CA Endevor® Software Change Manager

Packages Guide

Version 17.0.00

Second Edition

CA Technologies Product References

This document references the following CA Technologies products:

- CA Endevor® Software Change Manager (CA Endevor SCM)
- CA Endevor® Software Change Manager Automated Configuration (CA Endevor Automated Configuration)
- CA ACF2™ for z/OS (CA ACF2)
- CA Top Secret® for z/OS (CA Top Secret)

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Documentation Changes

The following documentation updates have been made since the last release of this documentation:

Note: In PDF format, page references identify the first page of the topic in which a change was made. If the topic is long, the actual change may appear on a later page.

Version 17.0, Second Edition

- Create or Modify a Package (see page 34)— This topic replaces several related topics to streamline the content.
- Determining Package Approvers (see page 37)— Updated to add the Alter action to the table that lists which inventory area is searched depending on which action is in a package.
- Element Locking for Packages (see page 44)— Updated to add the Alter action to the list of actions that lock a package.

Version 16.0, Third Edition

- Use the Package Utilities (see page 58)— Updated to indicate that a package with integrity errors can only be deleted through batch package processing or through an API program.

Version 16.0, Second Edition

- Back Out a Package Element Action (see page 66)— Updated to add an example.

Version 16.0

- How Component Validation Works (see page 41)— Updated to add a note that component validation supports long names for both elements and components.
- External Approver Groups and CA Top Secret (see page 93)— Updated the example.
- Backing Out and Backing In Package Outputs (see page 61)— Updated to change a note to refer to the Package Ship facility Ship Asis feature, which lets you ship outputs and backout members according to the backout status of the package.

Release 15.1

- Display Package Information (see page 24)—Updated to add the BU option that displays backout information for USS supported files.
- The Package Display Panel (see page 25)—Updated to add the BU option that displays backout information for USS supported files.
- The Package Display Panel Options (see page 25)—Updated to add the BU option that displays backout information for USS supported files.

- Display Backout Information (see page 32)—Updated to include USS supported files.
- Dependencies between Packages Affecting Backout (see page 63)—Added a note to indicate that element action backout, backin is not possible in some cases.
- View Package Backout Information (see page 67)—Updated to add the BU option that displays backout information for USS supported files.
- Using the Package Ship Utility (see page 117)—The content of this chapter has been restyled and moved to the new scenario knowledge document *Package Ship*. This scenario includes updates about shipping USS supported files. Scenarios are accessible from the Knowledge Based Articles section of the documentation bookshelf.

Version 15.0

- Cast a Package—Updated to include a reference to the Cast report in CSV format.
- Component Validation (see page 41)—Updated and reorganized for clarity into the new following topics:
  - How Component Validation Works (see page 41)
  - Reasons for Component Validation Errors (see page 42)
  - How to Resolve Component Validation Errors (see page 43)
  - How to Enable Component Validation (see page 40)
- Create a Component Validation Report in CSV Format (see page 43)—Added to describe how to create the report.
- The Package Cast Report (see page 44)—Updated to clarify the report content.
- Backing Out and Backing In Package Outputs (see page 61)—Updated to add the element action backout and backin options. Retitled from How to Back Out and Back In Package Outputs.
- Why Backout Does Not Affect Source (see page 62)—Retitled from Package Backout and Source.
- Back Out an Entire Package (see page 62)—Updated to add a cross reference to the element action backout option. Retitled from Back Out and Back in a Package.
- How Dependencies Between Packages Can Affect Backout (see page 63)—Added for clarification.
- Back In an Entire Package (see page 64)—Updated to add a cross reference to the element backin option. Retitled from Back Out and Back in a Package.
- Back Out a Package Element Action (see page 65)—Added for the element action back out option.
- Back In a Package Element Action (see page 66)—Added for the element action back in option.

- View Package Backout Information (see page 67)—Added for clarification.The XCOM Method—Updated to add that a remote destination for package shipment can be specified as a TCP/IP address identified by an IPNAME and IPPORT.
- The Package Ship Utility—Updated to add a note about backout status and shipped outputs.
- The REMOTE IPNAME/IPPORT Field—Added this topic to provide a description of the REMOTE IPNAME/IPPORT field.
- The Display Destination Panel—Updated to add a description of the REMOTE IPNAME/IPPORT field.
- The Delete Destination Panel—Updated to add a description of the REMOTE IPNAME/IPPORT field.
- The Destination Selection List—Updated to add a description of the REMOTE IPNAME/IPPORT field.

Contents

Chapter 1: Introduction

This section contains the following topics:

Packages

A *package* is a set of CA Endevor SCM actions that may require approval before being executed. To create a package, you define SCL that specifies actions to be performed against elements. The SCL in a package must be explicit. Wildcarding is *not* allowed in any SCL contained in a package.

You can use packages to do the following:

- Lock the elements in a package, thereby preventing modification of the element at the source of the package action, target of the package action, or both.
- Validate the actions against elements in the package prior to execution.
- Require that a package be approved before it can be executed. Approver groups can be defined locally or to an external security product such as CA Top Secret for z/OS, IBM RACF, or CA ACF2 for z/OS.
- Inspect the elements in a package for security, signout, synchronization conflicts, and source changes that might affect its successful execution.
- Validate package components to prevent elements from being moved until the elements have been assembled, compiled, or linked with current versions of all their dependencies.
- Restart a package if it fails during execution. The package is "checkpointed" and, when re-executed, begins at the first action that failed and re-executes the failed actions.
- Back out package outputs (and subsequently back in) after a package has been executed.
- Ship package outputs to remote locations.

- Secure package actions using the External Security Interface (ESI) or using approver groups.

  Note: For more information about ESI, see the *Security Guide*.

- Customize package processing using exit points before and after each package function,

  Note: For more information about exits, see the *Exits Guide*.

- Execute package functions in batch mode.

Package Types

There are two package types, standard and emergency. When you create a package, you define it as a standard or as an emergency package type. Standard is the default. Emergency packages require approval from emergency approver groups. An emergency approver group must be given the authority to approve emergency packages.

When you create a package, you must also define whether or not it is a promotion package. A promotion package can contain move actions only and can be easily reused. A promotion package can be either a standard or an emergency package type.

Note: For more information about promotion packages, see Promotion Packages (see page 119).

The Package Life Cycle

The package life cycle consists of five steps. A package is **created**, then **cast** and subsequently **reviewed** by the appropriate approvers. When the package is approved, it is **executed** and, when no further modifications are required, the package can be **committed** and optionally archived and deleted.

After a package has been executed, its outputs can be backed out, backed in, or shipped to remote locations.

CA Endevor SCM assigns packages a status at each phase of the life cycle and provides exit points before and after all package functions.

The following table shows the change in package status that occurs when each package function is performed. The table also lists what the next appropriate action is after the specified package action is performed.

Package Function	Old Status	New Status	Next Action
Create package (build, import, copy)	None	In-Edit	Modify or cast
Modify package (edit, import, copy)	In-edit	In-edit	Cast
Cast package			
Successful			
Approval	In-edit	In-approval	Review
No Approval	In-edit	Approved	Execute
Unsuccessful	In-edit	In-edit	Correct, re-cast
Review package			
Approved	In-approval	Approved	Execute
Denied	In-approval	Denied	Reset and correct
Execute package			
Before execution	Approved	In-execution	None
After execution			
Successful	In-execution	Executed	Backout, Backin, Ship, Commit
Unsuccessful	In-execution	Exec-failed	Correct and re-execute
Commit package	Executed	Committed	Delete, Reset, Archive
Backout package	Executed	Executed	None, Backin, Ship
Backin package	Executed	Executed	None, Backout, Ship
Ship package	Executed	Executed	None, Backout, Backin, Commit

Note: At any time during package processing, you can reset a package to In-edit status. You can backout and backin a package as many times as necessary - until you commit the package.

How to Create a Package

Creating a package involves the following:

- Identifying the elements to be included in the package.
- Building a file of actions to be performed against the elements.
- Identifying the package as standard or emergency.
- Specifying dates between which the package must be executed.

Note: You can also create a package by reusing an existing package.

After you create a package, the assigned status is In-edit. You can modify a package as long as it has a status of In-edit. The next step in the package life cycle is to cast a package.

How to Cast a Package

Casting a package prepares the package for review and subsequent execution. When you cast a package, CA Endevor SCM performs the following actions:

- Determines whether approvers have been assigned to the inventory area(s) included in the package.
- Ensures that the person casting the package has authority to perform the package actions against the package inventory areas.
- Checks the integrity of the package components.
- Ensures that the package contains the most recent versions of all components.
- Validates lock status, then locks the elements in a package to prevent their modification or inclusion in another package.

Before a package is cast, the status is In-edit and the package can be modified. After a package is cast, the status is either In-approval (if approval is required) or Approved (if approval is not required). In either case, the package can no longer be edited.

When the package status is In-approval, the next step in the package life cycle is to review the package. When the package status is Approved, the next step in the package life cycle is to execute the package.

How to Review a Package

A package must be reviewed if one or more approver groups are associated with the inventory areas included in the package. Once a package is in the review phase, only designated approvers can access the package and review its contents. If the Dynamic Approvers option is enabled in the CA Endevor SCM Options Table, then package approvers can add additional users as one-time approvers for a particular package while it is in the in-approval state.

To be approved, a package must:

- Receive approval from at least the required approvers.
- Receive approval from a quorum of approvers.
- Not be denied approval by any approvers

A local approver group is an approver group which contains approver user IDs defined to CA Endevor SCM. An external approver group is an approver group which has no user IDs defined in CA Endevor SCM. Instead, the user IDs are defined to the external security packages such as CA Top Secret for z/OS, RACF or CA ACF2 for z/OS.

Note: For more information about approver groups, see the chapter "Using Approver Groups (see page 91)."

Example: Use Approvers

The approver group PKGQA consists of three approvers. The approver group was established with a quorum size of 2, with one approver required. This means that in addition to the required approver, one of the two remaining members of the approver group must approve the package in order for it to be executed.

The following table shows the package status in relationship to the review phase:

Phase	Status	Next Action
Before Review	In-approval	Review
After Review	Approved (if approval granted)	Execute
	Denied (if approval not granted)	Reset and Correct

How to Execute a Package

The package can be either executed online or submitted in batch. The user performing the execution must have the authority to execute the package and also have the authority to perform the actions contained in the package.

The following table shows the package status in relationship to the execution phase. The outputs of packages that have been executed can be backed out, backed in, or shipped to remote locations.

Phase	Status	Next Action
Before Execution	Approved	Execute
During Execution	In-execution	
Successful	Executed	Backout, backin, ship or commit
Unsuccessful	Exec-failed	Correct and re-execute, backout, backin

Note: CA Endevor SCM releases element locks during package execution. Each lock is released after the associated action completes successfully.

How to Commit a Package

Package processing provides you with the ability to backout, and subsequently backin, change packages, if necessary. The BACKOUT/BACKIN option is available only after you have executed a package. All package event information (user, date, and time information pertaining to each step of the package processing procedure), as well as backout/backin data, is maintained with the package until you commit the package.

Committing a package simply removes any backout/backin data while retaining package event information. A package should be committed only when you are sure that you will no longer need to back it out or in. The following table shows the package status in relationship to the commit phase:

Phase	Status	Next Action
Before Commit	Executed	Commit, Archive
After Commit	Committed	Delete, Reset, Archive

Name Masking

To help you more easily find information and process requests, you can use *name masking*. By substituting a name with the asterisk wildcard character (*), a character with the percent sign placeholder (%), or by using both together, it is much faster and easier to find information and process requests.

Note: For more information about name masking, see the *User Guide*.

SCL Statement Syntax Conventions

CA Endevor SCM uses the IBM standard for representing syntax.

Note: For information about syntax, how you code syntax,and sample syntax diagrams, see the *SCL Reference Guide*.

Chapter 2: Processing Packages in Foreground

This section contains the following topics:

The Package Options Menu

Use the Package Options Menu to select each step of the package processing procedure. For example, you might use this menu to select the CREATE/MODIFY option, then return to the menu again to select the EXECUTE or SHIP option. This section tells you how to use this menu to select a processing option. The sections that follow describe eight of the options in detail.

Access the Package Options Menu

To begin the package processing procedure, select option **5**, PACKAGE, from the Primary Options Menu and press Enter. The Package Options Menu appears.

Select a Package Processing Option

Type the number of the option you want to use in the OPTION field. These options are summarized next. The sections that follow describe each option in detail.

1 Display

Displays information about a package.

2 Create/Modify

Builds, modifies, imports, or copies a package.

- BUILD allows you to create the action (SCL) requests to be performed.
- EDIT allows you to edit the SCL requests using the ISPF edit function.
- IMPORT allows you to create a package using SCL created outside of CA Endevor SCM or through batch processing.
- COPY allows you to create a package by copying the SCL from an existing package.

3 Cast

Casts the package, which freezes the data and prevents further changes at that time.

4 Review

Reviews the package and approves or denies it. If the DYNAMIC_APPROVERS option has been enabled, additional approvers can be added to this package.

5 Execute

Executes the package, in foreground or batch.

6 Ship

Ships the package outputs to remote locations. For information on the SHIP option, see the chapter “Shipping Package Outputs.”

7 Backout

Backs out the change package to restore the executable and output modules to the state they were in prior to execution. You can reverse the backout option by using the backin option.

8 Commit

Commits the package, removing all backout/backin data, but retaining package event information.

9 Utilities

Resets, exports, or deletes the package.

- RESET allows you to set the status of a package back to in-edit, so the package can be modified.
- EXPORT allows you to move the package from CA Endevor SCM to an external file.
- DELETE allows you to delete the entire package from CA Endevor SCM

Select a Package

To select the package with which you want to work, the following considerations apply:

- If you leave the Package ID field blank, or use a name mask, a Package Selection List appears.
- If you select option **2** (CREATE/MODIFY), when you enter a package ID in the PACKAGE ID field and press Enter, a Create/Modify Package panel appears for that package ID.

  However, if the optional GENPKGID exit point has been enabled and you leave the Package ID field blank and selected option **2**, a Create/Modify Package panel appears with a package ID assigned. For more information about the GENPKGID exit, see the *Exits Guide*.
- For options **1** (DISPLAY) and **9** (UTILITIES), you can display a Package Selection List that is limited to packages with a particular status. To include a status type, type **Y** next to the status name. To exclude a status from the Package Selection List, type **N** next to the status name.
- The ENTERPRISE_PKG defined on the Package Foreground Options Menu can be used to limit the Package Selection List. The following values are valid:
  - A - Display enterprise and non-enterprise packages in the list.
  - E - Limit the list to enterprise packages.
  - X - Exclude enterprise packages from the list.
- You can use the promotion package filter options (see page 21) to limit the selection list by promotion flag and target location.

Promotion Package Filter Options

The promotion package filter options on the Package Foreground Options Menu let you filter package selection lists by promotion flag and target location (environment and stage). Specifying a target location is optional.

Many CA Endevor SCM sites use package naming conventions and the package actions' target location (environment and stage) is often part of the package ID. This allows users to sort or filter packages by their target location. However, promotion packages have a constant package ID throughout the lifecycle, so package IDs cannot be used to identify the target location. The promotion package filter options enable you to filter selection lists by promotion flag, target location, or both.

Note: The changes you make on this panel are not retained to the next session.

To filter your selection list, enter the appropriate selection criteria in the following fields on the Package Foreground Options Menu.

PROMOTION PKG

Filters the package selection list. One of the following options must be specified:

A

Lists promotion and non-promotion packages.

P

Lists promotion packages only.

X

Lists non-promotion packages only

The default value is obtained from the setting in the Configuration Table (ENCOPTBL).

Target Environment

(Optional) Filters the package selection list to include only those promotion packages that have a target location matching the environment you specify. You can specify an environment, even if the Target Stage ID field is left blank.This option can only be specified if the PROMOTION PKG field is set to A or P. Name masking is allowed.

Target Stage ID

(Optional) Filters the package selection list to include only those promotion packages which have a target location matching the stage you specify. You can specify a Stage ID, even if the Target Environment field is left blank. This option can only be specified if the PROMOTION PKG field is set to A or P. Name masking is allowed.

Example: Filter Package Selection Lists for Promotion Packages

If the PROMOTION PKG field on the Package Foreground Options Menu is set to A and a target location is specified, all promotion packages matching the target location are listed along with all non-promotion packages, provided the packages meet all the other selection criteria.

How CA Endevor SCM Builds Package Selection Lists (Packages)

CA Endevor SCM determines the content of package selection lists using a two-step process, described next:

1. CA Endevor SCM selects all packages with a status that makes them available for the requested action. For example, if you specify the Cast option, CA Endevor SCM first selects all packages with a status of in-edit.

2. CA Endevor SCM then uses your user ID to further select from this list, based on whether or not the package has been cast.
   - If a package has not been cast, it is included on the list if you created it, or if it is shareable.
   - If a package has been cast, it is included on the list if you are an approver for the package.

CA Endevor SCM performs this two-step processing both before displaying the list, and after you either select a package or exit the selection list. Exit programs can be coded for either the before-list or after-list processing.

Note: For more information about exits, see the *Exits Guide*.

The Package Selection List

The Package Selection List displays data for each package in the list and is comprised of several panels that are accessible by scrolling left and right. The package function for which the panel is displayed appears in the upper left corner of the panel.

The first panel displays the package name, message, status, and description data. The next panel indicates the following package attributes: package type (standard or emergency), whether it is an enterprise package, a promotion package, a shareable package, and whether it is enabled for back-out or component validation.

Additional panels provide information about package history by identifying the user ID, date, and time associated with each of the following actions: Create, Last Update, Cast, Back-Out, Back-In, Committed, and Execution. The Execution column also shows the return code and status for the execution action. An Approved/Denied column gives the date and time of the package approval or denial. The CA7 column lists the Scheduled Job Name and Dependent Job Name. The Execution Window column gives the from date and time and to date and time.

Blank fields in the panels indicate that data for those fields is unavailable for that package.

You can scroll the panels by entering LEFT or RIGHT in the command line or by using the corresponding pfkeys, which are usually PF10 and PF11.

The ESORT command is available on all columns, using the headings shown in the panels. All date and time fields will sort as if the date and time were a single field, regardless of whether the sort is done on the date column or the time column.

The Package Selection List offers you the following two options:

You can display information about a package.

Type **D** next to the package(s) you want to see and press Enter. The Package Display panel appears for the selected package.

When you have reviewed the information, press the End key. If you selected more than one package to display, a Package Display panel appears for the next package indicated. When all selected packages have been displayed, the Package Selection List is returned.

You can select a package for processing.

Type **S** next to the appropriate package(s) and press Enter. The panel that appears next depends on the option you selected from the Package Options Menu; that is, if you access the Package Selection List with the CAST option selected, the Cast Package panel is returned when you select a package. However, this option is not available on any Package Selection List you accessed using the Display option on the Package Options Menu.

When you have finished, press the End key. If you selected more than one package for processing, the processing panel reappears for the next package specified. When all selected packages have been processed, the Package Selection List is returned.

