CA IDMS - 19.0
Using IDMS Enforcer

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Using IDMS Enforcer

CA IDMS Enforcer provides automatic verification and enforcement of naming standards, entered into the CA IDMS integrated data dictionary. You can maximize the benefit of establishing standards through the use of CA IDMS Enforcer online definition and maintenance utilities in combination with active and/or passive enforcement components.

CA IDMS Enforcer provides automatic verification and enforcement of naming standards, entered into the CA IDMS integrated data dictionary. You can maximize the benefit of establishing these standards through the use of CA IDMS Enforcer.

Product components are available to:

- Define and maintain enforcement standards
- Actively enforce these standards, both online and in batch
- Audit the data dictionary for compliance with naming standards.
With the menu-driven online system, you can define and maintain enforcement standards. Active and Passive Enforcement facilitate the enforcement of your site specific standards.

Standards Installed on CA IDMS Database

CA IDMS Enforcer uses CA IDMS as its database management system.

When CA IDMS Enforcer is fully implemented on a CA IDMS database, features inherent to CA IDMS are available as follows:

- Share-ability
- CA IDMS Recoverability
- CA IDMS Backup and Restoration.

Environment

Teleprocessing Environment:

- CA IDMS/DC

Terminal Type:

- 3270 or 3270-compatible terminals including models 2, 3, 4, and 5.

This section provides the following information needed to use CA IDMS™ Enforcer.

- IDMS Enforcer Product Features (see page 10)
- Synopsis of a Typical Enforcement Strategy (see page 11)
- Recovery to Previous Session of CA IDMS Enforcer (see page 11)
- Using CA IDMS Enforcer (see page 12)
- Batch Utilities (see page 66)
- CA IDMS Enforcer operations (see page 91)

IDMS Enforcer Product Features

The following features of CA IDMS Enforcer facilitate the enforcement of naming standards:

- Online definition and maintenance of naming standards for data dictionary entities including user-defined entity names
- Active enforcement--enforcement for entities entered using system generation, schema, subschema, and CA-DDDL compilers and the data dictionary Menu Facility
Passive enforcement--audit reporting against the data dictionary for compliance

Flexible, user-defined levels of enforcement

Batch utilities to support multiple machines and central versions

Standard compiler exit protocol is used

Runtime optimizing techniques to minimize the impact of enforcement

Print facility (batch)

Online documentation.

Synopsis of a Typical Enforcement Strategy

The following steps indicate one of the ways an enforcement strategy may be approached:

Step 1--Develop standards using Online Definition and Maintenance utility functions

Step 2--Execute Passive Enforcement against the data dictionary

- Use the Dictionary Audit utility in the Terse mode to determine the areas of concern
- Rerun the audit with the Expanded mode to present diagnostics to development management

Step 3--Develop an implementation schedule

- Enable Active Enforcement at the Informational level
- Generate enforcement at a preventive level with a pre-determined implementation date

Recovery to Previous Session of CA IDMS Enforcer

The recovery feature allows you to recover to the screen you were accessing when an abnormal exit from CA IDMS Enforcer occurred.

In order to recover successfully, you must specify either of the following at the CA IDMS Enforcer Recovery screen:

- The user ID entered during CA IDMS/DC sign on
- The logical terminal identifier.

If the central version (CV) becomes inactive for any reason, recovery to the previous session of CA IDMS Enforcer is not possible.
Using CA IDMS Enforcer

This section helps you to get started with CA IDMS Enforcer. It describes how to:

- Sign on to CA IDMS Enforcer, user profile information available at sign on and possible security requirements for signing on
- Access the five options available to you from the Primary Menu screen: Browse, Edit, Utilities, Tutorial, and Exit
- Sign off of CA IDMS Enforcer.

Read the following topics before you begin your first session with CA IDMS Enforcer.

- Sign On To CA IDMS Enforcer (see page 12)
- CA IDMS Enforcer Options (see page 14)
- Signing Off CA IDMS Enforcer (see page 51)
- Online Definition and Maintenance (see page 51)
- Using the CA IDMS Enforcer Online System (see page 52)
- Active Enforcement (see page 52)
- What is Active Enforcement? (see page 52)
- Activating Enforcement Online (see page 53)
- Activating Enforcement--Batch (see page 56)
- Passive Enforcement (see page 59)
- What is Passive Enforcement? (see page 59)
- Activating Passive Enforcement--Batch (see page 59)

Sign On To CA IDMS Enforcer

Follow the steps below to sign on to CA IDMS Enforcer (unless your DBA or Security Administrator has implemented a different procedure).

