an APF authorized library.

Setting Up Remote Sites Globally

The Global Administrator is responsible for creating, deleting, and updating remote site information for ChangeMan ZMF. This functionality is accessed from the Global Administration Options panel.

1 Set up multiple ChangeMan ZMF subsystems by designating one subsystem for your development site, and one for each remote site.

2 Bring up the Remote Site ChangeMan ZMF instance.

3 Set global parameters.

```
CMNGGP01 -------------- GLOBAL PARAMETERS - PART 1 OF 7 -----------------------
COMMAND ===>

SUBSYSTEM: 8                RLS option: NO

CHANGEMAN ENVIRONMENT       ===> P        (A/D/DP/P)
JOB ENTRY SYSTEM            ===> JES3     (JES2 or JES3)
SITE NODE NAME              ===> SERT8
LOGICAL UNIT OR SYSTEM NAME ===> C001
DEFAULT UNIT NAME           ===> SYSDA    (Generic disk unit)
DEFAULT VOLUME SERIAL       ===>
DEFAULT NON-VIO UNIT NAME   ===> SYSDA    (Generic disk unit)
CHANGEMAN SECURITY RESOURCE ===> $CMNTP

INSTALL JOB SCHEDULER:   CMN ===> YES      (Y/N)
                      Manual ===> NO       (Y/N)
                       Other ===> NO       (Y/N)
DEFAULT JOB SCHEDULER       ===> CMN      (CMN, Manual, Other)
  SCHEDULER INTERVAL IF CMN ===> 001      (Minutes)

Press ENTER to process; Enter END command to exit.
```

The following table describes the fields on the Global Parameters Part 1 of 7 panel (CMNGGP01).

Field	Description
CHANGEMAN ENVIRONMENT	Define as a Remote Site. P — Always the configuration at a remote site CPU. The production site receives the installed production level package components from a D or DP site.
SITE NODE NAME	Define a unique Site Note Name for this Remote Site.

Field	Description
LOGICAL UNIT OR SUBSYSTEM NAME	This is how systems are defined internally. If your data transmission vehicle is NDM or BDT, enter the logical unit name (the name that NDM or BDT uses to identify this system). If your data transmission vehicle is IEBCOPY, enter the subsystem name (for example: SYSA).
INSTALL JOB SCHEDULER	Define at development site. If you are using an internal scheduler, define the same one at your development site that you define for your remote site. The only difference between scheduling remote site implementation for a remote site and a single site is that you schedule change package implementation for all of your remote sites. Review the tasks in the section‟"Global Component Options" on page 88. In task 3, when you access the calendar, you have an extra step. The Remote Site Selection List is displayed, and you select a remote site from the list before updating the calendar. Once you have finished updating the calendar, you return to the Remote Site Selection list so you can select another one for updating. If you do not specify a scheduler, the default scheduler is invoked at start up time. When you build a package at the DP site and then install the package, the ChangeMan ZMF scheduler distributes the package to the remote site and sends scheduler information. Therefore, the remote site needs to have the same scheduler either attached or defined.

4 Customize distribution and installation skeletons.

Several skeletons are involved in the distribution and installation of packages to defined remote sites. Customize these skeletons in accordance with the data set names and transmission vehicles you are using at your site.

Maintaining Remote Sites

All Remote Sites require the running of normal maintenance utilities.

For information on how to run housekeeping tasks, see "Batch Housekeeping Tasks" on page 223.

NOTE To prevent unwarranted modification of remote site Production libraries, ChangeMan ZMF omits the display of the Build, Promote, Approve, Freeze, and Delete options from the Primary Menu.

Setting up Remote Sites for Applications

This section describes an option accessible from the Global Administration Option panel and the Application Administration Option panel that displays a list of remote sites. This list, which is displayed during application level creation of a change package, allows you

to create, delete, and update all the remote sites where ChangeMan ZMF is installed. It includes all the valid sites for change implementation.

NOTE If this is an ALL site, the remote site capability is limited to remote promotion.

Establishing a Remote Site - Global Administrator

To establish a remote site, do the following:

1. On the Primary Option Menu, select Option A. The Administration Options panel is displayed.
2. On the Administration Options panel, select Option G. The Global Administration Options panel is displayed.
3. On the Global Administration Options panel, select Option 6. The Global Remote Site List panel (CMNGRST1) is displayed.

```
CMNGRST1 ---------------- GLOBAL SITE LIST PART 1 OF 2 ------- Row 1 to 5 of 5
COMMAND ===>                                                  SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

     SITE NAME
'''' SERT7___
'''' SERT7P1_
'''' SERT7P2_
'''' SERT8___
'''' SERT9___
****************************** Bottom of data ********************************
```

From the the Global Remote Site List panel (CMNGRST1), you can create a new site.

1. With the cursor in the LCMD column of the library row, insert a new line (type I and press Enter)
2. In the SITE NAME column, using the following rules, type the name of the site:
   - Specify up to 8 alphanumeric characters
   - Make the first character of the remote site name alphabetic
   - SITE NAME must match SITE NODE NAME on GLOBAL PARAMETERS - PART 1 of 7, for the site being defined
3. Press Enter to save your new site entry.
4. Place the cursor in the LCMD column of the remote site you just added, and type S and press Enter.