Press the End key from the Package Selection List to return to the Package Options Menu.

Display Package Information

The Package Display panel provides information about a package, such as a description of the package, its status, and the like. When you have reviewed the information presented on this screen, you can either press the End key to return to the Package Options Menu or look further at the package contents by selecting one of the panel options.

To display information about a package

1. Type **1** in the OPTION field on the Package Options Menu and a fully or partially qualified name in the PACKAGE ID field.
2. Press ENTER.
   - If the Package Display panel appears, go to Step 2.
   - If a Package Selection List appears, select the package you wish to view. Then press Enter to display the Package Display panel.

3. Review the package information.
4. To return to the Package Options Menu, press the End key.

   Note: To look further at package contents, type the letter of one of the Package Display Panel options listed at the top of the panel (**A, B, BU, R, S, SH,** or **N**) in the OPTION field.

The Package Display Panel

The Package Display Panel enables you to perform two types of functions:

- You can select one of the options listed at the top of the panel (**A, B, BU, R, S, SH,** or **N**) to examine the contents of package in greater detail.
- You can review general information about a package by reading the package information displayed on the bottom part of the panel.

The Package Display Panel Options

The following action options appear at the top of the Package Display panel:

Blank

Enables you to view a summary of package contents.

A

Enables you to view summary information about the approvers for the package.

B

Enables you to view backout information for data sets for the package.

BU

Enables you to view backout information for USS supported files for the package.

R

Enables you to view the contents of the Package Cast Report.

S

Enables you to view full package SCL.

SH

Enables you to view ship status information.

N

Enables you to view any notes associated with the package.

H

Enables you to view historical versions. If you choose this option, the Package History Selection List opens.

Note: You can select only those options that are highlighted. An option is highlighted only when there is related information to display. If the package has not been backed out, for example, the DISPLAY BACKOUT INFORMATION option cannot be used. Similarly, if no approvers exist for a package, the DISPLAY APPROVERS option cannot be used and will not be highlighted.

The following information fields appear at the bottom of the Package Display panel and are display-only:

Package ID

The package name.

Status

The current status of this package.

Description

The package description, as defined when the package was created.

Package Type

The type of package: standard or emergency.

Promotion Pkg

Indicates whether this is a promotion package.

Target Env

Indicates the promotion package target environment.

Target Stg

Indicates the promotion package stage ID.

Sharable Pkg

Indicates whether this package can be edited by more than one person when in In-edit status:

- Y-The package is shareable and can be edited by anyone.
- N-The package can be edited only by its creator.

Backout Enabled

Indicates whether the backout/backin facility has been enabled for this package:

- Y-The backout/backin facility can be used.
- N-The backout/backin facility cannot be used with this package.

Execution Window From/To

Indicates the time frame within which the package can be executed, by date (in ddmmmyy format) and time (in hh:mm format).

Enterprise Pkg

Indicates whether this package is part of an Enterprise package created in the CA CM Enterprise Workbench.

Created

Indicates when the package was first built, by user ID, date and time.

Last updated

Indicates when the package was last modified, by user ID, date and time.

Cast

Indicates when the package was cast, by user ID, date and time.

Approved/Denied

Indicates when the package was approved. A package is not considered approved until all requisite approvers (required and optional, meeting the quorum requirements) have approved it.

Executed

Indicates when the package was last executed, and by whom.

Last Shipped

Indicates when the package was last shipped.

Dest-ID

Indicates the ID of the destination that the package was last shipped to.

Backed out/In

Indicates when the package was last backed out or backed in, and by whom.

Committed

Indicates when the package was committed, and by whom.

RC

The highest CA Endevor SCM return code received when processing this package. This field remains blank until the package has been executed.

Display Action Summary

When you leave the OPTION field blank and press Enter from the Package Display panel, the Package Element Information panel appears with a summary of the SCL statements contained within the package. The information that appears on the Package Element Information panel varies depending on whether the package has been executed or not.

PACKAGE ID, DESCRIPTION, and PACKAGE TYPE are listed, as well as the current STATUS of the package. Each SCL statement is then summarized, providing information on the action to take place, the related CA Endevor SCM location information (environment, system, subsystem, element name, type, and stage), and CCID and COMMENT information for each action in the package. The CCID and COMMENT fields appear blank if these values are not specified in the package ID. You can request a more detailed package display by placing the appropriate character to the left of each action. The following table describes each of the display options.

Note: To view component list information with CA Endevor SCM ACM, append an "X" to option S, B, C, or H.

S

A summary of Levels panel, showing a summary of change history for the element requested. From this panel, you can select a specific level of the element for display, using option *B, C*, or *H*.

M

An Element Master panel, showing Master Control File (MCF) information related to the element requested.

B

An Element Browse panel, showing all statements in the current level of the element, and the level at which each statement was inserted.

C

An Element Changes panel, showing all inserts and deletions made to the element as of the current level.

H

An Element History panel, showing all statements in all levels of the element, from the base level through the current level. The display shows the level at which each insertion/deletion occurred.

Again, the PACKAGE ID, DESCRIPTION, PACKAGE TYPE, and current STATUS are listed. Each SCL statement is summarized into one line of information that provides the following details:

- SCL STMT, statement number as assigned on the Package Execution Reports.
- ACTION that took place.
- ELEMENT name.
- TYPE of element.
- EXECUTION INFORMATION, including the date and time execution began, the date and time execution ended, and the highest CA Endevor SCM return code and processing return code resulting from the action processing.

When you are done reviewing the package element information, press the END key to return to the Package Display panel.

The Summary of Levels Panel

The Summary of Levels panel appears when you select **S**, Display Summary, from the Package Element Information Panel.

The top part of this panel displays identification information about the element. The bottom part provides a summary of the element-level (source-level) history, listing each level of the element in the stage requested and information appropriate to that level.

To request additional information for one or more of the levels listed on the panel, enter an option value to the left of the level(s) about which you want information, and press Enter. Valid values are:

- *B*-Element Browse
- *C*-Element Changes
- *H*-Element History

Note: If you selected multiple elements for display, press End to view the next Summary of Levels panel.

The Element Master Panels

Master Control File information for elements appears on two Element Master panels. The first of these two Element Master panels appears from the following:

- Display Elements panel when you select option **M** on the Display Elements panel and uniquely qualify the element you want.
- Element Selection List panel when you request option **M** and DISPLAY LIST = **Y**.
- Confirmation panel when you select option **M** and DISPLAY LIST = **N**.
- Library Selection List panel when you type **M** next to an element level.

To switch between the two Element Master panels, press Enter. To return to the previous panel, press End.

Note: If you have selected multiple elements for display, press End to view the next Element Master panel.

The Element Browse Panel

The Element Browse panel displays when you select **B**, Browse Element, from the Package Element Information Panel. The Element Browse panel displays all the statements in the element level and identifies the level at which each statement was inserted. By default, this panel displays the current level. To browse previous levels, go to the Summary of Levels panel, type B next to each level you want to browse, and press Enter.

Note: If you have selected multiple elements to browse, press End to view the next Element Browse panel.

The Element Statements Area

This area lists each statement in the element as of the level requested. For each statement, it identifies the level at which the statement was inserted (and deleted, as appropriate). A percent sign (%) marks those statements that were inserted as of the level displayed. This is useful in searching for these statements, such as when using the ISPF FIND command.

The fields are display-only and are described:

Level (no titled) columns 1-7

Level at which the statement shown to the right was inserted into the element (+*//*). For statements inserted as of this level, a percent sign (%) precedes the level number.

Text (no title) columns 9-n*

Text of the statement

Note: *(n) is any number larger than nine

The Element Changes Panel

The Element Changes panel displays when you select **C**, Display Changes, from the Package Element Information Panel.

The Element Changes panel displays all inserts and deletions made to the element between the specified level and its immediate predecessor. By default, this panel displays the current level. To view the changes from previous levels, go to the Summary of Levels panel, type **C** next to each level you want to browse, and press Enter.

Note: If you have selected multiple elements for display, press End to view the next Element Changes panel.

The Element History Panel

The Element History panel displays when you select **H**, Display History, from the Package Element Information panel.

The Element History panel displays all statements that ever existed in the element, from the base level through the level requested. For each statement, the display identifies the level at which the statement was first inserted and the level at which it was deleted. By default, this panel displays the current level. To view the history of previous levels, go to the Summary of Levels panel, type **H** next to each level you want to view, and press Enter.

Note: If you have selected multiple elements for display, press End to view the next Element History panel.

Display SCL

When you enter an **S** in the OPTION field on the Package Display Panel, you will see the actions listed in standard SCL format.

Press the End key to return to the Package Display panel.

Display Approvers

When you enter an **A** in the OPTION field on the Package Display Panel, the Package Approver Groups panel appears.

Display Approver Group Information

If you want to know more about a particular approver group, you can select that group from the Package Approver Groups panel. To do this, tab to the appropriate approver group and type an **S** next to the name. When you press Enter, the Approver Group Display panel appears.

The Approver Group Display panel provides information about an individual approver group. The top part of this panel displays package and approver group information from the Package Approver Groups panel. The lower part of the panel displays information about individual approvers.

Press the End key to return to the Package Approver Groups panel. You can either select another approver group for display or press the End key again to return to the Package Display panel.

Display Backout Information

When you enter a **B** in the OPTION field of the Package Display Panel you will see the data set backout information for the package. The Dataset Backout Information panel details each member that was backed out, the date and time of the backout, and the data set that contains the member. As with the other options, the PACKAGE ID, DESCRIPTION, PACKAGE TYPE, and STATUS are also presented on this display.

When you enter **BU** in the OPTION field of the Package Display Panel, you will see the USS supported file backout information for the package. The USS Backout Information panel details each file name and path that was backed out.

Press the End key to return to the Package Display panel.

Display the Cast Report

When you enter an **R** in the OPTION field on the Package Display Panel, the contents of the Package Cast Report appear. You may also view the report online using either the DISPLAY or REVIEW options on the Package Options Menu.

Note: SCL is not automatically stored in the cast report. To view SCL in the cast report, you must turn on this feature in the optional features table (encoptbl).

The messages that follow the action statements provide a trace of the cast activities, and note errors that occur. When errors occur in component validation, informational messages identify the component that failed validation, and the associated footprint information.

Note: For descriptive FPVL message information, see the *Messages and Codes Guide*.

Display Package Notes

When you enter an **N** in the OPTION field of the Package Display Panel the Package Note Text panel appears.

This panel displays any user supplied notes associated with a package. This is a display-only panel.

When you have finished displaying the notes, press the End key to return to the Package Display panel.

Display Promotion Package Historical Information

To view information about prior versions of promotion packages, you can display package information about each version.

To display package information about promotion package versions

1. Select the option H - Display Promotion History on the Package Display panel. This option is disabled if this is the first or original execution of the package.

   The Package History Selection List panel opens, with the current version listed first, followed by one row for each of the previous versions.

2. On the Package History Selection List panel, type a D to the left of the version you want to display and press Enter.

   The Package Display panel opens for the version of the package you selected.

3. Optional. To select another version to view, select the option H on the Package Display panel and press Enter. If the H option is disabled because this is the Package Display panel for the original version, press PF3.

   The Package History Selection List opens.

Create or Modify a Package

If a set of actions require approval before execution, you can package the actions together. To create a package, you define the package and then create the package contents, which consists of the SCL statements that will perform the element actions. For an existing package, you can edit the package definition and the contents.

To create or modify a package

1. Start the product using the instructions provided by your site administrator.

   The Primary Options panel appears.

2. Enter **5** (Package) and press Enter.

   The Package Options menu appears.

3. Type the new package name in the PACKAGE ID field, to create a package. To modify a package, type a full name, leave the PACKAGE ID field blank, or type a name mask. Then enter option **2**.

   If you specified a full name, the Create/Modify Package panel displays. If a Package Selection List displays, select the package you want to modify, and then press Enter to display the Create/Modify Package panel.

4. Complete the fields on the Create/Modify Package panel. Default values appear for existing packages; you can override these values. Some fields are only used by certain options.

   If you are importing or copying data into a package, the following field applies:

   Append to Package— Specify whether you want to append imported or copied data to the contents of this package. If you do not append the data, the contents of the package will be overwritten with the new information. This value is used by the options B, I, and C. Valid values follow:

   Y -- Append new data to the existing contents of the package.

   N -- Default. Overwrite the existing contents of the package.

   Enter one of the following options:

   - **B**— BUILD PACKAGE— Opens the SCL Generation panel to help you create SCL. The SCL actions are placed in the request data set displayed at the bottom of the page. This option uses the Append to Package field.
   - **E**— EDIT PACKAGE— Opens an ISPF Edit session for the package you specified, enabling you to edit the contents of the package.

- **I**— IMPORT PACKAGE— Imports SCL from the data set you specified, enabling you to create or update a package from SCL contained in an external data set. When you enter option I, the SCL is immediately imported and an ISPF Edit session opens to show the SCL now contained in the package. You can edit the SCL. This option uses the Append to Package field and the following fields:
  - **From ISPF Library**— Specify the data set (library) containing the SCL you want to import. This field (or the Other Partitioned or Sequential DataSet field) is required for option I, IMPORT PACKAGE; it is ignored for the other options.
  - **Other Partitioned or Sequential DataSet**— Specify the data set name (and member name, if the data set is a library) of the data set containing the SCL you want to import. This field (or the From ISPF Library field) is required for option I, IMPORT PACKAGE; it is ignored for the other options.
- **C**— COPY PACKAGE— Copies the contents of one package into another. When you enter option C, the SCL is immediately copied and an ISPF Edit session opens to show the SCL now contained in the package. You can edit the SCL. This option uses the Append to Package field and the following field:

  Input Package ID— Specify the package from which you are copying data. This field is required for option C, COPY PACKAGE; it is ignored for the other options.
- **N**— ADD NOTES— Opens the Package Notes Text panel, which lets you add or modify note you want to associate with the package. You can enter up to 8 text lines of up to 60 characters each.

5. Press END to return to the Create/Modify Package panel.

   The package is created and can be cast.

Cast a Package

Some packages must be reviewed and approved before being executed. Casting a package is the first step in the package review process. After a package has been cast, it can be approved and then executed.

Note: After you cast a package, you cannot edit it.

To cast a package

1. Start the product using the instructions provided by your site administrator.

   The Primary Options panel appears.

2. Enter **5** (Package).

   The Package Options menu appears.

3. Type the package name in the PACKAGE ID field. To display a Package Selection List, type a *name mask* or leave the field blank and optionally modify the Status fields to filter the selection list. Enter **3** (Cast) in the OPTION field.

   Note: For more information about a field or option on the panel, press PF1.

   The Cast Package panel appears. If the Package Selection List appears, select the package you want to cast and press Enter. Then the Cast Package panel appears.

4. (Optional) Review the SCL or add or change the note. Enter an option:

   - **S**— Opens the Display SCL panel, where you can view the package SCL before you cast the package. Press the End key to return to the Cast Package panel.
   - N— Opens the Package Note Text panel, where you can add or change the note. Press the End key to return to the Cast Package panel.

5. Review and, if necessary, change the panel fields. Enter **C** in the Option field of the Cast Package panel, to cast the package.

   Validate Components— Indicates whether package components will be validated when the package is cast. You can only specify *N* or *W* if the validation option PKGCVAL in the C1DEFLTS table is set to O. Valid values follow:

   Y— Validate components and do not allow the cast if validation fails.

   N— Do not validate components.

   W— Validate components, but do not fail the cast if there are errors.

   The Cast option performs the following process:

   - Determines approvers
   - (Optional) Validates package components
   - Checks action security
   - Checks component integrity and checks for locking conflicts
   - (Optional) Locks the elements included in the package
   - (Optional) Notifies approvers.

   If the process completes successfully and the package is cast, the package status changes as follows:

   - If the package does not require approval, the package status is changed to Approved.
   - If the package requires approval, the package status is changed to In-approval.

6. Press END to return to the Package Options menu.

Note: A trace of the cast activities is provided in the Package Cast report. For more information, see The Package Cast Report (see page 44). Component validation messages, which are included in the Package Cast Report, can also be written to CSV format by specifying //FPVL$CSV DD DSN=your.csv.output.file in your CAST job. For more information, see Create a Component Validation Report in CSV Format.

Determining Package Approvers

A package requires approval if *any* of the package actions specify an inventory area that is associated to an approver group. The CA Endevor SCM Administrator defines approver groups and the approver group relationships that associate an approver group to an inventory area. When a package is cast, the package status is affected as follows:

- If none of the actions in the package affect inventory areas associated with approver groups, that package does not require approval and is immediately given a status of Approved.
- If an approver group is related to the inventory areas associated with an action, then that action, and therefore the entire package, requires approval by that approver group before it can be executed. The status of a package in this situation changes from In-edit to In-approval.

Actions that do not change elements do not require approval. When a package is cast, CA Endevor SCM checks only those actions to which approval applies. Actions for which approval does not apply include Display, Retrieve, Print Element/Member, List Element/Member, Copy, and Archive (without the DELETE option).

For actions that do require approval, either the source inventory area or target inventory area is checked, depending on the action. The following table lists which inventory area is searched depending on which action is in a package.

Package Action	Inventory Area
Add	Target
Restore	Target
Update	Target
Generate with copyback *	Target
Generate without copyback	Source
Move	Target
Delete	Source
Signin	Source
Transfer with delete	Source and Target
Transfer without delete	Target
Archive with delete	Source
Alter	Source

*** Note:** When generating with copyback, the source location (where the action is requested) and the target (where the action is executed) are the same.

If the DYNAMIC APPROVERS option has been enabled in the CA Endevor SCM Options Table, additional one-time approvers can be added to this package, after it has been cast.

Note: For more information about defining and relating approver groups, see the chapter "Using Approver Groups (see page 91)."

How Cast Package Validation Works

Validations executed during the cast process are divided into two groups - primary validations and secondary validations.

Primary validations:

- Status of Package-Validates if package has the IN-EDIT status.
- Execution Window-Validates if the package execution window is still open (end date/time not in the past), if not cast will fail.
- User Authorization-Validates if the user performing the CAST is authorized to CAST this specific package.
- Syntax check-Performs standard SCL syntax validation.
- Source location validation-Validates if the elements referenced in package SCL reside at the source location of the action. This includes the Version and Level checks if they are coded.
- Element Locking-Validates that none of the elements is locked by another package. All element locks are tested even if one of them fails. Note that emergency packages override the existing element locks.

First, all primary cast validations are executed. If any of them fail, cast stops; otherwise, the cast process continues with all secondary validations.

Secondary validations:

- Component Validation.
- Check target location of the action-Checks if the target location permits the action to be performed.
- Security check-If PKGCSEC=Y is set in C1DEFLTS, a security check is performed to determine if the person performing the cast is authorized to perform the actions contained in the package.

  Note: The PKGISEC parameter in C1DEFLTS specifies if security validation occurs during the INSPECT action. The PKGCSEC setting has no effect on security validation of the INSPECT action, unless PKGISEC is not coded, in which case PKGCSEC rules the security calls for both the CAST and the INSPECT action.