1. Access your online CA IDMS/DC system.

2. At the CA IDMS/DC system prompt, types the task code assigned to CA IDMS Enforcer system and press the Enter key. Obtain the task code, which is assigned at the time of installation, from your DBA.

The Primary Menu screen is displayed.

- User Profile Information (see page 13)
- CA IDMS Enforcer Security (see page 13)
- CA IDMS Enforcer Primary Menu Screen (see page 13)
User Profile Information

User profile information is acquired in one of these ways: through the CA IDMS user ID if you are signed on to the CA IDMS/DC or through the logical terminal identifier (LTERM-ID) if you are not signed on to CA IDMS/DC. User screen entries are retained between sessions to recall last structure, entity, template, or system-owned values specified.

CA IDMS Enforcer Security

If your company has implemented task CA IDMS Enforcer structure security, access into CA IDMS Enforcer is limited to the level of authority assigned to a user in conjunction with task and activity resources contained in your centralized security system.

For more details on CA IDMS Enforcer security, see Utilities Option (see page 19) and Section5, "Operations".

CA IDMS Enforcer Primary Menu Screen

CA IDMS Enforcer Primary Menu screen provides five options, a message area, copyright information, and system identification. The fields described below are shown in Exhibit 3.1.

- **OPTION**—Select the option that you want by typing the character that precedes the option name in this field.

- **Message Area**—Messages are displayed below the list of options. You can access the online documentation, which includes the Online Message Facility, by selecting option T from the Primary Menu screen.

At any point in the online session, you can use the HELP command to access the online documentation which includes:

- Information about CA IDMS Enforcer screens
- Complete details on each of the commands, options, and keys used to edit a template
- Necessary commands used to scroll through template documentation
- Message text.

If task security has been defined for CA IDMS Enforcer, your user ID used to signon to CA IDMS/DC will require execution privileges for the task category resource assigned to access the CA IDMS Enforcer Primary Menu. See CA ADS Alive Operations (https://docops.ca.com/display/IDMS19/CA+ADS+Alive+Operations) for more information on task security.
CA IDMS Enforcer Options

These options are available to you from CA IDMS Enforcer Primary Menu screen:

- **Browse** (see page 14)
- **Edit** (see page 14)
- **Utilities** (see page 14)
- **Tutorial** (see page 15)
- **Exit** (see page 15)

### Browse

The Browse Option allows you to view details about the dictionary entity name values enforced at your site. This option does **not** allow you to add, change, or delete any values.

Selection lists containing the names of dictionaries, nodes, entity-types, and templates in CA IDMS Enforcer database are available. Templates are the lowest level in this hierarchy. You can directly access a specific template by entering the name of the dictionary, node, entity-type, and template. See **Browse Option** (http://wiki-dev.ca.com/display/IDMS/Browse+Option).

### Edit

The Edit Option allows you to modify or delete enforcement values through CA IDMS Enforcer Edit Template Format/Fields screen, commands, and PF keys. See **Edit Option** (http://wiki-dev.ca.com/display/IDMS/Edit+Option).

### Utilities

Use the Utilities Option to:

- Define security, environment, and structure
Add or copy dictionaries, entities, or templates

Add, modify, or delete system-level value tables and value ranges.

Three definition utilities are available: Security, Environment, and Structure. The Security utility is used to define security for structures. The Environment utilities are used to define severity levels, runtime directives, and also to activate or inactivate enforcement. The Structure utilities are used to delete enforcement structures or modify generation options.

There are three add/copy function utilities available. With these utilities you can add or copy new or existing enforcement structures.

In addition, the System Level Entities utility allows you to add, modify, and delete system-level values tables and value ranges. This prevents the storage of redundant versions of value sets and value ranges at multiple field levels. See Utilities Option (http://wiki-dev.ca.com/display/IDMS/Utilities+Option).