- If this is a DP site, the Remote Site Information panel (CMNGRST2) is displayed.

```
CMNGRST2 ---------- SERT8 SITE INFORMATION - PART 2 OF 2 ----------------------
COMMAND ===>

CHANGE MAN SUBSYSTEM ID   ===> 8
LOGICAL UNIT NAME         ===> C001                                        +
JES NODE NAME             ===> C001
DEFAULT UNIT NAME         ===> SYSDA    (Generic disk unit)
DEFAULT VOLUME SERIAL     ===> SYSDA
CHANGE MAN DELAY FILE     ===> CMNTP.S8.V710.CMNZMF.CMNDELAY
PRD STAGING MODEL DSNAME  ===> CMNTP.S8.STAG.????.#######.PRD
PRD STAGING MODEL HFS     ===> /cmntp/s8/stag/????/#######/prd             +
TRANSMISSION VEHICLE      ===> OTHER    (IEBCOPY or Other)
TIME DIFFERENCE           ===> +0000    (+/-HHMM)
IP ADDRESS                ===> 10.35.11.100
PORT                      ===> 06081

SITE JOB STATEMENT INFORMATION:
===> //SERT78   JOB (),'S7.V710 SERT7563',_____________________________________
===> //         CLASS=A,MSGCLASS=X_____________________________________________
===> //*_____________________________________________________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

Provide information for each of the required fields. See "Defining Sites" on page 83.

5 After entering information on the panel, press Enter.

Selecting a Remote Site - Application Administrator

To establish a remote site, do the following:

1 On the Primary Option Menu, select Option A. The Administration Options panel (CMNADMOM) is displayed.

2 On the Administration Options panel (CMNADMOM), select Option A. The Application Administration Options panel (CMNLAMEN) is displayed.

3 On Application Administration Options panel (CMNLAMEN), select Option 8. The Application Remote Site List panel (CMNCLRST) is displayed.

```
CMNCLRST -------------- ACTP - SITE LIST PART 1 OF 2 --------- Row 1 to 5 of 5
COMMAND ===>                                                 SCROLL ===> HALF

Enter END command to save changes or CANCEL to exit.

Enter * in line command field for global list.

     SITE NAME
'''' SERT7___
'''' SERT7P1_
'''' SERT7P2_
'''' SERT8___
'''' SERT9___
****************************** Bottom of data ********************************
```

From The Application Remote Site List panel (CMNCLRST), you can create a new site or update an existing site.

1 With the cursor in the LCMD column of the library row, insert a new line (type I and press Enter)

2 In the SITE NAME column, type the name of the globally defined remote site or type an asterisk in the column to select from the global remote site list.

3 Press Enter to establish and save your new site.

Updating an Existing Site - Application Administrator

To update a remote site, do the following:

1 On the Primary Option Menu, select Option A. The Administration Options panel (CMNADMOM) is displayed.

2 On the Administration Options panel (CMNADMOM), select Option A. The Application Administration Options panel (CMNLAMEN) is displayed.

3 On the Application Administration Options panel (CMNLAMEN), select Option 8. The Application Remote Site List panel (CMNCLRST) is displayed.

4 On the Remote Site List Part 1 of 2 panel, place the cursor in the LCMD column of the library row that you want to update, and type S (Select) and press Enter. The Remote Site Information Part 2 of 2 panel (CMNRSTJB) is displayed.

```
CMNRSTJB ---------- SERT8 SITE INFORMATION - PART 2 OF 2 ----------------------
COMMAND ===>

SITE JOB STATEMENT INFORMATION:
===> //SERT78   JOB (),'S7.V710 SERT7563',_____________________________________
===> //         CLASS=A,MSGCLASS=X_____________________________________________
===> //* =A.A.8 PART2 PANEL CMNRSTJB SITE: SERT8_____________________________
===> //*_____________________________________________________________________

Press ENTER to process; Enter END command to exit.
```

5 On the Remote Site Information panel (CMNRSTJB), type the JOB statement information required for any internal jobs that you might submit at the specified remote site.

6 Press Enter to save your changes, or enter the END command to exit.

Repeat the above steps for each remote site that you want to update.

Enabling the Network Data Mover

If your shop possesses at least one remote site and you want to use Network Data Mover (NDM) as the transmission vehicle, refer to member #NDM in the CMNZMF CNTL file, and do the following:

1. Copy member #NDM from the vendor CMNZMF CNTL library into your custom CNTL library.
2. Modify the data set name to conform to your standards for the procedure library.
3. Create the procedure library by changing all occurrences of $/ to ./ for IEBUPDTE and submit the job. Next, modify CMN$$NDM.
4. Copy skeleton CMN$$NDM from the delivered skeleton library and put it into your custom skeleton library. If the batch module DMBATCH cannot be found in a linklisted library, a Steplib is necessary.
5. Further down in the skeleton is a sign on for SYSIN that reads:

   ```
   SIGNON USERID=(&RSOWNER) NETMAP=&NDMMAP,ESF=YES
   ```

   By design, &RSOWNER will not resolve. To prevent ordinary users from seeing the USERID while they browse the skeleton, you must hard code an authorized resource owner USERID outside the skeleton, as follows:

   ```
   //SYSIN     DD DISP=SHR,DSN=somnode.NDM.SIGNON <===Secured
   //          DD *
     NETMAP=somnode.NDM.NETMAP,ESF=YES
   ```

6. You must secure the data set somnode.NDM.SIGNON from read and update, by all except NDM, ChangeMan ZMF, and your Global Administrator. The file contents (possibly a secured PDS member) should read:

   ```
   SIGNON USERID=(superid) -
   ```

   Where superid represents a real userid. The authority level of this userid must be sufficient to do the following:

   - Transmit data sets created by ChangeMan ZMF to remote sites.
   - Allocate and update ChangeMan ZMF target staging data sets at the remote site.
   - Return acknowledgment messages.

NOTE Do not forget to use the continuation dash to get to the next line of the skeleton that describes NETMAP and so on.

As delivered, the parameter to `DMBATCH` reads `PARM=(NNNNNNN)`. Essentially, this parameter implies NO to each of seven NDM internal questions.

Changing this parameter value impacts diagnostic messages, activity logging, and the chosen DDNAMES.

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