- Call exit 2-Checks if exit 2 programs are to be called to do additional validations or modify the validation conditions. If the option, EXIT_2_CAST_INSPECT=Y is set in the ENCOPTBL table, exit 2 programs are called to either determine if there are conditions that would cause failure of CAST process, or change the validation conditions by modifying actions options, such as JUMP and SYNC.

  Note: There will be no call to exit 3 programs during CAST process.

- CCID/COMMENT validation-Validates if a CCID/COMMENT is required and present, and if a correct CCID was specified.

- WHERE CLAUSE validations - validates the WHERE clause if coded on an action.

  Exceptions:

  - If the source of the action is an archive file, CAST will not validate the where clauses for that action.
  - LIST actions with the WHERE TEXT or WHERE ACM clause are not validated during CAST.

- JUMP validation-Validates if elements do not jump over existing elements without specification of OPTION JUMP.

  Generate Status-Validates, where appropriate, if the element's last generate processor was successful, if not CA Endevor SCM checks if the option “ignore generate failed” has been coded.

- SYNC Validation-Validates potential SYNC problems and if OPTION SYNC is required and set.

- SIGNIN/SIGNOUT validation-Validates if the element has the correct SIGNOUT status for the action.

- Validates if the correct processor group and processor are present at the target location.

Note: Cast will be successful if all of the above validations pass with a maximum return code of 8.

How to Enable Package Cast Options

The administrator can enable options that affect the Cast action. These options are not required for to Cast a package.

1. Enable action security checking in the Defaults table C1DEFLTS using the PKGSEC parameter.

   PKGCSEC— Indicates whether actions should be checked at package cast time, to determine whether the person casting the package has the authority to perform all actions contained in that package. Valid values are as follows:

   Y— Checks each action. If the person is not authorized to perform all actions, he/she cannot cast the package.

   N— No action security check takes place and the package can be cast.

2. Enable the component validation options for users. See Enable Component Validation.
3. Enable email notification for approvers. See XIT7MAIL
4. Create a component validation report in CSV. See Create a Component Validation Report.

Note: A trace of the cast activities is provided in the Package Cast report. For more information, see The Package Cast Report (see page 44). Component validation messages, which are included in the Package Cast Report, can also be written to CSV format by specifying //FPVL$CSV DD DSN=your.csv.output.file in your CAST job. For more information, see Create a Component Validation Report in CSV Format.

Enable Component Validation

The Cast option Validate Components is enabled by the administrator.

Follow these steps:

1. Verify that the product option *CA Endevor SCM Automated Configuration* option (ACM) is installed.
2. Edit the PKGCVAL= parameter in the C1DEFLTS Table.

   PKGCVAL= Specifies whether component validate will be performed when a package is cast. Valid values follow:

   Y— Perform component validation when casting a package.

   O— Let the user casting a package specify on the Cast panel, or in the CAST SCL, whether CA Endevor SCM is to perform component validation. At cast time the user can specify one of the following options: Y— perform normal validation; N— do not validate package components; or W— validate components, but issue warning messages instead of errors and do not fail the cast action.

3. (Optional) Enable the parameter COMPONENT VALIDATION IN-BETWEEN SEARCH OPTIONS in the Optional Features table, ENCOPTBL, to redefine which map routes will be included during the search of components. You may want to do this if your elements or components cross systems or subsystems along the map.

Component Validation

The component validation feature helps prevent elements from being moved in the following circumstances:

- When the element's corresponding input components (copybooks, macros, and so on) are missing from the package and cannot be found further along the element's map or the component's map.
- When the element has not been generated with the most current version of any input component.

Thus, if a copybook were updated and the parent program recompiled, component validation would prevent promotion of the parent program without the promotion of the updated copybook. The new copybook would need to be promoted with or ahead of the parent program.

How Component Validation Works

When you cast a package, if component validation is active, CA Endevor SCM examines the source location of all Move actions. Then CA Endevor SCM builds a list of all the input components for each element being moved. Using the list, CA Endevor SCM proceeds as follows:

- For every component in the list, CA Endevor SCM searches the Environment map starting at the source location of the Move action. When CA Endevor SCM finds the first occurrence of a component, it compares the footprint of that component with the footprint in the component list. If the footprints are the same, the cast is successful, if any footprints are different, CA Endevor SCM fails the cast.
  - *Which footprint of the component is used:* To determine which footprint of the component will be compared to the footprint in the component list, certain tests are done. One or more of the following timestamps in the component's element master control file record may be used:
    - Current Source—This timestamp indicates when the current source level was created.
    - Last processor—This timestamp indicates when the last processor (move or generate) was executed.
    - Generate—This timestamp indicates when the generate processor was last executed.

The following tests are done to determine which timestamp will be tested:

- The last level date/time stamp is tested if any of the following are true:
  - The input component was included from the BASE library, or
  - The input components were loaded by the load utility, or
  - The input components were included by a CONRELE step.
- For all other input components, the last processor date/time stamp and last generate date/time stamp are tested. If either matches, the component is considered valid.

If CA Endevor SCM does not find a component after searching the element's and the component's map routes, CA Endevor SCM issues an error message indicating the element contains one or more components that could not be validated.

– *How parallel or converging system and subsystem maps are handled:*

- If the location of the component changes system or subsystem names across your map, the first found logic might not find a component. If this happens, CA Endevor SCM reads the footprint in the component list, and performs an explicit check for the component starting at the location specified in the footprint then along the component's map route. If the footprints are the same, the cast is successful, if the footprint is different, or the component is not found, CA Endevor SCM fails the cast and issues the appropriate error message.
- If you have parallel systems or subsystems that map to one system or subsystem, then component validation checks all map routes. For example, a cast will fail, if your package is moving a modified element that is located in one system or subsystem while a modified input component is located in the same stage but in the other (parallel) system or subsystem.

The administrator can change this default behavior by defining which map routes will be included during the search of components. This option can only be set in the Optional Features table (ENCOPTBL).

- If an element uses a component that resides in the same Environment and Stage as the element, then CA Endevor SCM checks to make sure the component is included in the package. If it is not part of the package, CA Endevor SCM appends Move SCL for the omitted component to the package SCL.

Note: Component validation supports long names for both elements and components.

Component Validation Errors

Component validation errors can occur for the following reasons:

- If the last processor executed against an input component failed.
- If the generate processor was not executed the last time the input component source was updated.

- If the input component being checked was included from the base library and the footprint timestamp does not match the input component's element master current source timestamp.
- If a move and/or generate processor exists for this component (it may have been BASICGEN) and the last generate or the last processor timestamps do not match the footprint in the component list.
- If an element is added and the Bypass Generate option is specified, a validation error message is issued indicating the element must be generated. This occurs even if the move and generate processors are *NOPROC*.

How to Resolve Component Validation Errors

When component validation fails, review the package and do one of the following:

- Generate the element to pick up the latest version of a component.
- Cast the package without validation (if allowed).
- Delete the element whose components cannot be found or are invalid.

Create a Component Validation Report in CSV Format

The component validation messages are written to the Cast report. In addition, the component validation report can be written in CSV format to an external file. A CSV record is written to the file for each validated component. Each CSV record will contain the following information:

- Name of the package
- Component validation error message (if any) for this specific component
- Name and footprint of the element using the component
- Name and footprint of the component being validated for this element

To obtain the component validation messages in CSV format:

Follow these steps:

1. Allocate the external file as fixed block and LRECL 256.
2. Specify the following in your CAST job:

   ```
   //FPVL$CSV DD DSN=your.csv.output.file
   ```

Integrity (Control) Check

After the package is cast, it contains either a copy of the footprint of the source element or a checksum value for source members from an external data set. Before actions are executed, CA Endevor SCM compares this footprint or checksum value with the values stored in the package at execution time. If any differences exist at that time, the package is not executed.

View the Package Cast Report

The Cast report is stored with the package. The Cast report messages provide a trace of the Cast activities. The report logs informational messages, warnings, cautionary situations, and errors that occur during a package Cast action. When component validation detects the use of incorrect components, it issues informational messages that identify both the element and its components that failed the validations with their respective footprint information.

You can view the report, on the following panels:

- On the Package Options menu, use the Display or Review options.
- On the Package Display panel, enter an **R** in the Option field.

Element Locking for Packages

Element locking for packages is an optional CA Endevor SCM feature that locks elements in a package when they are the object of certain actions.

CA Endevor SCM locks the elements for the following actions:

- Add/Update
- Alter
- Generate
- Generate with copyback
- Delete
- Move
- Signin
- Transfer
- Archive, delete behind
- Restore
- Retrieve with signout

CA Endevor SCM does not lock the elements for the following actions:

- Display
- Print Element
- Print Member
- List Element
- List Member
- Archive, bypass delete
- Copy
- Retrieve, without signout

Locking (reserving) an element has the following effects:

- CA Endevor SCM will not allow a second package to be cast if it contains elements that have been reserved by an active package.
- CA Endevor SCM will stop any of the actions that lock an element when those actions are requested outside of an active package against elements locked for that package.
- CA Endevor SCM does allow locked elements to be fetched.

CA Endevor SCM locks elements when you cast the package. The elements remain locked while the package is in any of the following "active" states:

- Cast
- In-Approval
- Approved
- Denied
- In-Execution

CA Endevor SCM releases locks on elements for packages in the following states: In-Edit, Executed, Backed Out, Backed In, Committed.

Emergency packages override locks on active packages.

How to Implement Element Locking

You implement element locking for packages by assembling the CA Endevor SCM customization table (ENCOPTBL) with one of three values for the PKG_ELEMENT_LOCK option:

LOCK=(ON,Y)

Enables locking, and locks both the source location and the target location of an action.

LOCK=(ON,N)

Enables locking, and locks only the source location of an action.

LOCK=OFF

Locking is not enabled.

Note: The default is not to enable locking.

Edit member ENCOPTBL found in *iprfx.iqual.CSIQSRC* and then assemble and link the module to your *iprfx.iqual.CSIQAUTU* library. Use sample JCL BC1JTABL to assemble and link ENCOPTBL to your *iprfx.iqual*.CSIQAUTU outside of SMP/E or use an SMP/E USERMOD to accomplish this. BC1JTABL can be found in the installation library *iprfx.iqual.CSIQJCL*.

How to View the Element Lock

When locking is enabled, a new field, the LOCKED FOR PKG: field, appears on the element master display. This field contains the name of the package that has reserved the element.

How Element Locking Works

When a package is cast, CA Endevor SCM checks the location of each element referenced by the package to determine if another package has already reserved the element at that location. If any of the elements are already reserved, the cast is terminated and messages identify the package(s) that already have the element reserved.

Elements are locked to prevent external source change. If the source is changed before the package is cast then the attempt to cast the package may fail. For example, if you are issuing a RETRIEVE, and the source has been changed it can cause the process to fail before you are able to complete the retrieval process.

When an action is executed outside of a package, CA Endevor SCM checks to determine if the element has been locked by a package. If the element has been locked, the action is terminated and messages identify the package(s) that already have the element reserved.

Note: During the cast process, CA Endevor SCM element action enqueues are issued for each element. If the element is in use by another user or if an UNLOAD is being executed for the same environment/system, the cast is terminated.

How Releasing Locks Works

The element lock is released as soon as the package action has completed successfully. To ensure elements are not incorrectly marked as reserved due to abnormal terminations, and so on, the package status is verified to ensure that the lock is valid. If the package is not found or is not in a state between "CAST" and "in-execution," the element lock is removed.

Emergency Packages Override Locks

In the case where an emergency package is being cast and an element lock conflict is detected, caution messages are issued, the cast return code is set to 8, and the lock is overridden.

Multiple Actions in Packages

When multiple actions within a package reference the same element at the same inventory location, the element is locked and caution messages are issued. The cast completes successfully with a return code of 8.

Locking Reserves Element Names at Target

When you cast a package containing a move or transfer action, and the element being moved or transferred does not exist at the target location, CA Endevor SCM locks the element at the source location and also reserves the element at the target. This prevents a user from adding or moving an element of the same name into the target location outside of the package, or modifying the element at the target.

Locking Examples

The following examples illustrate locking behavior:

Scenario	Locking Behavior
Cast package PKG1 to move element ELM1, where ELM1 exists at both locations, and LOCK=(ON,Y).	ELM1 is locked at both locations. PKG1 appears in the ELM1 master display at both the source and the target of the move.
Cast package PKG1 to move element ELM1, where ELM1 exists only at the source location, and LOCK=(ON,Y).	ELM1 is locked at the source. PKG1 appears in the ELM1 master display at the source. The name ELM1 is also reserved at the target of the move. This prevents other users from adding or moving a different element ELM1 into the target location as long as PKG1 is active.
Cast package PKG1 to move element ELM1. Then cast emergency package PKG2, also to move element ELM1.	Even though ELM1 is locked for PKG1, the cast of PKG2 is successful because it is an emergency package. The master display for ELM1 now shows a lock for PKG2. The Cast Report for PKG2 notes that PKG2 has overridden PKG1.

Locking Elements at Cast Time

When you cast a package, CA Endevor SCM checks for the following:

- Location of each element referenced by the package to determine if another package has already "locked" the element at that location. In the case of actions such as move and transfer, CA Endevor SCM also checks the target of the action for a lock.
  - If the element has not been locked, CA Endevor SCM locks the element by writing the name of the package to the master record for the element at the source and target of the action.
  - If the element has already been reserved by another package, the cast fails with messages that identify the package that has reserved the element.

  For example, if you cast package PKG1 to delete element ELM1 from Stage 2, and then try to cast another package PKG2 to move ELM1 to Stage 4, the cast of PKG2 fails with a message telling you element ELM1 is reserved by package PKG1.
- Package type. If you are casting an emergency package, CA Endevor SCM overrides any existing locks, replacing them with a lock for the emergency package. So, in the previous example, if package PKG2 is defined as an emergency package, the cast would be successful and the cast report would note that package PKG2 had overridden the lock from package PKG1.
- Number of actions that reference a given element. If CA Endevor SCM detects multiple actions referencing the same element in a package, the element is locked and caution messages are issued. The cast succeeds with a return code of 8.
- In-use status of the elements. During the cast process, CA Endevor SCM element action enqueues are issued for each element. If the element is in use by another user or if an UNLOAD is being executed for the same environment/system, the cast fails.

Review a Package

A package must be reviewed if one or more approver groups are associated with the inventory areas included in the package.

To review a package

1. Type **4** in the OPTION field on the Package Options Menu. Type a package name in the PACKAGE ID field to go directly to a Review Package panel. Leave the PACKAGE ID field blank or type a name mask to go to a Package Selection List. Press Enter.
2. If the Review Package panel displays, go to Step 3. If a Package Selection List displays, select the package you wish to cast, then press ENTER to display the Review Package panel.

3. From the Review Package panel, you can do the following:

   - Display a summary of the package by leaving the OPTION field blank, then pressing Enter to display the Package Element Information panel with a summary of the SCL statements contained within the package. From the Package Element Information panel you can.
     - View the package summary information, then press the End key to return to the Review Package panel.
     - Request a more detailed package display by selecting one of the options on the Package Element Information Panel. For information on using the Package Information Panel, see Display Action Summary in this chapter.
   - Display approver group information for the package by typing L in the OPTION field, then pressing Enter to display the Display Approver Groups panel. View the approver group information, then press the End key to return to the Review Package panel.
   - Enter notes you want to associate with the package by typing N in the OPTION field, then pressing Enter to access the Package Note Text panel. From the Package Note Text panel you can enter or modify up to eight text lines of up to 60 characters each. When you have finished entering the text press the End key to return to the Review Package panel.
   - Approve the package by typing A in the OPTION field, then pressing ENTER.
   - Deny the package by typing D in the OPTION field, then pressing ENTER.
   - Add additional one-time approvers to a package when it is in the in-approval state, by typing DA in the OPTION field, and then pressing ENTER. This option appears only if the Dynamic Approver Option has been enabled in the CA Endevor SCM Options Table.

Approve a Package

When you type **A** in the OPTION field on the Review Package panel and press Enter, CA Endevor SCM returns the Package Options Menu with the following message in the upper right corner:

PACKAGE APPROVED

Note: This message indicates that you have approved the package. To complete the approval process, all requisite approvers (required and optional, meeting the quorum requirements) must approve the package.

At this time, another package can be reviewed or, if all requisite approvers have approved this package, it may be executed.

Deny a Package

When you type **D** in the OPTION field on the Review Package panel and press Enter, CA Endevor SCM returns the Package Options Menu with the following message in the upper right corner:

PACKAGE DENIED

The package status changes to denied. Two options are now available to you:

- Select the UTILITIES option and reset the package to In-edit, to make any modifications required. If you do this, you must cast the package again before it can be reviewed.

  Note: Resetting the package releases all element locks in the package.

  Access the Review Package panel again, without correcting the package, to change your denial to an approval.

The Review Package Panel

The Review Package panel allows you, as an approver, to review and subsequently approve or deny a package. You can also display the package contents, the approver groups associated with the package, and add note text you want to associate with the package.

Note: Once the final approver-per the quorum size requirement and the required/optional approver designation-has approved the package, the Review Package panel is no longer available for this package.

You can enter information only in the OPTION field on the Review Package panel. The options that you can use are as follows:

- Leave the OPTION field **blank** to review the package contents in summary form.
- Select **A** to immediately approve the package.
- Select **D** to immediately deny the package.
- Select **L** to display approver group information.
- Select **N** to add or modify note text you want to associate with the package.
- Select **DA** to add dynamic approvers to this package. This option appears on this panel only if the Dynamic Approver option has been enabled in the CA Endevor SCM Options Table.

Execute a Package

To execute a package, you must have the authority to execute the package and also have the authority to perform the actions contained in the package. The package STATUS and EXECUTION fields are not updated until the package is executed.

To execute a package

1. Type **5** in the OPTION field on the Package Options Menu. Type a package name in the PACKAGE ID field to go directly to the Execute/Submit Package panel. Leave the PACKAGE ID field blank or use a name mask to go to the Package Selection List. Press Enter.

   The Package Selection List shows only those packages available for your user ID, with a status of Approved, Executed, or Exec-failed, that meet the PACKAGE ID field criteria.

2. If the Execute/Submit Package panel displays, go to Step 3. If a Package Selection List displays, select the package you wish to execute. Then press Enter to display the Execute/Submit Package panel.

3. From the Execute/Submit Package panel, you can

   - Execute the package by typing **E** in the OPTION field, then pressing ENTER.
   - Submit the package for subsequent execution by typing **S** in the OPTION field, then pressing Enter.

Before You Execute a Package

Before executing a package, CA Endevor SCM performs the following tasks:

- Validates the package.
- Ensures that you have authority to perform the package actions.
- Ensures that the execution request is within the execution window.
- Ensures that no element changes have occurred since the package was cast.

If any pre-execution validation errors have occurred, CA Endevor SCM does not execute the package. If the package does fail during execution it is checkpointed. However, in re-executing the package the restart procedure attempts to execute those actions that failed in the previous execution.