**Tutorial**

The Tutorial Option provides you with information on CA IDMS Enforcer. You can view the online documentation sequentially or, by making selections from the menus offered within this documentation, you can view information on specific topics. See Tutorial Option (http://wiki-dev.ca.com/display/IDMS/Tutorial+Option).

**Exit**

When you select the Exit Option, all of CA IDMS Enforcer operations are terminated and you are returned to the CA IDMS/DC Entry screen. See Exit Option (http://wiki-dev.ca.com/display/IDMS/Exit+Option)

For more information on these Options, see Online Definition and Maintenance (see page 51) and the online documentation.

**Browse Option**

**Contents**

- Accessing an Enforcement Template (see page 16)
  - Direct Access (see page 16)
  - Indirect Access (see page 16)
- Browse Option Screens (see page 16)
- Browse Security (see page 16)
- Standards Enforcement Access Screen (Browse) (see page 16)
- Dictionary/Node List Screen (see page 17)
- Entity List Screen (see page 17)
- Template List Screen (see page 18)
  - Additional Information (see page 18)
  - Browse Template Screen (see page 19)
Browse Commands (see page 19)

The Browse Option allows you to display the contents of each enforcement template in the CA IDMS Enforcer database. This option does **not** allow you to add, modify, or delete any values.

Accessing an Enforcement Template

You can access an enforcement template directly or indirectly.

Direct Access

You can directly access an enforcement template from the Standards Enforcement Access screen by typing specific dictionary, node, entity type, and template names and pressing the Enter key. It is not necessary to type the dictionary and node names if you want to access the default dictionary and node. After you press the Enter key, the contents of the template is displayed on the Browse Template screen. You can browse a template definition using browse commands to scroll. For more information on these commands, see the online documentation.

Indirect Access

You can also access an enforcement template indirectly from the Standards Enforcement Access screen by using a series of selection list screens that enable you to choose dictionary, node, entity type, and template names.

Use CA IDMS Enforcer commands to scroll forward and backward through selection lists of more than one page. For information on these commands, see the online documentation.

Browse Option Screens

CA IDMS Enforcer provides a series of screens within each option. The Browse Option uses the following screens: Standards Enforcement Access, Dictionary/Node List, Entity List, Template List, and Browse Template.

Browse Security

If task or CA IDMS Enforcer structure security is defined in your centralized security system, your CA IDMS/DC user ID used to signon to your central version (CV) will require the following execution privileges for:

- The task category resource assigned to Standards Enforcement Access for the Browse option
- The Browse activity resource assigned to the dictionary/node structure defined in the CA IDMS Enforcer database.

Standards Enforcement Access Screen (Browse)

To display the Standards Enforcement Access screen from the Primary Menu screen:

1. Type the character 1 (which represents the Browse Option) in the OPTION field.
2. Press the Enter key.

This screen provides direct and indirect access to CA IDMS Enforcer's Browse structure.
CA IDMS Enforcer Rnn.n Standards Enforcement Access mm/dd/yy hh:mm
COMMAND ===> ESXABAC

Specify "DICTIONARY" and "NODE" name for Entity/Template List:
Dictionary ===> * ( * for List of all Dictionaries within Node, blank for default Dictionary)
Node ===> * ( * for List of all Nodes within Dictionary, blank for default Node)

ENTITY-TYPE NAME: (Blank for Entity-Type List)
Entity Type ===> 

TEMPLATE NAME: (Blank for Template List)
Template ===> 

Exhibit 3.2: Standards Enforcement Access (Browse)

Dictionary/Node List Screen

The Dictionary/Node List screen presents a list of dictionary/node structures.

To select a dictionary/node structure name:

1. Type $ in the selection field (to the left of the dictionary/node structure name).
2. Press the Enter key.

The Entity List screen is displayed.

Exhibit 3.3: Dictionary/Node List Screen (Browse)

Entity List Screen

The Entity List screen presents a list of all entity-type names within the selected or specified dictionary/node structure. Entity types appear in alphabetically ascending order.

To select an entity-type name:

1. Type $ in the selection field (to the left of the entity-type name).
2. Press the Enter key.

The Template List screen is displayed.
Template List Screen

The Template List screen presents a list of templates within a specified or selected entity type. Templates appear in Search Order sequence.