Note: In the event that a package has been cancelled and restarted, the shipment of this package may yield incorrect results.

Important! Before you begin the restart procedure it is very important to check the backout package panel. In this situation a duplicate or an incorrect backout can occur and interrupt proper processing.

Note: If circumstances arise during processing and duplicate or incorrect backout members do occur, contact technical support to make the appropriate changes using adequate and accurate correction procedures.

Package Execution and Locking

When you execute a package, CA Endevor SCM releases the locks it has placed on each element in the package after the action against the element has completed. This means that if a package executes successfully, all the locks are released. If one or more action in the package fails, the locks remain on those elements referenced in the failed actions.

The Execute/Submit Package Panel

You can enter or change the values in any of the following fields on the Execute/Submit Package panel:

Option

Select the option indicating how you want to execute the package:

E-Execute the package online

S-Submit the package for execution at a later date

These options are discussed in more detail at the end of this section.

Execution Window From/To

Indicates the time frame within which the package can be executed, by date (in *ddmmmyy* format) and time (in *hh:mm* format). The execution window default values are determined as follows:

From-Defaults to the date and time you created the package.

To-Defaults to the date December 31, 2079 (31DEC79) and the time 00:00.

Note: You can change this field only if the execution window has been missed; that is, if the current date and time is later than the date and time in the TO portion of the EXECUTION WINDOW field.

Upon completion of the package execution, the execution log will be displayed. Press the End key to exit the log display.

Execute a Package in Foreground

To execute a package online, type **E** in the OPTION field on the Execute/Submit Packages panel, then press Enter. A message appears in the upper right corner of the panel indicating whether the package executed successfully or whether there were execution errors.

The status of the package changes to Executed, if execution was successful, or to Exec failed, if there were execution errors. The User ID, date, and time of the execution are noted in the EXECUTION field.

When the package has finished executing, press Enter to display the first page of the CA Endevor SCM Package Execution Report (page one of the Syntax Request Report). The Syntax Request Report is followed by the Execution Report, which is followed by the Action Summary Report. The Package Execution Report is similar to the Batch Execution Report.

Press the End key at any time to return to the Package Options Menu.

Execute a Package in Batch

To submit a package for batch execution, type **S** in the OPTION field on the Execute/Submit Packages panel, then press Enter to display the Submit Package panel.

From the Submit Package panel, you can perform the following actions:

- Type **S**, then press Enter to submit the package as is.
- Type **E**, then press Enter to include additional JCL with the job.

Include Additional JCL in a Package

When you type **E** in the OPTION field and press Enter, CA Endevor SCM displays the JCL to be Included with the Batch Job panel.

Type the JCL statements you want to include with the batch job and press the End key to return to the Submit Package panel.

To submit the job for batch processing, type **S** in the OPTION field of the Submit Package panel, then press Enter. Depending on how your system works, you may receive a message indicating that the job has been submitted. Press any key to return to the Package Options Menu.

Request Concurrent Action Processing

You can request that the package be processed using concurrent action processing. When Concurrent Action Processing is used, certain element action requests are executed concurrently, which reduces the elapsed time it takes to process multiple actions.

This option is available on the Submit Package panel using the following fields:

Concurrent Action Processing

Use this field to indicate whether or not you want to use concurrent action processing. Valid values are Y and N. The default value when you enter the panel is N. If this feature is not enabled for your site, this option is read-only.

Concurrent Number

Specify the number of concurrent actions to be processed. The default is the SPAWNCNT value set in C1DEFLTS. If you overwrite the default and then decide you want to use the default, either type in the default value or blank out this field. Valid values are 02 through the Max number shown on the panel. The Max number is the value of SPAWNMAX specified in the C1DEFLTS.

Note: For more information about Concurrent Action Processing, see the chapter "Concurrent Action Processing" in the *Scenario Guide*.

The Package Execution Report

As the job is being processed, CA Endevor SCM writes a Package Execution Report, associated with this particular job, to the DDname **C1MSGS1**. CA Endevor SCM initially validates the syntax (the SCL statements) and produces the Syntax Request Report (the first portion of the Package Execution Report). If your package is approved and execution started within the execution window, and if the package's internal consistency data is valid, CA Endevor SCM continues processing and produces the Execution Report and the Action Summary Report.

The Package Execution Report is similar to the Batch Execution Report.

The Batch Package Submission Utility

The batch package submission facility, C1BM6000 has been replaced by Batch Package Facility (ENBP1000) SUBMIT PACKAGE action. Users of C1BM6000 must migrate to ENBP1000.

Note: For more information about the ENBP1000 action, see the *SCL Reference Guide*.

Commit a Package

Committing a package is the last stage in the package life cycle. When package outputs are acceptable in their current state, you can commit the package.

Note: Committing a package removes all backout and backin data records in the package file. It will also delete all the backout members from any source output libraries and processor output libraries created by the package. For more information, see How to Back Out and Back In Package Outputs (see page 61).

Package commitment takes into consideration dependencies between packages, that is elements in common. Once a particular package is committed, its dependent packages (if any) can no longer be backed out or backed in. Assume you execute a package, PKG1, containing elements COPYA, COPYB, and COPYC on Monday. On Tuesday, you execute a package, PKG2, containing elements COPYD, COPYE, and, again, COPYC. On Thursday you decide to commit PKG2. PKG1 is dependent on PKG2 because PKG2's execution has affected element COPYC. Therefore, you cannot backout PKG1 once PKG2 is committed.

To commit a package

1. Type **8** in the OPTION field on the Package Options Menu.
2. Type a package name in the PACKAGE ID field to go directly to the Commit Package panel. Leave the PACKAGE ID field blank or type a name mask to go to a Package Selection List.
3. Press Enter.

   The Package Selection List shows only those packages available for your user ID, with a status of Executed, that meet the PACKAGE ID field criteria.
4. If the Commit Package panel displays, go to Step 3. If a Package Selection List displays, select the package you wish to commit, then press ENTER to display the Commit Package panel.
5. If this is a promotion package, set the Delete Promotion History option to Y or N. If this is not a promotion package, this option is ignored.

   If you set the option to Y, all promotion history associated with previous versions of this promotion package are deleted. If you set the option to N, all promotion history associated with previous versions of this promotion package are not deleted.
6. Type C in the OPTION field of the Commit Package panel. Press ENTER to commit the package.

All fields on the Commit Package panel except the OPTION field and the Delete Promotion History option are display-only.

Use the Package Utilities

Use option **9**, utilities, to perform the following actions:

- Reset packages
- Export packages
- Delete packages

You can use these utilities at any time during your work session.

To use the package utilities

1. Type **9** in the OPTION field on the Package Options Menu. Type a package name in the PACKAGE ID field to go directly to a Package Utilities panel. Leave the PACKAGE ID field blank or type a name mask to go to a Package Selection List. Modify the status fields if necessary to tailor the selection list. Press Enter.
2. If the Package Utilities panel displays, go to Step 3. If a Package Selection List displays, select the package you wish to cast, then press ENTER to display the Package Utilities panel.
3. From the Package Utilities panel, you can:
    a. Display a summary of the package by typing D in the OPTION field, then pressing Enter.
    b. Export the package SCL to an external data set by typing **E** in the OPTION field, then pressing Enter.
    c. Reset the package by typing **R** in the OPTION field, then pressing Enter.
    d. Delete the package by typing **#** in the OPTION field, then pressing Enter.

Note: Deleting a package can prevent collection of dependent packages.

Note: A package with integrity errors can only be deleted through batch package processing or through an API program.

The Package Utilities Panel

The following lists the fields that you can enter or change on the Package Utilities panel:

Option

Indicate the option you want to use:

- Select D to display package information.
- Select R to reset the package.
- Select E to export the package's SCL to an external data set.
- Select # to delete the package.

When you have entered the appropriate information, press Enter. The next panel to appear depends on the option you selected.

Display a Package

When you select option **D**, DISPLAY, from the Package Utilities panel, the Package Display panel returns for the package.

Reset a Package

One of the advantages of working with a package is that it is reusable; you need not redefine the package contents every time you want to use it. When you reset a package, you are starting the package processing procedure over. The RESET option returns the package to an In-edit status, allowing you to correct or change the package as necessary. Resetting a package removes the locks from all elements referenced in the package. All package event information is removed, with the exception of when the package was created and by whom. You can reset a package at any time during package processing, from any option.

Package dependencies are ignored when you reset a package that has been executed. Therefore, be sure to examine your executed packages carefully before you reset them. If you reset an executed package which has dependencies you could affect the integrity of the data in the dependent packages. Resetting an executed status deletes all backout members associated with it causing packages and their dependent packages to become unshippable.

To reset a package, type **R** in the OPTION field on the Package Utilities panel and press Enter. The Package Utilities panel returns, with a message indicating that the package has been reset.

Export a Package

With the EXPORT option, you can copy the package's SCL into an external data set. The package itself is still available within CA Endevor SCM.

To export a package, type **E** in the OPTION field of the Package Utilities panel. You must also indicate to where you want to export the package. The remaining fields on the Package Utilities panel are described as follows:

To ISPF Library

Indicates the data set (library) to which you want to export the package.

Other Partitioned or Sequential Data Set

Indicates the data set name (and member name, if the data set is a library) of the data set to which you want to export the package. Use this field as an alternative to defining an external data set.

Replace Member

Indicates whether you want to replace a member with the same name with the exported data.

Y-Replace an existing member

N-Do not replace the member if it exists. If you select N and the indicated member currently resides in the external data set, CA Endevor SCM does not export the member.

Press ENTER. The Package Utilities panel returns with an appropriate message.

Delete a Package

At some point, you may decide that you no longer need or want a particular package in your files. You can delete the package directly from the Package Utilities panel.

Package dependencies are ignored when you delete a package. Therefore, be sure to examine your packages carefully before you delete them. If you delete a package that has dependencies, you could affect the integrity of the data in the dependent packages.

Important! Exercise caution when you delete a package, as the package is no longer available-in any form-when it is deleted. Use of the DELETE command can cause dependent packages to become unshippable.

To delete a package, type **#** in the OPTION field of the Package Utilities panel and press Enter. The Package Utilities panel returns immediately. The package is deleted and can no longer be accessed.

Backing Out Package Outputs

If you discover a problem after executing a package, or if the execution failed, you can undo the effects of the execution using package backout (backout processing). For example, assume that your package executed successfully, but you know or suspect that the execution caused problems elsewhere in the system. You can undo the execution and return the outputs of the package to the state they were in before being executed. After you use backout processing to back out the outputs, if you decide that you want to return the outputs to the executed state, you can use package backin (backin processing) to undo the backout processing.

Package backout returns package outputs to their prior state. Package backin reinstates the outputs. Backout and backin processing can be used to back out and back in the following outputs:

- All output members and USS files (produced through the ENUSSUTL processor) of a specific package, that is the entire package.
- All the output members and files of a single action within a specific package, without backing out the entire package. However, if there are multiple actions within the package that produce the same output member and file, the package is not eligible for Element Action Backout. This option is particularly helpful if your site uses large packages to move many elements through the lifecycle.

You can only back out packages that are defined with the option Enable Backout. The Enable Backout option creates backout members for the element outputs that are created or modified by the execution of the CA Endevor SCM actions, that is the processors associated with those actions. This creation of backout members and USS backout files lets you back out a package, restoring all output members (load modules, listings, and objects), and USS files of the package to their state before the execution of the package.

When you execute a backout, make sure that the processors do not use the IEBCOPY utility. Processors whose output you want to back out can use the BSTCOPY utility. For more information about BSTCOPY, see the *Extended Processors Guide*.

Backout processing affects CA Endevor SCM output libraries, not base and delta libraries. If reverse delta format is being used, the base library member is not backed out. Also any outputs that are written to CA Endevor SCM libraries, such as listings, are not backed out.

Note: When you use the Package Ship facility, the Ship Asis feature determines whether the backout and backin status of a package has any effect on what gets shipped. When enabled, Ship Asis lets you ship outputs and backout members (and HFS files, or both) according to the backout status of the package. If not enabled, outputs from the time the package was executed are shipped regardless of the package's backout status. With this feature enabled, during the execution of a package backout and backin action (including element action backout and backin), the user will receive messages in the package log. These messages list all the destinations to which the package was shipped before this backout or backin action. The purpose of these messages is to alert the user that they may need to reship the package, because the backout or backin action has changed the package outputs.

Why Backout Does Not Affect Source

Package backout is designed to restore load modules, USS files, and other executables to their prepackage execution state. Backout does not restore the source to its previous image, because the *bad* source is the audit trail of the change. This audit trail should not be disrupted for any reason, because it allows you to view change history and changes only online, facilitating problem resolution.

By flagging the element in the MCF, CA Endevor SCM knows that the executables were backed out even if the source was not backed out. CA Endevor SCM warns users who later attempt to retrieve the backed out element that they are working with a backed out copy.

If you want to restore the prior level of source, you can do this by selecting the S option (Summary of Levels) from the Retrieve Elements panel. The prior level of source, after retrieval, can then be added back into CA Endevor SCM, creating a new change level and preserving the audit trail of the bad change.

Back Out an Entire Package

If you need to undo the effects of a package execution, you can back out the outputs of the package. This procedure describes how to back out an entire package. You can also select a single element action to back out. For information about element action back out, see Back Out a Package Element Action (see page 66).

Note: Before you back out a package, you must consider dependencies between packages (see page 63).

To back out a package

1. Type **7** in the Option field on the Package Options Menu. Type a package name in the PACKAGE ID field. Press Enter.

   The Backout Package panel opens.

   Note: If you leave the PACKAGE ID field blank or type a name mask and then press Enter, a Package Selection List will open. The Package Selection List shows only those packages available for your user ID, with a status of Executed, In-execution, or Exec-failed, that meet the PACKAGE ID field criteria. If a Package Selection List displays, select the package you want, and then press Enter to display the Backout Package panel.

2. Type BP in the Option field and press Enter.

   - If the backout is successful, the Package Options Menu or the Package Selection List is returned immediately.
   - If the backout is not successful, the Package Backout Report appears, indicating why the backout failed.

Dependencies between Packages Affecting Backout

Before you back out a package, you must be aware of dependencies between packages. Consider the following situations and how they can affect backout.

Note: If package backout, backin is not possible in any of the following cases, then Element Action backout, backin is also not possible.

- More than one package moves the same element to the same location:

  For example, assume you execute package, PKG1, which moves elements COPYA, COPYB, COPYC, and COPYF to the next location. Then you execute package, PKG2, which also moves element COPYF, as well as elements COPYD, and COPYE to the same location. Next, you decide that you need to back out PKG1. Because PKG2's execution has affected element COPYF, which is common to both packages, you must back out PKG2 first, or the element will not be returned to its appropriate pre-execution state.

- A later package moves an element from the target location of an earlier package:

  If the action is executed in a package with backout in effect, the package dependencies remain valid as long as the elements remain at the target stage, or at the source stage for Delete, Archive and Generate actions. For example, if package PKG1 moves an element to one stage and package PKG2 moves this element to the next stage, then you will not be able to back out PKG1 after the execution of PKG2. The reason for this is that the move action manages backout information only for its target location, not its source location.

- An element's outputs are executed outside of a package or in a package with backout disabled:

  Actions affecting an element's outputs executed outside of a package (or in a package with backout disabled) will invalidate the backout information for the last package and all previous packages depending on that package.

Back In an Entire Package

After you use the Backout action to back out the outputs, if you decide that you want to return the outputs to the executed state, you can use the Backin action to undo the Backout.

To back in a package

1. Type **7** in the Option field on the Package Options Menu. Type a package name in the PACKAGE ID field. Press Enter.

   The Backout Package panel opens.

   Note: If you leave the PACKAGE ID field blank or type a name mask and then press Enter, a Package Selection List will open. The Package Selection List shows only those packages available for your user ID, with a status of Executed, In-execution, or Exec-failed, that meet the PACKAGE ID field criteria. If a Package Selection List displays, select the package you want, and then press Enter to display the Backout Package panel.

2. Type **BI** in the Option field. Then press Enter.

   - If the backin is successful, the Package Options Menu or the Package Selection List returns immediately.

     Note: The next time the Backout Package panel is accessed, the BACKED IN field contains user ID, date, and time information.

   - If the backin is not successful the Package Backin Report is returned, indicating why the backin failed.

Back Out a Package Element Action

If you need to undo the effects of a package execution, you can back out the outputs of the package. This procedure describes how to back out a single element action that was executed within a package. After the output members have been backed out, you can back them in again.

You cannot use this feature for packages that have multiple actions that produce the same output member.

Note: If a package is partially backed out using the EO Element Backout option on the Element Action Backout panel, you can back in the entire package using the BI Backin Package option or back out the entire package using the BP Backout Package option on the Backout Package panel.

If you want to back out an entire package, see Back Out an Entire Package (see page 62).

Note: Before backing out an element action, you must consider dependencies between packages (see page 63).

To back out an element action

1. Type **7** in the Option field on the Package Options Menu. Type a package name in the PACKAGE ID field. Press Enter.

   The Backout Package panel opens.

   Note: If you leave the PACKAGE ID field blank or type a name mask and then press Enter, a Package Selection List will open. The Package Selection List shows only those packages available for your user ID, with a status of Executed, In-execution, or Exec-failed, that meet the PACKAGE ID field criteria. If a Package Selection List displays, select the package you want, and then press Enter to display the Backout Package panel.

2. Type **EB** in the Option field and press Enter.

   The Element Action Backout panel opens.

   Note: You can scroll to the right on the Element Action Backout panel to view information about each action.

   Note: The EB option may be highlighted on the Backout Package panel for a package that does not qualify for this option. If you select the EB option for a package that does not qualify for element action backout, the EB option grays out. This product behavior avoids the overhead of examining all of the backout records in a package before the EB option has been selected.

3. Type **EO** in the selection column to the left of the SCL Stmt column for each element action you want to back out. Press Enter.

   The output members for the element actions you selected are backed out.

Example: Package Element Action Backout

Assume that the following packages were processed:

- Package A was created and executed. When executed, it moved element X and element Y to Stage 2.
- Then package B was created and executed. When executed, it moved element Y to the next environment.

If you attempt to perform an element backout on element X from package A, the backout fails with the following message:

PKMR606E package is superceded by package B

The backout fails, because a package element backout request is checked at the package level, before it is checked at the element level. In this case, because package B acted on an element in package A, no elements in package A can be backed out.

Back In a Package Element Action

After you use the Backout action to back out a single element action that was executed within a package, if you decide that you want to return the outputs to the executed state, you can use the Backin action to undo the Backout.

Note: If a package is partially backed out using the EO Element Backout option on the Element Action Backout panel, you can back in the entire package using the BI Backin Package option or back out the entire package using the BP Backout Package option on the Backout Package panel.

To back in an element action

1. Type **7** in the Option field on the Package Options Menu. Type a package name in the PACKAGE ID field. Press Enter.

   The Backout Package panel opens.