To select a template name:

1. Type $ in the selection field (to the left of the template's Search Order).

2. Press the Enter key.

The Browse Template screen is displayed.

Additional Information

For information on the commands available at the list screens, see the online documentation.
Browse Template Screen

The Browse Template screen can be accessed through the Standards Enforcement Access screen, the Template List screen, or by using the DISPLAY command at the Active Enforcement screen. Detailed information on the specified template appears on this screen including: template identification, template format, and template field detail.

**Identification**--The names of the dictionary, node, entity type, and template.

**Format**--The format of the template is displayed in two lines: the symbolic representation and the numeric grid. The symbolic representation presents the contents of each field. The numeric grid is provided as an aid to locating field position.

**Field Detail**--Template field detail provides information on each field of the template. This information includes template bracket mode, the length to be enforced for the template, the severity level, field position and length, data type, field description, and a list of possible values.

Browse Commands

See the online documentation for information on the Browse commands.

```
BROWSE -TEMPLATE COMMAND ==> COLUMNS 001 079
*** TOP OF DATA ************************************************************* CA IDMS Enforcer ***
Enforcement for:
  Dictionary PROD
  Node NODELD09
  Entity AREA
  Template AREA-NAME

+----1----+-
sssssstAREA***

where:
  Template mode is bracketed.
  Enforcement template length is 16.
  Severity class is 001 and severity level is E-error.

ssssssss Position: 01 Length: 08
Data type is Alphanumeric.
  “s” = The 8 character descriptor of the database
```

*Exhibit 3.6: Browse Template Screen*

Utilities Option

**Contents**

- Utilities Option Screens (see page 20)
- Standards Enforcement Utilities Security (see page 21)
- Standards Enforcement Utilities Screen (see page 22)
  - Definition Utilities (see page 22)
  - Add/Copy Functions (see page 23)
Use the Utilities Option to define security, environment, and structure; add or copy dictionaries, entities, or templates; and add, modify, or delete system-level value tables and value ranges.

Utilities Option Screens

CA IDMS Enforcer provides a series of screens within each option. The Utilities Option uses the following screens:

Standards Enforcement Utilities
Standards Enforcement Utilities Security

If task security has been implemented at your site, your CA IDMS/DC user ID used at signon will be required to have access privileges to the Standards Enforcement Utilities task resources contained in your system catalog.
If CA IDMS Enforcer dictionary/node structure security has been defined in your centralized security system, the user or group ID you use to signon to your central version (CV) will be required to have execution privileges for the activity resources assigned for structure update and read/browse access.

For more information on securable Utilities tasks and structure security, see Operations (https://docops.ca.com/display/IDMS19/CA+ADS+Alive+Operations).

Standards Enforcement Utilities Screen

The Standards Enforcement Utilities screen provides access to CA IDMS Enforcer's structure utilities. These utilities are used to maintain all enforcement database structures above the template level.

To access the Standards Enforcement Utilities screen from the Primary Menu:

1. Type the character 3 (which represents the Utilities Option) in the OPTION field.
2. Press the Enter key.

To access one of the utilities available in the online definition and maintenance system:

1. Type the number of the chosen utility in the OPTION field.
2. Press the Enter key.

CA IDMS Enforcer Rnn.n Standards Enforcement Utilities mm/dd/yy hh:mm
OPTION ===> ESXAUTL

DEFINITION UTILITIES:
0 Security - Define CA IDMS Security for Dictionary/Node Structures
1 Environment - Define Severity Class Codes, Specify Runtime Directives, or Generate Runtime Enforcement Values
2 Structure - Delete Enforcement Structures, or Modify Generation Options

ADD/COPY FUNCTIONS:
3 Dictionary - Add a new Enforcement Structure or Copy an existing Structure
4 Entity - Add a new Entity-Type name or Copy an existing Entity-Type and Templates
5 Template - Add a new Template or Copy existing Templates

SYSTEM LEVEL ENTITIES:
6 Tables - Add, Modify or Delete System Tables, Table Values and Table Range Value Sets

Exhibit 3.15: Standards Enforcement Utilities Screen

Definition Utilities

The Definition Utilities are Security, Environment and Structure.