   Note: If you leave the PACKAGE ID field blank or type a name mask and then press Enter, a Package Selection List will open. The Package Selection List shows only those packages available for your user ID, with a status of Executed, In-execution, or Exec-failed, that meet the PACKAGE ID field criteria. If a Package Selection List displays, select the package you want, and then press Enter to display the Backout Package panel.

2. Type **EB** in the Option field and press Enter.

   The Element Action Backout panel opens.

   Note: You can scroll to the right the Element Action Backout panel to view information about each action.

3. Type **EI** in the selection column to the left of the SCL Stmt column for each element action you want to back in. Press Enter.

   The output members for the element actions you selected are backed in.

View Package Backout Information

To review the backout status of a package, you can display backout information about a specified package.

To view package backout information

1. Type **7** in the Option field on the Package Options Menu. Type a package name in the PACKAGE ID field. Press Enter.

   The Backout Package panel opens.

   Note: If you leave the PACKAGE ID field blank or type a name mask and then press Enter, a Package Selection List will open. The Package Selection List shows only those packages available for your user ID, with a status of Executed, In-execution, or Exec-failed, that meet the PACKAGE ID field criteria. If a Package Selection List displays, select the package you want, and then press Enter to display the Backout Package panel.

2. Type one of the following options in the Option field and press Enter.

   - **B** - Display backout Information for data sets. This option opens the Dataset Backout Information panel. That panel shows the member name, backout status, and data set name.
   - **BU** - Display USS backout information. This option shows the file name, path name, and backout status
   - **BU** - Display backout information for USS supported files. This option opens the USS Backout Information panel. That panel shows the file name, backout status, and path name.
   - **CI** - Display correlation information. This option is only visible if correlation records exist for this package. Correlation records could exist if they were created for enterprise packages created in CA CMEW. Correlation records could also have been created if your site is using the CA Endevor SCM Interface to InfoMan.

   A panel opens that corresponds to the option you selected for the specified package.

Backout and Backin Execution Logs

When you back out or back in a package, CA Endevor SCM produces a log of the processing performed. This report is written to the userid.C1TEMPRn.MSGS file, as with any foreground execution report.

The validation section of this report tells you which outputs will be backed out, and their status after backout is complete. Output can be as follows:

Recovered as of package (N/A)

The outputs were not associated with any package before the backed out package was executed.

Recovered as of package package ID

The outputs were associated with the named package before the backed out package was executed.

Deleted

The outputs did not exist before the backed out package was executed.

The backout section of the report tells you which outputs were backed out and their status when the backout was completed.

The Backin execution log has a similar format.

LLACOPY

The use of LLACOPY by CA Endevor SCM prevents incorrect directory entries from being created in the processes of creating and using backout entries and in writing footprints.

LLACOPY is a macro that is provided with the operating system to enable a program to cause the LLA directory to be refreshed with current information from the directory of a given library. CA Endevor SCM issues the LLACOPY macro when it detects a STOW operation to force the refresh.

The LLACOPY macro is issued within CA Endevor SCM to make sure that, when CA Endevor SCM performs more than one update of a PDS or PDSE directory entry in succession, the second of the updates will have access to the changes that resulted from the first update. This is of particular importance in the writing of CA Endevor SCM footprints, and in the writing and using of Package Backout entries in libraries of load modules or program objects.

Whenever CA Endevor SCM activity has identified that the STOW SVC has been issued to update a library directory entry, the LLACOPY macro is issued. However, CA Endevor SCM does not determine whether a given library is LLA managed before issuing the LLACOPY call as that determination is made by the operating system modules that receive control when the LLACOPY macro is invoked.

If Package execution is occurring and the Package Backout option in effect, and, if an existing member is being replaced in a library, then CA Endevor SCM performs additional activities related to performing the LLACOPY. CA Endevor SCM first issues an LLACOPY to ensure that it has current directory information for the library member and to verify that the member exists in the library. CA Endevor SCM then issues a STOW to create a directory entry for a Backout copy of the member. This STOW is followed by an LLACOPY to update the LLA directory.

In all cases, an LLACOPY will be performed after the STOW of the new copy of the member has been completed. There are instances where CA Endevor SCM does not perform LLACOPY calls, such as when PMO and PDSMAN are handling the updating of directory entries.

After a STOW has been done within CA Endevor SCM, the given directory entry will be immediately reflected in the LLA directory.

Chapter 3: Processing Packages in Batch

This section contains the following topics:

The Batch Package Facility

CA Endevor SCM's Batch Package Facility allows you to perform package processing in batch. This process involves placing package action SCL in an SCL data set and specifying when to submit this SCL for processing.

In addition, the CA Endevor SCM Batch Package Facility:

- Supports all foreground package actions, except the Dynamic Approver option. For more information, see the chapter "Processing Packages in Foreground (see page 19)."
- Provides the additional package actions:
  - SUBMIT
  - ARCHIVE
  - INSPECT
- Has the same package status requirements as those used in foreground.
- Supports before-and-after package exits.
- Invokes the GENPKGID exit, if installed, to generate a new package ID. For information on package exits, see the *Exits Guide*.
- The SUBMIT action allows you to schedule package execution using the CA 7 scheduling application. For information about implementing the CA 7 interface, see the chapter "Using the CA 7 Interface for Package Execution (see page 127)."

To generate and submit package action SCL for processing in batch

- Specify SCL data set information.
- Create a selection list of packages.
- Specify the package actions to be performed on selected packages.
- Specify additional package action information if it is required for the action you chose to perform.
- Specify when to submit the package action SCL for batch processing.

Specify SCL Data Set Information

You specify SCL data set information on the Batch Package panel. This panel allows you to build the SCL necessary to perform package processing in batch, or edit, browse, or submit existing SCL.

To specify the SCL data set information

1. Access the Batch Package panel by typing **6** (Batch Packages) in the OPTION field on the Primary Options Menu and pressing Enter.
2. Select an action by typing the number of the action you want to use in the ...SELECT AN ACTION field. The following describes the valid actions:

   1. Build SCL

   Creates the SCL necessary to perform package processing in batch.

   2. Edit SCL

   Edits batch package SCL using the standard ISPF/PDF edit facility.

   3. Browse SCL

   Reviews batch package SCL using the standard ISPF/PDF browse facility.

   5. Build Additional JCL

   Builds additional JCL statements to be submitted with the execution JCL.

   6. Submit JCL

   Submits a JCL job stream that executes one or more package in batch. Before submitting the job, you can use action **5** to specify additional DD statements to be included with the job.

3. Enter the name of the SCL data set that contains the package action SCL or that you want to contain the package action SCL in the SCL DATA SET NAME fields or the SEQUENTIAL OR PARTITIONED DATA SET field. Use standard ISPF data set specifications. You can specify either a partitioned data set or a sequential file. The record length of the data set can be either fixed (exactly 80) or variable (at least 84).

4. Specify SCL Processing Options in the SCL PROCESSING OPTION fields:

   a. APPEND TO EXISTING SCL--Type **Y** in this field if you wish to append new SCL to existing SCL in the specified data set. Type **N** in this field if you want to replace the data that currently exists in that data set.

   b. INCLUDE ADDITIONAL JCL--Type **Y** in this field if you wish to include additional JCL to be submitted with the execution JCL. Use action **5**, BUILD ADDITIONAL JCL, to specify the additional DD statements to be included. Type **N** in this field if you do not want to include additional DD statements.

5. If you are ready to submit the package action SCL for processing specify the JCL job statement in the JCL JOB STATEMENTS field to execute the package actions, using action **6**, Submit JCL. Otherwise continue with Step 6.

6. Press Enter. The panel that appears depends upon the action you specified in Step 2 above, as shown in the following:

   1. Build SCL

   The Package Specification panel appears.

   2. Edit SCL

   The ISPF edit panel appears displaying the data set you specified in Step 3. Use this panel to edit batch package SCL.

   3. Browse SCL

   The ISPF browse panel appears displaying the data set you specified in Step 3. Use this panel to review the batch package SCL.

   5. Build Additional JCL

   The Batch Package Additional JCL panel appears. Use this to specify additional JCL statements to be submitted with the execution JCL.

   6. Submit JCL

   The package action SCL is submitted using the JCL job statement specified in the JCL JOB STATEMENT field.

Create a Selection List of Packages

The Package Specification Panel, appears when you select action **1**, Build SCL, from the Batch Package panel.

This panel allows you to perform the following actions:

- Build a package selection list from which you select the package actions to be performed on one or more packages.
- Define (create) a new package or update an existing package.

Build a Package Selection List

To build a list of packages

1. Select DISPLAY LIST by typing **0** in the .SELECT AN ACTION field.
2. Provide a package ID in the PACKAGE ID field. You can:
   - Enter a specific package ID to apply an action to a specific package.
   - Generate a selection list by leaving this blank or by specifying a wildcard in this field. CA Endevor SCM builds a list of packages that match the wildcard.
3. To limit your selection list of packages to those with a specific status, type **Y** in the appropriate status field(s). If you do not wish to include packages of a specific status type in your selection list, tab to that field(s) and type **N**.
4. To limit your selection list to packages that were created a specific number of days ago, specify the number of days (up to 999) in the ADDITIONAL SELECTION CRITERIA field.
5. To limit your selection list by enterprise or promotion packages, use the following fields:
   - ENTERPRISE_PKG—Specifies whether the package is an enterprise package associated with CA CMEW.
     - A - Display enterprise and non-enterprise packages in the list.
     - E - Limit the list to enterprise packages.
     - X - Exclude enterprise packages from the list.
   - You can use the promotion package filter options to limit the selection list by promotion flag and target location. For more information about the filters, see Promotion Package Filter Options (see page 21).
6. Press Enter, the Package Selection List appears. You can then apply actions to one or more of the packages in this list.

You can specify one or any combination of the fields on this panel when building a package selection list.

Note: For more information about applying actions to packages in the selection list, see How to Specify Actions to Perform on Selected Packages (see page 75).

Define or Update a Package

To define a new package or update an existing package

1. Select DEFINE by typing **1** in the ...SELECT AN ACTION field.
2. Type the fully-qualified ID of the package you wish to create or update in the PACKAGE ID field.

   Note: If you have the optional GENPKGID exit enabled at you site, you can leave this field blank, and a new package ID is automatically generated when you press Enter. For more information about the GENPKGID exit, see the *Exits Guide*.
3. Press Enter. The panel that appears next depends on whether you are creating a new package or updating an existing one. The Create a New Package panel appears when creating a new package. The Modify an Existing Package panel appears when updating a package.

How to Specify Actions to Perform on Selected Packages

The Package Selection List panel, appears when you select DISPLAY LIST from the Package Specifications Panel.

This panel lets you apply actions to one or more of the packages in the list. Specify the actions you wish to perform on the package by typing the two-letter action code beside the appropriate package ID and pressing Enter. If additional information is required in order to process a particular action, a second panel appears so you can enter the appropriate information for that action. The Additional Information panels are described in the Specify Additional Package Action Information section.

Note: The Package Selection List contains all packages that meet the criteria specified on the Package Specification Panel. You may not, however, be authorized to perform all actions against every package in the list for the following reasons:

- The package is in the wrong state for the action selected.
- The package is non-shareable and you are not the owner of the package.
- The package has one or more approvers associated with it of which you are not a member.

If no additional information is required for the specified action the word "written" appears next to the package ID to indicate that the package action SCL has been written to the SCL data set. To exit the Package Selection List, enter the END command. The Batch Package panel appears again.

Package Actions

The following table lists and defines the batch package actions that you can specify, along with the required status of the package to which that action is applied. The table also indicates the panel that appears if additional information is required to process that action.

Action	Description	Required Status	Additional Information Panel
Define	Updates an existing package	In-edit for an existing package	Modify an Existing Package panel. For more information, see The Submit Package Panel (see page 88).
Cast	Casts a package, which freezes the data and prevents further changes at that time	In-edit	Cast Package panel. For more information, see The Cast Package Panel (see page 80).
Approve	Approves a package for execution	In-approval	Approve Package panel. For more information, see The Approve Package Panel (see page 79).
Deny	Denies execution of a package	In-approval	Deny Package panel. For more information, see The Deny Package Panel (see page 84).
Execute	Executes a package	Approved	Execute Package panel. For more information, see The Execute Package Panel (see page 84).
Backout	Backs out the change package to restore the executable and output modules to the state they were in prior to execution	Executed, In-execution and Exec-failed	None

Action	Description	Required Status	Additional Information Panel
Backin	Backs a package in, reversing the BACKOUT PACKAGE action	Executed	None
Commit	Commits a package removing all backout/backin data, but retaining package event information	Executed	None
Reset	Resets a package to a status of In-edit	Any status	None
Delete	Deletes an entire package from CA Endevor SCM	Any status	None
Export	Writes the SCL associated with a package to an external data set	Any status	Export Package panel. For more information, see The Export Package Panel (see page 85).
Submit	Submits a JCL job stream to execute one or more packages	Approved or Exec-failed	Submit Package panel. For more information, see The Submit Package Panel (see page 88).
Archive	Offloads a package definition to an external data set. The ARCHIVE action can, optionally, delete the package after it is successfully written to an external data set.	■ Executed if backout is not enabled ■ Committed if backout is enabled	Archive Package panel. For more information, see The Archive Package Panel (see page 79).

Action	Description	Required Status	Additional Information Panel
Inspect	The Inspect action checks each element for security, signout, and synchronization conflicts and source changes and reports on the changes in element status that might affect the successful execution of the package. For a list of validations for INSPECT, see Component Validation (see page 41).	■ In-approval, Approved, In-execution, or Exec-failed	None
Package Summary	Displays information about a package	■ Any status	Package Summary Panel

How to Specify Additional Package Action Information

CA Endevor SCM requires additional information for certain package actions specified on the Package Selection List panel. An additional panel appears for the following actions so that you can enter the required information:

- APPROVE
- ARCHIVE
- CAST
- DEFINE
- DENY
- EXECUTE
- EXPORT
- SUBMIT

This section describes each of the panels that appear.

The Approve Package Panel

The Approve Package panel appears when you specify the APPROVE (AP) action on the Package Selection panel. You can use this panel to perform the following actions:

- Approve a package for execution.
- Cancel the APPROVE action.
- Enter notes you may want to associate with the package.

To approve a package

1. Select APPROVE PACKAGE by typing **1** in the ...SELECT AN ACTION field.
2. Press Enter.

To cancel the APPROVE action

1. Select CANCEL THE APPROVE ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

To enter notes

1. Select ENTER PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. Press Enter. The Enter Package Note Text panel appears.

The Archive Package Panel

The ARCHIVE PACKAGE action offloads a package definition to an external data set. Archiving provides more file space and improves performance. For more information, see the *SCL Reference Guide*.

You can only use an Archived package to generate package reports against the output data set. For more information, see the chapter “Archived Package Reports” in the *Reports Guide*.

The Archive Package panel appears when you specify the ARCHIVE (AR) action on the Package Selection panel. You can use this panel to perform the following actions:

- Archive a package definition to an external data set. The ARCHIVE action can, optionally, delete the package after it is successfully written to an external data set. For promotion packages, the current and all historical versions are archived, and the delete option deletes all versions of a package.
- Cancel the ARCHIVE action.
- Display any notes associated with the package.

To archive a package

1. Select ARCHIVE PACKAGE by typing **1** in the ...SELECT AN ACTION field.
2. Enter the name of the data set to which the package definition is to be archived in the ARCHIVE TO DATA SET NAME fields or the OTHER PARTITIONED OR SEQUENTIAL DATA SET field. Use standard ISPF data set specifications. The archive package file must be defined with variable length records and have a minimum record length of 4200. The data set blocksize must be 4 bytes greater than the record length. We recommend that you define a blocksize of 0 and let the system default to the optimum block size.
3. Specify your desired archive options in the ARCHIVE OPTIONS fields:
   a. DELETE AFTER ARCHIVE--Type **Y** in this field if you wish to delete the package after the package definition is successfully archived. If this is a promotion package, all versions of the package are deleted. Type **N** in this field if you do not want to delete the package after it is archived.
   b. REPLACE MEMBER--Type **Y** in this field if you wish to replace an existing like-named member. You can only replace a member if a member name is specified in the ARCHIVE TO DATA SET NAME fields. Type **N** in this field if you do not want to replace the member.
   c. Press Enter.

To cancel the ARCHIVE action

1. Select CANCEL THE ARCHIVE ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

To display notes

1. Select DISPLAY PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. The Display Package Note Text panel appears.

The Cast Package Panel

The Cast Package panel appears when you specify the CAST (CA) action on the Package Selection panel. You can use this panel to perform the following actions:

- Cast a package.
- Cancel the CAST action.
- Enter notes you may want to associate with the package.

To cast a package

1. Select CAST PACKAGE by typing **1** in the ...SELECT AN ACTION field.
2. Specify whether CA Endevor SCM should validate package components when casting the package in the VALIDATE COMPONENTS field.

   Y-Validate components, and do not allow the cast if validation fails.

   N-Do not validate components

   W-Validate components, but do not fail the cast if there are errors. You can only specify this field if your site allows you to specify, through C1DEFLTS, whether component validation is to be performed.

   Note: For more information about component validation see Component Validation (see page 41).
3. Specify whether the backout/backin facility is available for this package in the ENABLE BACKOUT field:

   Y-The backout/backin facility can be used.

   N-The backout/backin facility cannot be used with this package.
4. Specify the time frame within which the package can be executed, by date (in *ddmmmyy* format) and time (in *hh:mm* format) in the EXECUTION WINDOW FROM/TO field. The initial values are taken from the package definition.
5. Press Enter.

To cancel the CAST action

1. Select CANCEL THE CAST ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

To enter notes

1. Select ENTER PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. Press Enter. The Enter Package Note Text panel appears.

Create a New Package Panel

The Create a New Package panel appears when you select action **1**, Define, on the Package Specification Panel to create a new package.

Important! You can define a new package using the Define Package panel by copying the contents of an existing package or by importing the SCL from an existing data set. The Batch Package Facility does not provide a mechanism to build the action SCL that makes up a package. You can do this either by:

- Using option **5**, PACKAGES, on the Primary Options Menu.
- Using option **3**, BATCH, on the Primary Options Menu.
- Entering the SCL using the ISPF/PDF editor.

You can use this panel to perform the following actions:

- Define a new package.
- Cancel the DEFINE action.
- Enter notes you may want to associate with the package.

To define a new package

1. Select DEFINE PACKAGE by typing 1 in the ...SELECT AN ACTION field.
2. Specify the appropriate information in the following fields:

   Description

   Provide a package description. You can enter up to a 50-character description. If the text contains embedded spaces enclose it in single quotation marks.

   Package Type

   Specify the type of package: standard or emergency.

   Promotion Package

   Indicates whether this is a promotion package.

   - Y-The package is a promotion package.
   - N-The package is not a promotion package.

   Sharable Package

   Specify whether this package can be edited by more than one person when in In-edit status.

   - **Y**-The package is shareable, and can be edited by other than the package creator.
   - **N**-The package can be edited only by its creator.

Enable Backout

Specify whether the backout/backin facility is available for this package:

- **Y**-The backout/backin facility can be used
- **N**-The backout/backin facility cannot be used with this package.