The Security Option allows you to define security codes for CA IDMS Enforcer dictionary/node database structures.

The Environment Options enable the association of runtime error levels with class codes, modification of runtime enforcement directives, or the generation of a relocatable table for runtime enforcement.
The Structure Options enable the deletion of dictionary/node structures, entities, and templates, and the modification of generation options.

Add/Copy Functions

The Dictionary Option of the Add/Copy function allows you to add a new or initialized dictionary/node structure to the CA IDMS Enforcer database. You can also copy an existing dictionary/node structure contained on the database.

The Entity Option of the Add/Copy function allows you to add a new entity type to a specified dictionary/node entity within the CA IDMS Enforcer database. You can also use this function to copy an existing CA IDMS Enforcer entity type or entities.

The Template Option of the Add/Copy function allows you to add a new template to a specified dictionary/node structure within the CA IDMS Enforcer database. You can also use this function to copy an existing template or templates.

System Level Entities

The Tables Option allows you to specify value sets and value ranges which are owned by CA IDMS Enforcer and accessible from any structure in the system.

Dictionary/Node Security List Screen

The Dictionary/Node Security List screen is displayed when you select option 0 at the Standards Enforcement Utility screen.

The structure list presents all dictionary/node combinations contained within the CA IDMS Enforcer database. To modify the security activity numbers shown in the Browse and Update fields:

1. Type M in the selection field to the left of the dictionary name to position the cursor at the Browse field.
2. Modify the value displayed (use a numeric value from 0 to 255) in either or both fields.
3. Press the Enter key.

If the values you enter are valid, the dictionary and node structure is modified and subsequent operations to browse or update the secured structure are compared against your centralized security system. Any user requesting structure access must have access privilege for the browse or update activity resource assigned. For more information on security, see Operations (https://docops.ca.com/display/IDMS19/CA+ADS+Alive+Operations).

Note: This utility in no way establishes security for CA IDMS dictionaries and does not define CA IDMS resources in the centralized security system.
Environment Utilities Screen

The Environment Utilities screen is used to access the environment utility options. To access one of these options:

1. Type the number of the chosen option in the OPTION field.

2. Press the Enter key.

You must also indicate the name of the dictionary/node structure you want to access in the Dictionary and Node fields. You can specify a name in each field, type an asterisk (*) in either or both fields for the selection list, or leave these fields blank to use the default dictionary/node structure.

Environment Options

The following options are available:

- Associate Runtime Severity Levels with Template Class Codes. Use this option to review and modify the severity levels (I--Informational, W--Warning, or E--Error) and classes for a specified or selected dictionary/node structure. The Environment--Severity Class Code screen is displayed if you select this option.

- Specify or Modify Runtime Enforcement Directives. Use this option to review and modify the runtime enforcement options for a specified or selected dictionary/node structure. The Environment Runtime Directives screen is displayed if you select this option.

- Generate/Create Relocatable Table for Runtime Enforcement. Use this option to produce a new generation of enforcement table or disable an existing enforcement table for a specified or selected dictionary/node structure. The Environment Runtime Generation screen is displayed if you select this option.

CA IDMS Enforcer Rnn.n  Environment Utilities  mm/dd/yy hh:mm
OPTION ===> ESXAUEN

1 - Associate Runtime Severity Levels with Template Class Codes
2 - Specify or Modify Runtime Enforcement Directives
3 - Generate/Create Relocatable Table for Runtime Enforcement

Specify "DICTIONARY" and "NODE" name for utility function:
  Dictionary ==> PROD  ( * for List of all Dictionaries within Node, blank for default Dictionary)
  Node ==> NODELD09  ( * for List of all Nodes within Dictionary, blank for default Node)

Exhibit 3.17: Environment Utilities Screen
Environment--Severity Levels Screen

The Environment--Severity Levels screen is used to review and modify Template severity classes and their associated severity level (I--Informational, W--Warning, or E--Error).

To alter the severity level for a severity class, type M in the selection field to the left of the Severity Class of the Severity Level you want to alter. Modify the value displayed in the Severity Level field (use I, W, or E) and press the Enter key. A message will indicate the outcome of the operation.