Append To Package

Specify whether you want to append imported or copied data to the contents of this package. If you do not append the data, the contents of the package will be overwritten with the new information. This field is valid only if the SCL IMPORT DATA SET NAME fields or the PACKAGE TO BE COPIED field are specified.

- **Y**-Append new data to the existing package
- **N**-Overwrite the existing contents of the package

Execution Window From/to

Specify the time frame within which the package can be executed, by date (in ddmmmyy format) and time (in hh:mm format).

Package To Be Copied

Enter a package ID in this field if you want the DEFINE action to copy SCL from an existing package into the package you are creating. The package ID you specify must be a fully qualified, existing package.

SCL Import Data Set Name

Specify an existing data set name or DD statement if you would like the DEFINE action to import the SCL from the data set specified into the package you are creating. Use standard ISPF data set specifications.

Other SCL Partitioned or Sequential Data Set

Specify the data set name of the data set containing the SCL you want to import into the package you are creating. You can specify either a partitioned data set or a sequential file. The record length of the data set can be either fixed (exactly 80) or variable (at least 84).

To cancel the DEFINE action

1. Select CANCEL THE DEFINE ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

To enter notes

1. Select ENTER PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. Press Enter. The Enter Package Note Text panel appears.

The Deny Package Panel

The Deny Package panel appears when you specify the DENY (DN) action on the Package Selection panel. You can use this panel to perform the following actions:

- Deny execution of a package.
- Cancel the DENY action.
- Enter notes you may want to associate with the package

To deny a package

1. Select DENY PACKAGE by typing **1** in the ...SELECT AN ACTION field.
2. Press Enter.

To cancel the DENY action

1. Select CANCEL THE DENY ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

To enter notes

1. Select ENTER PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. Press Enter. The Enter Package Note Text panel appears.

The Execute Package Panel

The Execute Package panel appears when you specify the EXECUTE (EX) action on the Package Selection panel. You can use this panel to perform the following actions:

- Execute a package.
- Cancel the EXECUTE action.
- Display notes associated with the package

To execute a package

1. Select EXECUTE PACKAGE by typing **1** in the ...SELECT AN ACTION field.
2. Specify the time frame within which the package can be executed, by date (in ddmmmyy format) and time (in hh:mm format in the EXECUTION WINDOW FROM/TO field. The values in this field are taken from the package definition and can be changed only if the existing execution window is closed.
3. Press Enter.

To cancel the EXECUTE action

1. Select CANCEL THE EXECUTE ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

To display notes

1. Select DISPLAY PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. Press Enter. The Display Package Note Text panel appears.

The Export Package Panel

The Export Package panel appears when you specify the EXPORT (EP) action on the Package Selection panel. You can use this panel to perform the following actions:

- Export the SCL associated with a package to an external data set.
- Cancel the EXPORT action.
- Display notes associated with a package.

To export a package

1. Select EXPORT PACKAGE by typing **1** in the ...SELECT AN ACTION field.
2. Specify the location of the external data set to which the SCL will be written in the EXPORT TO DATA SET NAME fields. Use standard ISPF data set specifications. You can specify either a partitioned data set or a sequential file. The record length of the data set can be either fixed (exactly 80) or variable (at least 84).
3. Type **Y** in the EXPORT OPTIONS REPLACE MEMBER field if you want CA Endevor SCM to replace an existing like-named member when exporting the SCL to the external data set. You can only replace a member if a member name is specified in the EXPORT TO DATA SET NAME fields. Type **N** in this field if you do not want to replace an existing like-named member.
4. Press Enter.

To cancel the EXPORT action

1. Select CANCEL THE EXPORT ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

To display notes

1. Select DISPLAY PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. Press Enter. The Display Package Note Text panel appears.

The Modify an Existing Package Panel

The Modify an Existing Package panel appears when you specify an existing package on the Package Specification Panel or when you specify the DEFINE (DE) action on the Package Selection List to update an existing package. You can use this panel to perform the following actions:

- Update an existing package.
- Cancel the DEFINE action.
- Enter notes you may want to associate with the package.

To update a package

1. Select DEFINE PACKAGE by typing 1 in the ...SELECT AN ACTION field.
2. Modify the appropriate information in the following fields:

Description

Provide a package description. The current package description of the package you are updating appears in this field. You can enter or modify an up to 50-character description. If the text contains embedded spaces enclose it in single quotation marks.

Package Type

Specify the type of package: standard or emergency.

Sharable Package

Specify whether this package can be edited by more than one person when in In-edit status.

- Y -- The package is shareable, and can be edited by someone other than the package creator
- N -- The package can be edited only by its creator.

Enable Backout

Specify whether the backout/backin facility is available for this package:

- Y -- The backout/backin facility can be used
- N -- The backout/backin facility cannot be used with this package

Append to Package

Specify whether you want to append imported or copied data to the contents of this package. If you do not append the data, the contents of the package will be overwritten with the new information. This field is valid only if the SCL IMPORT DATA SET NAME fields or the PACKAGE TO BE COPIED field are specified.

- Y -- Append new data to the existing package.
- N -- Overwrite the existing contents of the package.

Execution Window From/To

Specify the time frame within which the package can be executed, by date (in ddmmmyy format) and time (in hh:mm format).

Package to Be Copied

Enter a package ID in this field if you want the DEFINE action to copy SCL from an existing package into the package you are updating. The package ID you specify must be a fully qualified, existing package.

SCL Import Data Set Name

Specify an existing data set name or DD statement if you would like the DEFINE action to copy the SCL from the data set specified into the package you are updating. Use standard ISPF data set specifications.

Other SCL Partitioned or Sequential Data Set

Specify the data set name of the data set containing the SCL you want to import into the package you are updating. You can specify either a partitioned data set or a sequential file. The record length of the data set can be either fixed (exactly 80) or variable (at least 84).

To cancel the DEFINE action

1. Select CANCEL THE DEFINE ACTION by typing 2 in the ...SELECT AN ACTION field.
2. Press Enter.

To enter notes

1. Select ENTER PACKAGE NOTES by typing **N** in the ...SELECT AN ACTION field.
2. Press Enter.

   The Enter Package Note Text panel appears.

The Package Summary Panel

The Package Summary panel appears when you specify PACKAGE SUMMARY (PS) on the Package Selection panel. You can use this panel to display and review information about a package, exit the Package Summary panel, or display notes associated with a package.

To exit the Package Summary panel use the END command or

1. Select END SUMMARY DISPLAY by typing **1** in the...SELECT AN OPTION... field.
2. Press Enter.

To display any notes associated with a package

1. Select DISPLAY PACKAGE NOTES by typing **N** in the ... SELECT AN OPTION... field.
2. Press Enter. The Display Package Note Text panel appears.

The Submit Package Panel

The Submit Package panel appears when you specify the SUBMIT (SU) action on the Package Selection panel. You can use this panel to perform the following actions:

- Submit a JCL job stream to execute a package.
- Cancel the SUBMIT action.

A sample JCL job stream for submitting a package can be found in *iprfx.iqual*.CSIQJCL, member name ENDEVOR. Use this as a model for your own Submit procedure.

To submit a package

1. Select SUBMIT PACKAGE by typing **1** in the ...SELECT AN ACTION field.
2. Specify the location of the data set containing the JCL jobcard in the JOB CARD DATA SET NAME fields or the OTHER PARTITIONED OR SEQUENTIAL JOB CARD DATA SET field. Use standard ISPF data set specifications. You can specify either a partitioned data set or a sequential file. The record length of the data set can be either fixed (exactly 80) or variable (at least 84).
3. Specify the one- to eight-character JCL procedure name to be invoked in the SUBMIT OPTIONS JCL PROCEDURE NAME field. A sample of a procedure is in the *iprfx.iqual.*CSIQJCL member ENDEVOR.
4. Press Enter.

To cancel the SUBMIT action

1. Select CANCEL THE SUBMIT ACTION by typing **2** in the ...SELECT AN ACTION field.
2. Press Enter.

The Enter Package Note Text Panel

The Enter Package Note Text panel appears when you select **N** on the Approve Package, Cast Package, Create a New Package, Deny Package, and Modify an Existing Package panels. Use this panel to enter text you want to associate with the package. You may enter or modify eight text lines of up to 60 characters each. Modify the text by deleting, inserting, and overtyping. Use cursor control keys to move within the text and the PA2 key to refresh the screen.

When you finish typing the text, press Enter then the END command to save your changes, otherwise press the END command to cancel text updates and return to the previous panel.

The Display Package Note Text Panel

The Display Package Note Text panel appears when you select **N** on the Archive Package, Execute Package, Export Package, and Package Summary panels. Use this panel to review any notes associated with a package. When you have finished reviewing the package notes use the END command to return to the previous panel.

Submit SCL for Processing

The package actions you selected on the Package Selection List panel are placed in the SCL data set you specified on the Batch Package panel. They are not processed until you submit them.

To submit the package actions for batch processing

1. Select action **6**, on the Batch Package panel.
2. Provide at least one JCL JOB statement in JCL JOB STATEMENT field.
3. Press Enter.

The Batch Package Execution Report

As the Batch Package Facility is processing, CA Endevor SCM writes a report to the C1MSGS1 DD statement. The report is divided into the following three sections:

- The Statement Summary Report
- The Action Execution Report
- The Action Summary Report

The Statement Summary Report

When you submit your batch package actions, CA Endevor SCM validates the SCL syntax and assigns a statement number to each SCL statement. The Statement Summary Report lists your control statements and error messages, if any are detected. If no errors are detected, processing continues and the Action Execution and Action Summary Reports are produced. If errors do exist, processing is terminated.

Note: For an explanation of any messages received, see the *Messages and Codes Guide*.

The Action Execution Report

The Action Execution Report contains the messages generated by each action during its processing.

The Action Summary Report

The Action Summary report summarizes the actions performed by the Batch Package Facility. The report contains one line for each package processed by each action. The report line identifies the action, the package ID, and the action return code.

Chapter 4: Using Approver Groups

This section contains the following topics:

Approver Groups

Approver groups are used in conjunction with package processing. A package is similar to a request data set in that it contains one or more CA Endevor SCM actions which are to be performed. However, a package may require approval before it can be executed. Approval is "electronic sign-off" for the package. Packages can be approved or denied by people who have been identified as approvers. An approver group is simply a particular subset of those people.

Note: The C1DEFLTS parameter APRVFLG can be set to 'no' to turn off the package processing requirement.

Approver groups can be defined externally or internally to CA Endevor SCM. When a group is defined internally, all approver user IDs are stored in the master control file along with the approver group definition. When a group is defined externally, the approver group definition is stored in the master control file and the approver user IDs are stored in the external security product in use at your site. If you want to define a user ID as required to approve packages, you must use an internal approver group.

When using external approver groups, the CA Endevor SCM approver group name must be the same name as the group defined to the external security product.

When creating approver groups, you can specify the following:

- A quorum size. This is the minimum of approvers from the group who must approve a package before it can be executed.
- Required approvers. For example, if you want the project leader for a development group to approve all changes to the software with which the group is working, you can designate the project leader as a required approver.

  Note: Since external groups don't have any approvers defined locally to CA Endevor SCM, required approvers are not applicable for these groups.

Any required approvers in an approver group must approve a package before it can be executed. Even if the quorum requirements are met, if a required approver has not yet approved a package, it cannot be executed.

There are three types of approver groups:

- Standard approver groups can only approve standard packages.
- Emergency approver groups can only approve emergency packages.
- Dynamic approver groups can only be assigned to approve a package while the package is in the in-approval state.

When an approver group is related to a particular inventory area, then the group must approve packages containing actions that affect elements in that inventory area. An inventory area consists of a logical classification (system, subsystem, and type) within a CA Endevor SCM location (environment and stage).

Multiple approver groups can be associated with one inventory area. A single approver group can be associated with many inventory areas.

Note: Once an approver group has been related to an inventory area, all processing for that inventory area must be performed using packages. You can exempt certain actions from this restriction by using the CA Endevor SCM Optional Features Table.

External Approver Groups and RACF

In the case that the CA Endevor SCM group matches the name of an existing RACF group, you will not need to do anything more. All users that are currently connected to that RACF group will be approvers. If the CA Endevor SCM approver group name does not match an existing RACF group, you will need to have the RACF Administrator create a new group, using the ADDGROUP command. You will then need to provide a list of users which will be associated with the group. Your RACF Administrator will need to CONNECT those users to the new group. If a user is to be connected to more than one access group be sure the RACF system option GRPLISTis activated. GRPLIST activates a list-of-groups access checking. A user's access authority is based upon the authority of all groups to which the user is connected.

Note: For more information, see your site's RACF administrator.

External Approver Groups and CA Top Secret

If you are using CA Top Secret for your external security package, to set up external approver groups, you must define an IBMGROUP, and permit users, profiles, or both to it. The name of the IBMGROUP should match with the name of the CA Endevor SCM Approver Group.

In the following example, the IBMGROUP is 'External' and it associates the QA Profile group of users to that IBMGROUP. ADD(dept) is the department acid you want to own the resource and PERMIT(acid) is the user acid you want to permit it to. The PERMIT(acid) can be an attached profile or the ALL record if all users should have access.

The following is an example of the IBMGROUP in CA Top Secret:

```
TSS ADD(dept) IBMGROUP(EXTERNAL) <=== must match CA Endevor SCM approver group name
TSS PERMIT(acid) (QA) IBMGROUP(EXTERNAL)
                ¬              ¬
             PROFILE          Associates the QA profile group of
                                   users to the IBMGROUP External
```

External Approver Groups and CA ACF2 for z/OS

To create an external approver group under CA ACF2 for z/OS Security, you must set up resource class ENDAPR and write rules to allow access to the ENDAPR resources (approver groups) by the users that belong to the groups.

The following are sample ACF2 commands that will define the ENDAPR resource class to CA ACF2 for z/OS Security. Substitute your values for lowercase items.

```
SET CONTROL(GSO)
INSERT CLASMAP.endapr RESOURCE(ENDAPR) RSRCTYPE(end) ENTITYLN(16)
```

For improved performance, it is suggested that the ENDAPR resource class be made resident by adding it to the INFODIR record. If masked rule keys are used, this is required.

```
CHANGE INFODIR TYPES(R-Rend)
```

To activate these records, issue the following console command:

```
F ACF2,REFRESH(ALL)
```

If the ENDAPR resource class was made resident, any modifications to the resource rules will not be active until the following console command is issued:

```
F ACF2, REBUILD(end)
```

The following sample rules would create two approver groups:

- endgrp1
- endgrp2.

In this example, user1, user2, and user3 would belong to endgrp1; all users would belong to endgrp2.

```
$KEY(endgrp1) TYPE(end)
 UID(user1) ALLOW
 UID(user2) ALLOW
 UID(user3) ALLOW
$KEY(endgrp2) TYPE(end)
 UID(*) ALLOW
```

You must use the appropriate UID string for your site and the UID string in the rule can be masked. If your site has any questions, contact your local CA ACF2 for z/OS Security Support.

The Approver Group Request Panel

Use option 9, Approver Group, from the Environment Options Menu to maintain the approver groups defined to a particular environment. When you select option 9, CA Endevor SCM returns the Approver Group Request panel.

Use the Approver Group Request panel to perform the following actions:

- Display the current definition of a specified approver group.
- Display a selection list of current approver groups.
- Delete an approver group.
- Create an approver group.
- Update the definition of an approver group.

The following fields appear on the Approver Group Request panel:

Blank

Use this field to display the current definition of a specified approver group.

#

Use this field to delete an approver group.

C

Use this field to create an approver group.

U

Use this field to update the definition of an approver group.

Environment

Name of the environment in which the approver group you want is defined. The current environment is displayed initially. Fill in a new name and press Enter if the approver group is in a different environment.

Approver Group

The name of the approver group you want to use. To update or delete an approver group, fill in the full name and press enter to directly access the Approver Group Definition panel. If you leave the approver group name blank or use a name mask, CA Endevor SCM returns an Approver Group Selection List showing the approver groups currently defined.

Display an Approver Group Definition

To display the current definition of a particular approver group

1. Enter the name of the approver group you want to display in the APPROVER GROUP field.
2. Verify that the approver group you want to display is defined to the current environment in the ENVIRONMENT field. If the approver group you want to display is defined to a different environment fill in the correct environment name.
3. Press Enter. The Approver Group Definition panel displays.

   Note: To display an approver group definition from the Approver Group Selection List, type an **S** to the left of the name of the approver group you want to display and press Enter. The Approver Group Definition panel displays.
4. When you have finished viewing the approver group definition, press the END key to return to the Approver Group Request panel.

Display an Approver Group Selection List

To display a selection list of approver groups

1. Leave the APPROVER GROUP field blank.
2. Press Enter. The Approver Group Selection List panel displays.

Delete an Approver Group Definition

When you delete an approver group, any associated approver relate rules are also deleted.

To delete an approver group definition

1. Enter the name of the approver group you want to delete in the APPROVER GROUP field or leave the field blank to obtain a list of available approver groups.
2. Type a # in the OPTION field.
3. Press Enter.
   - The Approver Group Definition panel displays if you have specified an approver group in the APPROVER GROUP field. If the Approver Group Definition panel displays, proceed to Step 5.
   - The Approver Group Selection List panel displays if you have left the APPROVER GROUP field blank. If the Approver Group Selection List panel displays, proceed to Step 4.

4. From the Approver Group Selection List panel type # to the left of the name of the approver group you want to delete and press ENTER. The Approver Group Definition panel displays.
5. Review the information on the Approver Group Definition panel to verify that you want to delete it.
6. Press Enter to complete processing.

   The approver group you specified and any associated approver relate rules are deleted.

Create an Approver Group Definition

To create an approver group definition

1. Enter the name of the approver group you want to create in the APPROVER GROUP field. If this is to be an external approver group, the name of the group must match an existing profile in your security product.

   Note: If you are using CA Top Secret for z/OS, the IBMGROUP resource definition must be used.
2. Type a C in the OPTION field.
3. Press Enter. The Approver Group Definition panel displays.
4. Specify the appropriate approver group information on the Approver Group Definition panel.
5. Press Enter to complete processing.

Update an Approver Group Definition

To update an approver group definition

1. Enter the name of the approver group you want to update in the APPROVER GROUP field.
2. Type a U in the OPTION field.
3. Press Enter.

   The Approver Group Definition panel displays.
4. Change the appropriate approver group information on the Approver Group Definition panel.
5. Press Enter to complete processing.

   Note: If you select more than one approver group, processing occurs in the order in which the names are listed.

The Approver Group Selection List

The Approver Group Selection List panel displays when you use a *name mask* or do not specify an approver group on the Approver Group Request panel. You can use this panel to perform the following actions:

- Display an approver group definition.
- Delete an approver group definition.
- Update an approver group definition.

The following fields appear on the Approver Group Selection List panel:

Environment

Display-only. The name of the current environment.

Selection (no title)

Field used to select an approver group for display (S), deletion (#), or update (U). Type the appropriate character in this column, to the left of the approver group name(s) you want to process.

Approver Group

Display-only. The names of the approver groups.

Approver Group Title

Display-only. A descriptive title for the approver group.

Display an Approver Group Definition

To display the current definition of a particular approver group

1. Enter the name of the approver group you want to display in the APPROVER GROUP field.
2. Verify that the approver group you want to display is defined to the current environment in the ENVIRONMENT field. If the approver group you want to display is defined to a different environment fill in the correct environment name.
3. Press Enter. The Approver Group Definition panel displays.

   Note: To display an approver group definition from the Approver Group Selection List, type an **S** to the left of the name of the approver group you want to display and press Enter. The Approver Group Definition panel displays.
4. When you have finished viewing the approver group definition, press the END key to return to the Approver Group Request panel.

Delete an Approver Group Definition

When you delete an approver group, any associated approver relate rules are also deleted.

To delete an approver group definition

1. Enter the name of the approver group you want to delete in the APPROVER GROUP field or leave the field blank to obtain a list of available approver groups.
2. Type a # in the OPTION field.
3. Press Enter.
   - The Approver Group Definition panel displays if you have specified an approver group in the APPROVER GROUP field. If the Approver Group Definition panel displays, proceed to Step 5.
   - The Approver Group Selection List panel displays if you have left the APPROVER GROUP field blank. If the Approver Group Selection List panel displays, proceed to Step 4.
4. From the Approver Group Selection List panel type # to the left of the name of the approver group you want to delete and press ENTER. The Approver Group Definition panel displays.
5. Review the information on the Approver Group Definition panel to verify that you want to delete it.
6. Press Enter to complete processing.

   The approver group you specified and any associated approver relate rules are deleted.

Update an Approver Group Definition

To update an approver group definition

1. Enter the name of the approver group you want to update in the APPROVER GROUP field.
2. Type a U in the OPTION field.
3. Press Enter.

   The Approver Group Definition panel displays.
4. Change the appropriate approver group information on the Approver Group Definition panel.
5. Press Enter to complete processing.

   Note: If you select more than one approver group, processing occurs in the order in which the names are listed.

The Approver Group Definition Panel

The Approver Group Definition panel displays after you select the approver group that you want to display, create, update, or delete on the Approver Group Request panel or the Approver Group Selection List panel. Use this panel to complete the following actions:

- Deletion of an approver group definition.
- Creation of an approver group definition.
- Update of an approver group definition.

Note: The current processing option displays in the upper left corner. You can cancel any requests by pressing the End key.

The following fields appear on the Approver Group Definition panel:

Approver Group

Display-only. The name of the approver group displayed, or to be created, updated, or deleted.

Environment

Display-only. The name of the current environment.

Title

A 1- to 50-character description for the approver group.

Quorum Size

The minimum number of people in this group who must approve packages. For locally defined groups, acceptable values are 0 - 16. For externally defined groups, acceptable values 0 - 32760.

Approver

For locally defined approver groups, the user IDs of the approvers in this group. For externally defined approver groups, leave all of the approver fields blank. This tells CA Endevor SCM to look externally for the user IDs that are part of this group.

Req'd (Y/N)

Indicates whether this approver is required to approve the package: Y (yes) or N (no).

Note: This field is not valid for external approver groups.

Delete an Approver Group Definition

When you delete an approver group, any associated approver relate rules are also deleted.

To delete an approver group definition

1. Enter the name of the approver group you want to delete in the APPROVER GROUP field or leave the field blank to obtain a list of available approver groups.
2. Type a # in the OPTION field.
3. Press Enter.
   - The Approver Group Definition panel displays if you have specified an approver group in the APPROVER GROUP field. If the Approver Group Definition panel displays, proceed to Step 5.
   - The Approver Group Selection List panel displays if you have left the APPROVER GROUP field blank. If the Approver Group Selection List panel displays, proceed to Step 4.
4. From the Approver Group Selection List panel type # to the left of the name of the approver group you want to delete and press ENTER. The Approver Group Definition panel displays.
5. Review the information on the Approver Group Definition panel to verify that you want to delete it.
6. Press Enter to complete processing.

   The approver group you specified and any associated approver relate rules are deleted.

Create an Approver Group Definition

To create an approver group definition

1. Enter the name of the approver group you want to create in the APPROVER GROUP field. If this is to be an external approver group, the name of the group must match an existing profile in your security product.

   Note: If you are using CA Top Secret for z/OS, the IBMGROUP resource definition must be used.
2. Type a C in the OPTION field.
3. Press Enter. The Approver Group Definition panel displays.
4. Specify the appropriate approver group information on the Approver Group Definition panel.
5. Press Enter to complete processing.

Update an Approver Group Definition

To update an approver group definition

1. Enter the name of the approver group you want to update in the APPROVER GROUP field.
2. Type a U in the OPTION field.
3. Press Enter.

   The Approver Group Definition panel displays.
4. Change the appropriate approver group information on the Approver Group Definition panel.
5. Press Enter to complete processing.

   Note: If you select more than one approver group, processing occurs in the order in which the names are listed.

The Dynamic Approver Group Panel

The Dynamic Approver option provides CA Endevor SCM package approvers with the ability to add additional approvers to a package while it is in the in-approval state. This enhances the approval process by allowing one or more individuals to be dynamically defined as one-time approvers for a particular package. This feature can be allowed or disallowed through the CA Endevor SCM Options table. By default, it is disallowed.

You can use the Dynamic Approver Group Panel to create, update, or delete a dynamic approver group. To access this panel, select DA-Dynamic Approvers on the Review Package panel.

If the dynamic approver group does not yet exist for the package, you can enter a value in the QUORUM field and specify from 1 to 16 approver user IDs and whether or not their approval is required.

If the dynamic approver group already exists, this panel is preformatted with any existing dynamic approver group data. If the group has already approved or denied the package, then all fields are nonmodifiable. Otherwise, you can update or delete only those approver IDs that you entered, unless you are a superuser. Any entries where the approver has already approved or denied the package are protected and are not modifiable even by a superuser. If the entry is modifiable, you can blank out the approver ID (effectively deleting the user ID from the dynamic approver group), type a new user ID over the existing one (effectively deleting the original user ID and replacing it with a new one), or update the APPROVAL REQ'D value. The QUORUM value can be updated at any time.

If a dynamic approver group is attached to a package and then deleted, the status of the package will not be updated, regardless of whether the dynamic approver group has actually approved or denied the package. The package will need to be reapproved by any attached approver groups.

When you press Enter, the panel is updated with any changes that you made on the panel. If you press PF3, any changes you made on the panel are ignored.

The following fields appear on the Dynamic Approver Group panel:

QUORUM

Similar to the QUORUM value seen on the Approver Group Definition panel, this is the quorum size for the approver group. Valid values are 0 through 16. The quorum size cannot exceed the number of approvers on the panel. The quorum size cannot be 0 unless one or more approvers are required approvers. A user cannot change the quorum size in such a way that it alters the logical approval status of the group; that is, the quorum size must always be greater than the number of approvers who have approved the package thus far.

APPROVER

TSO user ID of a dynamic approver. The ID must pass syntax checking: it cannot contain embedded spaces; it must consist solely of alphanumeric characters and #, @, and $; and it must not begin with a number.

REQ

Indicates whether the approval of this approver is required. Valid values are Y, N, or blank. Blank defaults to N.

STATUS

Indicates whether the approver has approved the package, and the time and date when the approval was performed.

ADDED BY

Indicates the user ID that added this approver and the date and the time when the approver ID was added.

Note: You do not have the option to provide a name or descriptive title for the dynamic approver group. The group created on this panel is named Dynamic Approver and its title is Dynamic Approver Group information.

The Approver Group Relation Request Panel

Use option A from the Environment Options Menu to create or maintain approver group relationships. When you request option A from the Environment Options Menu, CA Endevor SCM returns the Approver Group Relation Request panel.

Use the Approver Group Relation Request panel to perform the following actions:

- Display a list of all relationships.
- Display the relationship between certain inventory areas and an approver group.
- Delete a relationship between inventory areas and approver groups. When you delete a relationship, neither the approver group nor the inventory area is deleted; only the relationship between the two is deleted.
- Create a relationship between an inventory area and an approver group.
- Change the approver group for an inventory area.

The following fields appear on the Approver Group Relation Request panel:

Blank

Use this field to display a list of relationships. To display all relationships, leave all fields, except ENVIRONMENT and APPROVER TYPE, blank. To restrict the display to certain portions of the inventory, enter additional information on the panel.

#

Specify this option to delete a relationship. When you delete a relationship, neither the approver group nor the inventory area is deleted; only the relationship between the two is deleted.

C

Specify this option to create a relationship. When you create a relationship, the approver group and inventory area involved must have been previously established within CA Endevor SCM. You are creating only the relationship.

U

Specify this option to update a relationship. This option allows you to change the approver group for a given area of the inventory.

Environment

Displays the name of the environment that contains the inventory area and the approver group to which the inventory area is (to be) related. If you want to change the environment, fill in the appropriate name and press Enter.

Approver Type

Indicates the approver type for this approver group: standard or emergency. An approver group designated as standard can be used to approve standard packages only. Similarly, an approver group designated as emergency can be used only to approve emergency packages. You must enter the entire word when indicating approver type; that is, you cannot abbreviate the entry.

System

Name of the system to which this approver group relationship applies.

Subsystem

Name of the subsystem to which this approver group relationship applies.

Type

The element type to which this approver group relationship applies.

Stage Number

The stage number to which this approver group relationship applies.

Display a List of All Approver Group Relationships

To display a list of all relationships

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Leave all remaining fields blank.
4. Press Enter.

   The Approver Group Relationship List panel displays.
5. When you have finished viewing the list of relationships press the END key to return to the Approver Group Relation Request panel.

Display a Relationship Between an Inventory Area and an Approver Group

To display the relationship between certain inventory areas and an approver group

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Enter the appropriate information in the INVENTORY AREA fields. You can enter one of three values in these fields:

   - A full name. Enter a full name (number) in one or more fields, to indicate a specific system, subsystem, type, and/or stage number.
   - Blanks. Leave one or more fields blank to build a list of approver group relationships for the inventory areas matching the criteria entered.
   - An asterisk (*). Use an asterisk to relate an approver group to all systems, subsystems, types or stages in an environment.

   For example, if an approver group has been related to an inventory area with a system name of ABC and a stage number of 2, and with an asterisk as the subsystem and the type, then the approver group relationship applies to all elements in system ABC and Stage 2—regardless of subsystem and type.

   Note: To display a relationship from the Approver Group Relationship List panel, type an S to the left of the inventory area and press Enter to display the Approver Group Relationship panel.
4. Press Enter.

   The Approver Group Relationship panel displays with all inventory areas matching the criteria you indicated and the approver groups related to these areas.

5. When you have finished viewing the Approver Group Relationship panel, press the END key to return to the Approver Group Relation Request panel.

Delete a Relationship Between an Inventory Area and an Approver Group

To delete a relationship between inventory areas and approver groups

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You can obtain a list of all relationships by leaving these fields blank.
4. Type a # in the OPTION field.
5. Press Enter.

   If the Approver Group Relationship List panel displays, proceed to Step 6. If the Approver Group Relationship panel displays, proceed to Step 7.
6. From the Approver Group Relationship List panel type a # to the left of the name of the inventory area for which you want to delete a relationship and press Enter. The Approver Group Relationship panel displays.
7. Review the information on the Approver Group Relationship panel to verify that you want to delete this relationship.
8. Press Enter to complete processing.

Create a Relationship Between an Inventory Area and an Approver Group

To create a relationship between an inventory area and an approver group

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You must enter either a full name or an asterisk in each of these fields.
4. Type a C in the OPTION field.
5. Press Enter.

   The Approver Group Relationship panel displays.
6. Enter the name of the approver group for which you want to build a relationship in the APPROVER GROUP field.
7. Press Enter to complete processing.

Change the Approver Group for an Inventory Area

To change the approver group for an inventory area

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You can obtain a list of all relationships by leaving these fields blank.
4. Type a U in the OPTION field.
5. Press Enter.

   If the Approver Group Relationship List panel displays, proceed to step 6. If the Approver Group Relationship panel displays, proceed to step 7.
6. From the Approver Group Relationship List panel, type a U to the left of the name of the inventory area for which you want to change a relationship and press Enter.

   The Approver Group Relationship panel displays.
7. On the Approver Group Relationship panel, enter the name of the approver group you want to relate to this inventory area in the APPROVER GROUP field.
8. Press Enter to complete processing.

The Approver Group Relationship List

The Approver Group Relationship List panel displays all inventory areas matching the criteria you indicate on the Approver Group Relation Request panel, and the approver groups related to these areas. Use this panel to perform the following actions:

- Display a relationship between inventory areas and approver groups.
- Delete a relationship between inventory areas and approver groups. When you delete a relationship, neither the approver group nor the inventory area is deleted; only the relationship between the two is deleted.
- Change the approver group for an inventory area.

The following fields appear on the Approver Group Relationship List panel:

Environment

The current environment.

Approver Type

This field indicates whether this approver group type is emergency or standard.

System

The system to which the approver group is related.

Subsystem

The subsystem to which the approver group is related.

Type

The type to which the approver group is related.

Stage Number

The number of the stage to which the approver group is related.

Approver Group

The approver group related to the inventory area. Note that a given inventory area may be related to several approver groups.

Display a Relationship Between an Inventory Area and an Approver Group

To display the relationship between certain inventory areas and an approver group

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Enter the appropriate information in the INVENTORY AREA fields. You can enter one of three values in these fields:
   - A full name. Enter a full name (number) in one or more fields, to indicate a specific system, subsystem, type, and/or stage number.
   - Blanks. Leave one or more fields blank to build a list of approver group relationships for the inventory areas matching the criteria entered.
   - An asterisk (*). Use an asterisk to relate an approver group to all systems, subsystems, types or stages in an environment.

For example, if an approver group has been related to an inventory area with a system name of ABC and a stage number of 2, and with an asterisk as the subsystem and the type, then the approver group relationship applies to all elements in system ABC and Stage 2—regardless of subsystem and type.

Note: To display a relationship from the Approver Group Relationship List panel, type an S to the left of the inventory area and press Enter to display the Approver Group Relationship panel.

4. Press Enter.

   The Approver Group Relationship panel displays with all inventory areas matching the criteria you indicated and the approver groups related to these areas.

5. When you have finished viewing the Approver Group Relationship panel, press the END key to return to the Approver Group Relation Request panel.

Delete a Relationship Between an Inventory Area and an Approver Group

To delete a relationship between inventory areas and approver groups

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You can obtain a list of all relationships by leaving these fields blank.
4. Type a # in the OPTION field.
5. Press Enter.

   If the Approver Group Relationship List panel displays, proceed to Step 6. If the Approver Group Relationship panel displays, proceed to Step 7.

6. From the Approver Group Relationship List panel type a # to the left of the name of the inventory area for which you want to delete a relationship and press Enter. The Approver Group Relationship panel displays.
7. Review the information on the Approver Group Relationship panel to verify that you want to delete this relationship.
8. Press Enter to complete processing.

Change the Approver Group for an Inventory Area

To change the approver group for an inventory area

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You can obtain a list of all relationships by leaving these fields blank.
4. Type a U in the OPTION field.
5. Press Enter.

   If the Approver Group Relationship List panel displays, proceed to step 6. If the Approver Group Relationship panel displays, proceed to step 7.
6. From the Approver Group Relationship List panel, type a U to the left of the name of the inventory area for which you want to change a relationship and press Enter.

   The Approver Group Relationship panel displays.
7. On the Approver Group Relationship panel, enter the name of the approver group you want to relate to this inventory area in the APPROVER GROUP field.
8. Press Enter to complete processing.

The Approver Group Relationship Panel

The Approver Group Relationship panel displays after you select the approver group relationship you want to display, create, change, or delete on the Approver Group Relation Request panel or the Approver Group Relationship List panel. Use this panel to perform the following actions:

- Complete the deletion of a relationship between an inventory area and an approver group. When you delete a relationship, neither the approver group nor the inventory area is deleted; only the relationship between the two is deleted.
- Complete the creation of a relationship between an inventory area and an approver group.
- Complete the change of an approver group for an inventory area.

Note: You cancel a request by pressing the End key.

The following fields appear on the Approver Group Relationship panel. All fields are display-only, except the APPROVER GROUP field.

Environment

This is the name of the current environment.

Approver Type

This is the type of approver group you specified: emergency or standard.

Approver Group

Name of the approver group to be related to this particular inventory area. Change the name of the approver group accordingly.

System

This is the name of the system in the inventory area to which the approver group is related.

Subsystem

This is the name of the subsystem in the inventory area to which the approver group is related.

Type

This is the name of the element type in the inventory area to which the approver group is related.

Stage Number

This is the stage number in the inventory area to which the approver group is related.

Delete a Relationship Between an Inventory Area and an Approver Group

To delete a relationship between inventory areas and approver groups

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You can obtain a list of all relationships by leaving these fields blank.
4. Type a # in the OPTION field.
5. Press Enter.

   If the Approver Group Relationship List panel displays, proceed to Step 6. If the Approver Group Relationship panel displays, proceed to Step 7.

6. From the Approver Group Relationship List panel type a # to the left of the name of the inventory area for which you want to delete a relationship and press Enter. The Approver Group Relationship panel displays.
7. Review the information on the Approver Group Relationship panel to verify that you want to delete this relationship.
8. Press Enter to complete processing.

Create a Relationship Between an Inventory Area and an Approver Group

To create a relationship between an inventory area and an approver group

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You must enter either a full name or an asterisk in each of these fields.
4. Type a C in the OPTION field.
5. Press Enter.

   The Approver Group Relationship panel displays.
6. Enter the name of the approver group for which you want to build a relationship in the APPROVER GROUP field.
7. Press Enter to complete processing.

Change the Approver Group for an Inventory Area

To change the approver group for an inventory area

1. Specify an environment in the ENVIRONMENT field.
2. Indicate whether the approver group type is standard or emergency in the APPROVER TYPE field. You must enter the entire word when indicating the approver type.
3. Specify the inventory area to which the approver group is related in the INVENTORY AREA fields. You can obtain a list of all relationships by leaving these fields blank.
4. Type a U in the OPTION field.

5. Press Enter.

   If the Approver Group Relationship List panel displays, proceed to step 6. If the Approver Group Relationship panel displays, proceed to step 7.

6. From the Approver Group Relationship List panel, type a U to the left of the name of the inventory area for which you want to change a relationship and press Enter.

   The Approver Group Relationship panel displays.

7. On the Approver Group Relationship panel, enter the name of the approver group you want to relate to this inventory area in the APPROVER GROUP field.

8. Press Enter to complete processing.

Locking and Approver Groups

The element locking feature of CA Endevor SCM provides additional protection for inventory areas in addition to that provided by approver groups and approver group relationships. Consider the following two examples:

Example: Use Locking to Add Elements

In this example, user 1 defines package PKG1 with two Add actions. Add number 1 is to an inventory area protected by an approver group, while Add number 2 is to an area with no associated approver group. User 1 casts and approves PKG1.