Exhibit 3.18: Environment--Severity Levels Screen

Environment--Runtime Directives Screen

The Environment--Runtime Directives screen is used to specify the severity levels, encountered at runtime, that display errors and prevent update of the data dictionary.

Exhibit 3.19: Environment--Runtime Directives Screen

Environment--Runtime Generation Screen

The Environment--Runtime Generation screen is used to order the new generation of a dictionary /node structure or to disable an existing structure generation.
A New Generation has been requested for:

**DICTIONARY:** PROD
**NODE:** NODELD09

Initiate the Generation Process after specifying "GENERATION OPTIONS" below:

**CONFIRM GENERATION:**
Initiate Generation Process? ==> N 
(Y-Yes, N-No)

**GENERATION OPTIONS:**
- Activate Generation On ==> mm / dd / yy (MM/DD/YY)
- Create Enforcement Structure Backup ==> N (Y-Yes, N-No)
- Disable Enforcement ==> N (Y-Yes, N-No)

*Exhibit 3.20: Environment--Runtime Generation Screen*

**Structure Utility Access Screen**

The Structure Utility Access screen is used to access CA IDMS Enforcer's utility structure. The names of the last dictionary, node, entity, and template accessed are displayed on the screen.

**Specify "DICTIONARY" and "NODE" name for Entity/Template List:**
- **Dictionary** ==> *
  (* for List of all Dictionaries within Node, blank for default Dictionary)
- **Node** ==> *
  (* for List of all Nodes within Dictionary, blank for default Node)

**ENTITY-TYPE NAME:** 
- Entity Type ==> 

**TEMPLATE NAME:** 
- Template ==> 

* The following line commands will be available when the list is displayed:
- **S** - Select item for more detail in a Dictionary, Entity, or Template List
- **M** - Modify Entity or Template generation options (ie., Include/Exclude status, Template Search Order and Severity Class codes)
- **D** - Delete Templates, Entities, or an entire Dictionary and Node Structure

*Exhibit 3.21: Structure Utility Access Screen*

**Browse Template Access**

If a name is specified in each field, the Browse Template screen is displayed. Information about the Browse Template screen is detailed within the Browse Option and in the online documentation.

**Selection List Access**

If a name is **not** specified in each field, you access CA IDMS Enforcer Selection List screens. Through these lists, you can:

- **Modify entity or template generation options**
- **Delete dictionary/node, entity type, or template structures.**
The line commands and functions available to you vary with each list screen (Dictionary/Node, Entity, or Template). Line commands available from each list screen are given on the next page.

For information on selection list screens, see Browse Option (see page 15) and the online documentation.

![Note: Delete functions do not affect dictionaries defined in your central version (CV). Entity types or entity-name occurrences are not removed from a dictionary contained in your CV using CA IDMS Enforcer delete functions.

Selection List Line Commands

**Dictionary/Node List**

These line commands are available from the Dictionary/Node List screen: S--select and D--delete. To use these line commands:

1. Type one or more line commands the selection field to the left of the Dictionary/Node structure for utility function or selection.

2. Press the Enter key.

   - **S--Select** indicates that you have selected a dictionary structure. The Entity List screen is displayed after you press the Enter key. Multiple selects are automatically processed upon return requests to the Dictionary/Node List screen.

   - **D--Delete** indicates that you want to delete the entire dictionary/node structure from the CA IDMS Enforcer database. The Confirm Dictionary/Node Delete screen is displayed to verify this deletion. Multiple deletes can be specified and are automatically processed in the order the deletes are encountered.

**Entity List**

These line commands are available from the Entity List screen: S--select, M--modify, and D--delete. You can specify one or more line commands at this screen. Multiple entries are automatically processed, in the order in which they are encountered, when you return to the Entity List screen. To use these line commands:

1. Type the letter of the chosen function in the selection field, to the left of the Entity type.

2. Press the Enter key.

   - **S--Select** indicates that you have selected an entity type name. The Template List screen is displayed after you press the Enter key.

   - **M--Modify** indicates that you want to modify the Include/Exclude status of the chosen entity type.

   - **D--Delete** indicates that you want to delete the entire entity structure from the CA IDMS Enforcer database. The Confirm Entity Delete screen is displayed to verify this deletion.
Template List

These line commands are available from the Template List screen: S--Select, M--Modify, and D--Delete. To use one or more of these line commands:

1. Type the letter of the chosen line command in the selection field, to the left of the Search Order field.
2. Press the Enter key.
   - **S**--Select indicates that you have selected a template structure. The Browse Template screen is displayed after you press the Enter key.
   - **M**--Modify indicates that you want to modify the search order, include/exclude status, and severity class of the template structure.
   - **D**--Delete indicates that you want to delete the entire template structure from the CA IDMS Enforcer database. The Confirm Template Delete screen is displayed to verify this deletion.

Multiple line commands can be specified at this screen. Line commands are automatically processed in the order they appear on the screen when you return to the Template List from the Browse Template screen using the END command.

Confirm Dictionary/Node Delete Screen

The Confirm Dictionary/Node Delete screen is used to verify the deletion of a dictionary/node structure from the CA IDMS Enforcer database. This deletion includes all source and generated load structures owned by the dictionary/node structure.

There are two options available at this screen:

- Press the Enter key to complete the deletion.
- Type **END** in the COMMAND field and press the Enter key to cancel the deletion.

After you press the Enter key, you are returned to the Dictionary/Node List screen.

**Note:** This function does not affect dictionaries that have been defined using CA IDMS or CA IDMS/DC utility functions.
Confirm Entity Delete Screen

The Confirm Entity Delete screen is used to verify the deletion of a user-defined entity type. The deletion includes all templates, template fields, and field values or value ranges associated with each template.

The Confirm Entity Delete screen offers two options:

- Press the Enter key to confirm the deletion.
- Type END in the COMMAND field and press the Enter key to cancel the deletion.

If the entity structure you have chosen to delete does not contain a template which is indirectly referenced by another template structure, the Confirm Entity Delete screen (1), shown below, is presented with a warning message indicating that the entity and all associated templates will be erased.

**Note:** Entity types and entity-name occurrences contained on dictionaries defined in your central version (CV) are in no way affected by CA IDMS Enforcer delete functions.

Exhibit 3.23: Confirm Entity Delete Screen (1)
If the entity structure you have chosen to delete does contain a template which is indirectly referenced by another template, the Confirm Entity Delete screen (2), shown below, appears with a warning message indicating the existence of indirect referencing and the type of action that will be taken if the operation is completed.

If you complete the deletion, all indirect references are resolved to wildcards (*) and bracket mode templates containing the indirect reference will be converted to non-bracketed templates.

**Note:** Entity types and entity-name occurrences contained on dictionaries defined in your central version (CV) are in no way affected by CA IDMS Enforcer delete functions.

-- Exhibit 3.24: Confirm Entity Delete Screen (2) --

**Confirm Template Delete Screen**

The Confirm Template Delete screen appears to verify the deletion of a template structure. This deletion includes all field and value source structures associated with that template structure.

There are two options available at this screen:

- Press the Enter key to confirm the deletion.

- Type END in the COMMAND line and press the Enter key to cancel the deletion.

If the template structure you have chosen to delete is not indirectly referenced by another template structure, The Confirm Template/Indirect Delete screen (1), shown below, appears with a warning message indicating that the template structure will be erased.
Exhibit 3.25: Confirm Template Delete Screen (1)

If the template structure you have chosen to delete is indirectly referenced by another template structure, the Confirm Template Delete screen (2), shown below, appears with a warning message indicating the existence of indirect referencing and the type of action that will be taken if the operation is completed.

If you complete the deletion, any template that may have indirectly referenced the deleted template is changed to wildcards (*) with no value references and the template's bracket mode is set to non-bracketed mode.

Add/Copy Enforcement Structure Screen

The Add/Copy Enforcement Structure screen is used to add or copy a dictionary/node structure to the CA IDMS Enforcer database.
Adding a Dictionary/Node Structure

When a structure is added to CA IDMS Enforcer, all supported entity types for active and passive enforcement are automatically included in that structure. Templates must be defined separately.

To add a structure:

1. Type A in the OPTION field.

2. Specify information in the Dictionary and Node fields in the ADD/COPY TO portion of the Add/Copy Enforcement Structure screen to create a unique structure name.