User 2 then modifies the external files referenced in the two Add actions, and submits SCL to Add the elements, without including the SCL in a package.

When Locking=OFF:

- The first Add statement in the SCL for user 2 fails because an approver group protects the target inventory area and the Add statement is not part of a package. The second Add statement completes successfully because no approver group protects the target inventory area, and locking is off.
- User 1 then executes package PKG1, and both Add actions fail with PKMR515E and PKMR516E messages informing User 1 of an integrity error because the file has been modified since he cast package PKG1.

When Locking=(ON,Y):

- Both Add statements in the SCL for user 1 fail because the element names at the target inventory locations have been locked by the cast of package PKG1.
- When User 1 then executes package PKG1, both Add actions fail with PKMR515E and PKMR516E messages.

In this example, PKG1 fails execution whether locking is ON or OFF. Locking, however, does prevent the changed file in Add #2 from being added to CA Endevor SCM.

Example: Use Locking to Move Elements

In this example, a site has a four-stage development life cycle, with a map that moves from STG1→STG2→STG4. An approver group protects STG4. User 1 defines package PKG2 to move element ELM1 from STG2→STG4.

After User 1 casts and approves PKG2, User 2 retrieves element ELM1, modifies it, adds it back to CA Endevor SCM, and tries to move it back into STG2.

With Locking=OFF:

- The move back into STG2 is successful. User 2 then submits SCL to move ELM1 to STG4 but does not include the SCL in a package. User 2's SCL fails because the STG4 inventory area is protected by an approver group.
- User 1 then executes package PKG2, and this move also fails with a PKMR512E message informing User 1 of an element level mismatch.

With Locking=(ON,Y):

- User 2's move back into STG2 fails because the element names at both the source and target inventory locations have been locked by the cast of package PKG2.
- User 1 then executes package PKG2, and this move succeeds because element ELM1 at STG2 has been protected from modification by locking.

Chapter 5: Using the Package Ship Utility

Note: The content that previously appeared in this chapter has been moved to the scenario-based knowledge document *How to Set Up Package Ship*, which can be found in the *Scenario Guide*.

Chapter 6: Using Promotion Packages

This section contains the following topics:

Promotion Packages

A *promotion package* is a package of Move actions that can be reused to automatically promote the package contents along the map until they reach the final location. It can consist of Move actions only and the from environment and stage location for all Move actions must be the same. Although you can reuse a promotion package until the contents have been promoted to the end of the map, you still need to approve the package between executions, if approval is required, but you do not have to reset the package, manually edit the SCL to modify the inventory source location, or re-cast the package.

Each time a package is executed, the current copy of the package is saved and a new copy of the package is created. Each copy is referred to as a version. There are no restrictions on the number of promotions that can be performed against a promotion package. You can view historic versions of a package through many of the package list functions. Even after you have executed a promotion package, it is possible to reset the package, edit its SCL, and retain prior versions of the package.

You define a package as a promotion package when you create or modify the original package. A promotion package can be defined as either a standard or an emergency package.

How Promotion Packages are Processed

The lifecycle of a promotion package is different than that of an ordinary package. Each time a package is executed, the current version of the package is saved and a new version of the package is automatically created from the prior version. Details of promotion package processing follow:

1. Create/modify package action. You define the package as a promotion package, when you create or modify the original version.

2. Cast package action. You cast the original package. All subsequent casts of new versions occur automatically. The following take place at cast time:

   - The package is checked to verify that it consists of move actions only and that all the elements within the move actions are at the same location (environment and stage).
   - The target location information is stored in the package header. This identifies the target location of the elements associated with each version of the promotion package. You can view this information on the Display History panel and you can extract it using the API or CSV List Package Header functions.

   Note: Promotion packages are automatically recast, unless you turn off this functionality in the Optional Features table, ENCOPTBL, using the following option: PROM_PKG_SUPPRESS_AUTOCAST. For more information, see How to Use the SUPPRESS_AUTOCAST Option. (see page 124)

3. Execute package action. After a version is executed, it includes the package header, approver and approver extension records, SCL, action summary and cast report records associated with the package at the time it was successfully executed. What happens after execution depends on whether the package has reached the end of the map:

   - If execution occurred at the final location defined in the map, the package remains in Executed status.
   - If the package is not at the final location in the logical map, following a successful execution, the following promotion package logic is performed against that package.

a. The executed package is committed and a historical version of the package is saved.

b. The current version of the package is reset to remove approver, action summary, and cast report records.

c. The SCL records associated with the current package are rebuilt to point to the next location.

- The STOPRC statement matches the previous SCL STOPRC statement. This also matches the original STOPRC value specified at the time of the last create/modify, unless you manually edited the statement in the SCL while the package was in In-Edit status.
- The rebuilt comment statements are enclosed in quotes, unless the comment contains a quote. In this case, the comments are enclosed in double quotes.
- The comment field is forty characters. On the rebuild, trailing blanks are removed.
- All the SCL statements of the old package that start with an asterisk are copied to the new package until the first record of the old package is found that does not start with an asterisk. Consequently, only the comments at the beginning of the old package are copied to the new package and all subsequent comments are dropped. The number of comment records copied to the new package can be zero to many, depending on the location of the first non-comment card found in the old package.

a. A cast action is performed against the rebuilt version of the package. The component validation value found in the package header determines if the validate component option is in effect. If the previous value was Y or W (warnings), the component validation parameter is set to Y on the automated cast action. If the cast fails, the new version of the package is placed into In-Edit status.

4. Commit package action. After execution, the commit action occurs automatically for promotion packages. After the commit action, this version of the package can no longer be used, only viewed. However, if the execution occurred at the final location defined in the map, the package remains in Executed status and you must manually issue the commit action.

   - The commit action includes an option to delete all the promotion history associated with previous versions of the package.
   - Back-out records are automatically deleted. The cast report records are retained for current and historic versions.

5. Reset package action. After you execute a package, you may decide to manually edit the SCL associated with that package before performing another promotion, for example to add another move action. If you execute the Reset action, the package is placed in In-Edit status and all the history associated with that promotion package is retained. Before you cast the package, make sure that you add the appropriate SCL Move statements, because following the successful execution of the package, a new version of the package is created and the SCL move statements of the new version are updated to point to the next location.

   Note: If the package is reset when it is at the final location in the logical map, an historic version of the current package is created before the current version is replaced.

6. Archive package action. This action archives the current and all historical version of a package. The option Delete After Archive deletes all versions of a package.

7. Delete package action. This action deletes not only the latest version of the package, but all previous versions of the package.

How to Ship a Promotion Package Before Map Ends

During basic promotion package processing, it is only possible to ship a promotion package when it has reached the end of the map. The reason being that following a successful execution of a promotion package, the package is automatically reset, the SCL is updated to point to the next location in the logical map, and the package is cast. This process continues until the package reaches the last location defined in the logical map. At this point, the package remains in Executed status. A package can only be shipped when it is in Executed status; therefore, during basic promotion package processing, it can only be shipped at the final logical location defined in the map.

You can override this processing, in order to ship a package before it reaches the end of the map, by using either of the following options:

- **Stop-at-Stage feature**—When enabled, this features stops promotion package processing at a specified stage so that the package stays in Executed status and can be shipped from that stage. For more information, see the Stop-at-Stage feature. (see page 123)
- **SUPPRESS_AUTOCAST optional feature**—When enabled, this feature turns off automatic cast processing. For more information, see How to Use the SUPPRESS_AUTOCAST Option. (see page 124)

Following shipment, the package can be restarted to continue the promotion process.

Stop-at-Stage Feature

The Promotion Package Stop-at-Stage feature lets administrators define inventory lifecycle stages at which the automatic processing of promotion packages is suspended. This allows promotion packages to be shipped from a location other than the final location defined in the map. For example, a promotion package stopped in this manner can be shipped using the package ship facility to a test location for validation before continuing with its promotion up the map.

How the Stop-at-Stage Feature Works

If the Stop-at-Stage feature is enabled in the environment section of the C1DEFLTS table, promotion package processing is interrupted at the stage specified for the environment by the stop-at-stage parameters.

During promotion package processing, at the completion of a successful execution of a package, the promotion package logic checks the stop-at-stage parameter settings in the C1DEFLTS table, for the target environment and stage associated with the promotion package, to see if the feature is activated at that stage. If it is, the promotion package processing is interrupted and the package remains in Executed status, allowing it to be shipped.

Following the shipment of the package, the promotion package can be restarted to continue the promotion process. The user must issue the Reset action to restart the package. As part of the Reset action, the target location information associated with each of the actions included in the package is automatically updated to point to the next location in the logical map. Then the user must issue the Cast, Review, and Execute actions to restart the promotion package processing that enables the package to continue its promotion up the map.

If the administrator modifies the C1DEFLTS table and de-activates the Stop-at-Stage feature at a location, you can still use the same technique to restart promotion packages that were previously interrupted at that location. The only difference is that you must manually update the SCL to point to the next logical location following the execution of the Reset action.

For more information, see How to Enable the Stop-at-Stage Feature. (see page 124)

How to Enable the Stop-at-Stage Feature

You can use the Promotion Package Stop-at-Stage feature to define inventory lifecycle stages at which the automatic processing of promotion packages is suspended. To enable this feature, the administrator sets the following stop-at-stage parameters in TYPE=ENVRNMNT Macro of the Defaults table, C1DEFLTS:

STG1PSAS

This is a stage level parameter that, if set to Y, activates the stop-at-stage feature for promotion packages. You can activate this feature for one or both stages within the same environment. To activate this feature for a second stage, use STG2PSAS. You can also activate this feature in more than one environment (for example, in both QA/1 and PRD/1).

If you do not wish to activate this feature you can code STG1PSAS=N, or STG1PSAS=, or not code the parameter at all. The default is N.

STG2PSAS

This is a stage level parameter that, if set to Y, activates the stop-at-stage feature for promotion packages at a second stage. You can activate this feature for one or both stages within the same environment. To activate this feature for the first stage, use STG1PSAS. You can also activate this feature in more than one environment (for example, in both QA/1 and PRD/1).

If you do not wish to activate this feature you can code STG2PSAS=N, or STG2PSAS=, or not code the parameter at all. The default is N.

How to Use the SUPPRESS_AUTOCAST Option

To ship a promotion package from a location that is not at the last location defined in the logical map, you can use the SUPPRESS_AUTOCAST optional feature, provided it is activated in the Optional Features table ENCOPTBL. This option prevents a package from being automatically cast.

To ship a package mid-map, follow these steps to get your package in Executed status in the stage you want to ship it from:

1. Cast, Review and Execute the package until the SCL target location matches the location you wish to ship from.
2. Reset the package
3. Use the Modify package action to change the Promotion Package attribute to N.
4. Cast, Review, and Execute the package.

   The package is now in Executed status and can be shipped.

Following the shipment of the package, the promotion package can be restarted to continue the promotion process by following these steps:

1. Issue the Reset action to set the status to In-Edit.
2. Use the Modify package action to change the Promotion Package attribute back to Y.
3. Edit the target location information associated with each of the actions included in the package to point to the next location defined in the logical map.
4. Issue the Cast, Review and Execute actions.

   Your package is now in the location you specified in the logical map and promotion processing can continue with the SUPPRESS_AUTOCAST option still in effect.

Chapter 7: Using the CA 7 Interface for Package Execution

This section contains the following topics:

The CA 7 Interface

CA 7 is a JOB scheduling product that can add significant value to CA Endevor SCM package processing by controlling the initiation of package execution. CA 7 enables you to define execution rules by class to CA 7 and schedule a package execution, dependent upon the completion of another CA 7 based job.

When accessing a package that has associated CA 7 information, CA Endevor SCM queries CA 7 to determine if the information is still applicable. If the CA 7 information is no longer applicable (for example the job has been cancelled), CA Endevor SCM will remove it.

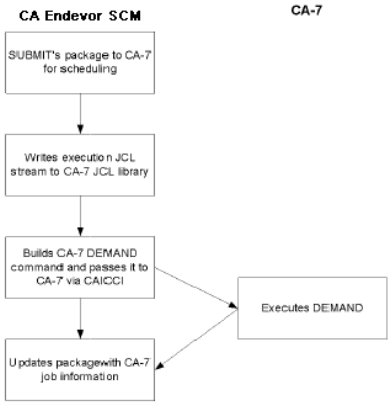
How the CA 7 Interface Works

When CA Endevor SCM schedules the package with CA 7, it will build the package execution JCL stream based on the parameters specified on the SUBMIT action. The JCL stream will be written to the CA 7 JCL library that is specified in the C1DEFLTS table.

After the execution JCL has been written to the CA 7 JCL library, CA Endevor SCM will then build the CA 7 DEMAND command and pass it to CA 7 using the CA 7 CAICCI programming interface.

Upon successful completion of the CA 7 DEMAND command, CA Endevor SCM will update each package that will be executed by the JOB with the JOBNAME, CA 7 JOB number, in addition to the user date and time the JOB was scheduled. If someone cancels the scheduled execution JOB using CA 7, each package associated with that JOB must be reset and re-approved before it can be executed outside the scope of CA 7.

The following summarizes CA Endevor SCM and CA 7 processing steps:



How to Implement the CA 7 Interface

When utilizing the CA 7 interface the CA 7 load library must be available to CA Endevor SCM. Usually this is included in the LINKLIST library in your steplib concatenation of the Logon Proc, skeletons and JCLs.

To implement the CA 7 interface, you must first define the following C1DEFLTS parameters to allow communication between CA 7 and CA Endevor SCM. The parameters are CA7CCINODE, CA7JCLDSN, CA7JCLID and CA7JCLLIB. These parameters are shown next:

```
C1DEFLTS changes:
 C1DEFLTS TYPE=MAIN,                                    X
    .
    .
    CA7CCINODE=,   CA 7 ADDR SPACE NODE (CAICCI)        X
    CA7JCLDSN=,    CA 7 CA7JCLID/CA7JCLLIB DSNAME       X
    CA7JCLID=,    CA 7 JCL DATASET INDEX NUMBER         X
    CA7JCLLIB=,    CA 7 JCL SYMBOLIC INDEX              X
    .
    .
```

The CA 7 Parameters

The following describes the various C1DEFLTS parameters:

CA7CCINODE

The CA7CCINODE parameter is used to communicate with CA 7. It defines the CAICCI node name where the CA 7 address space executes. If this parameter is not specified, local mode is assumed.

CA7JCLDSN

Defines the data set name associated with CA7JCLID or CA7JCLLIB.

CA7JCLID and CA7JCLLIB

Defines the data set name associated with CA7JCLID or CA7JCLLIB. The CA7JCLID and CA7JCLLIB parameters are mutually-exclusive. At least one of these parameters must be specified to provide CA Endevor SCM with the CA 7 parameter information required by CA 7 to schedule JOB execution. The parameter values should be obtained from the CA 7 implementation. The data set name associated with CA7JCLID or CA7JCLLIB must be provided to CA Endevor SCM via the CA7JCLDSN C1DEFLTS parameter.

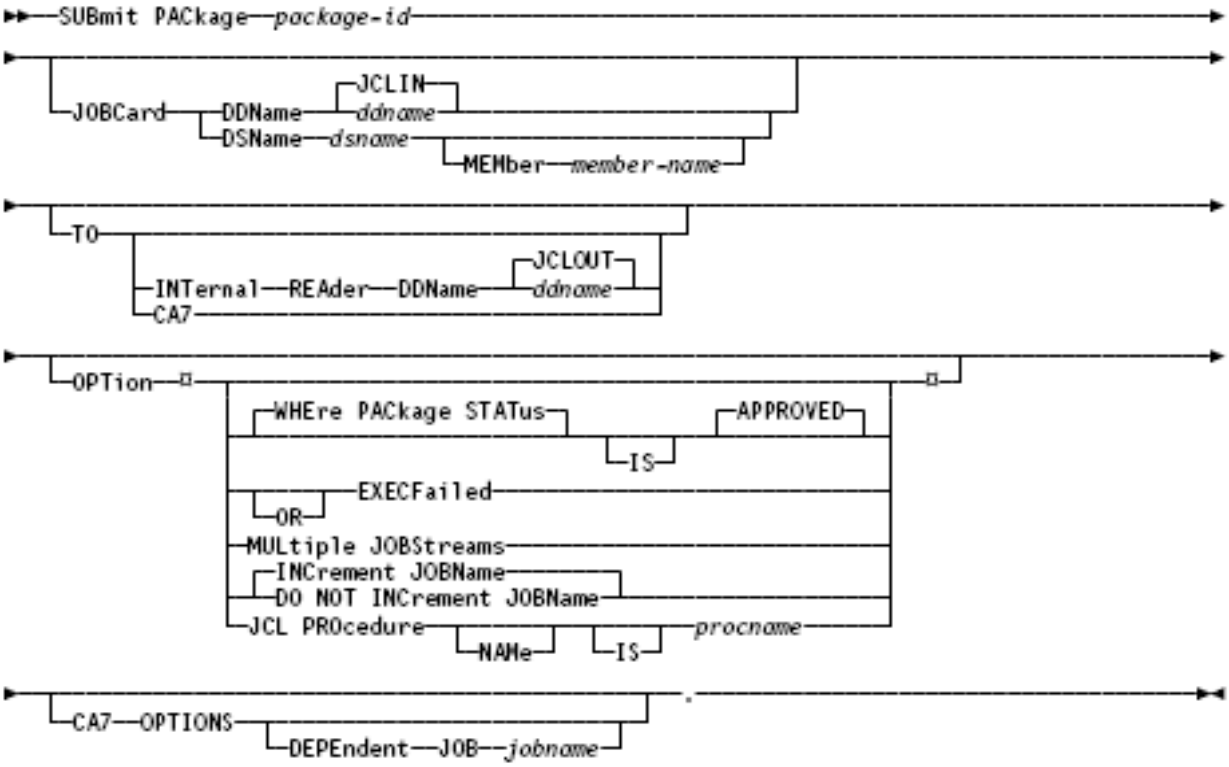
Verify the CA 7 Information

You can verify the CA 7 implementation information using the CA Endevor SCM site information display panel.

Package SCL and CA 7

The CA Endevor SCM ISPF Batch Package panels can be used to build the package SCL for submission of a package to CA 7 to be scheduled for execution. The package SCL can also be built independently of the CA Endevor SCM ISPF interface.

The implementation of the CA 7 scheduler interface is done using the batch package SUBMIT action.



The Package Display Panel and CA 7

A check will be performed to ensure that a package scheduled for CA 7 execution is not executed outside the scope of CA 7. CA Endevor SCM will check for the presence of a "special" DDNAME in the package execution JCL, if it is present, then it will be assumed that a CA 7 JOB initiated the package execution.

CA 7 Reports

The following reports are generated by CA 7:

- C1BR2000: INPUT PARAMETERS
- C1BR3000: EXTRACT PHASE SUMMARY
- CONRPT72: PACKAGE DETAIL REPORT
- CA Endevor SCM PACKAGE CAST REPORT

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