3. Press the Enter key.

Note: Adding a dictionary/node structure to the CA IDMS Enforcer database in no way establishes a dictionary in the central version where CA IDMS Enforcer is installed.

Copying a Dictionary/Node Structure

The Add/Copy Enforcement screen is also used to copy an existing dictionary/node structure, including all entities and associated templates, to a new or existing dictionary/node structure. To copy a structure:

1. Type C in the OPTION field.

2. Specify required information in both the ADD/COPY TO and COPY FROM portions of the screen.

3. Press the Enter key.

When the Replace option has been specified with Y, the Confirm Structure Replace screen is displayed to verify this replacement.
Confirm Structure Replace Screen

The Confirm Structure Replace screen appears to verify the replacement of a dictionary/node structure. The replacement includes all entities and template definitions.

The Confirm Structure Replace screen offers two options:

- Press the Enter key to confirm the replacement (which has no effect on dictionaries defined in your central version)
- Type END in the Command line and press the Enter key to cancel the replacement.

Exhibit 3.28: Confirm Structure Replace Screen

Add/Copy Entity Type Screen

The Add function of the Add/Copy Entity Type screen is used to add a new entity-type name to an existing dictionary/node structure.

The Copy function is used to:

- Copy an existing entity to a new or existing entity type
- Copy multiple entities associated with a dictionary/node.

Note: Adding an entity type to the CA IDMS Enforcer database in no way establishes that entity type as a data resource component in a CA IDMS data dictionary. A "user-defined entity" must be established following Data Dictionary Definition Language (DDDL) conventions.
A - Add a new Entity-Type name
C - Copy an Entity-Type and templates to a new/existing Entity or copy MULTIPLE Entities

ADD/COPY TO:
  Dictionary ==> (Blank for Default Dict)
  Node ==> (Blank for Default Node)
  Entity ==> (Blank for MULTIPLE copies)
  Replace ==> N (Y-Yes, N-No)
  If option "A" has been selected, enter the following:
    Include/Exclude in Next Generation ==> I (I-Include, E-Exclude)

COPY FROM:
  Dictionary ==> ( * for List of all Dictionaries within Node, blank for default Dictionary)
  Node ==> ( * for List of all Nodes within Dictionary, blank for default Node)
  Entity ==> (Blank for Entity List)

Exhibit 3.29: Add/Copy Entity Type Screen

Adding an Entity Type

To add a new entity type name to a dictionary/node structure that exists in the CA IDMS Enforcer database:

1. Type A in the OPTION field.
2. Specify information in the fields detailed below.
3. Press the Enter key.

Note: User-defined entity types must also be established in your data dictionary by using the CLASS TYPE IS ENTITY CLAUSE of the CLASS statement before name occurrences can be enforced.

If you select the Add Option:

- No templates, value sets, value ranges, or indirect references are added
- The Replace field and the fields in the COPY FROM portion of the screen are disregarded
- The entity type is not added to a dictionary defined in your central version.

Copying Single or Multiple Entity Types

The Copy function of the Add/Copy Entity screen is used to copy one or more entity types associated with a specified dictionary and node in the CA IDMS Enforcer database.

To use the Copy function

1. Type C in the OPTION field.
2. Specify required information in both the ADD/COPY TO and COPY FROM portions of the screen.

3. Press the Enter key.

If the entity type you specify already exists, it will be overlaid with the entity specified or selected in the COPY FROM portion of the screen. The Replace field response must be Y to request the overlay. A confirmation screen is displayed before completing the replace function. This function has no effect on entity types contained in dictionaries defined in your central version.

All templates, and template field value sets and value ranges are copied; template indirect references are stored as wildcards (*).

Note: The maximum entity occurrence name length for user-defined entities is 40 characters. Therefore, COPY FROM entity types must have the same name occurrence length requirements as the COPY TO structure.

Confirm Entity Replace Screen

The Confirm Entity Replace screen appears to verify the replacement of an entity type. The replacement includes all templates, template fields and field values or value ranges associated with each template.

The Confirm Entity Replace screen offers two options:

- Press the Enter key to confirm the replacement.
- Type END in the Command line and press the Enter key to cancel the replacement.

If the entity structure you have chosen to replace does not contain a template which is indirectly referenced by another template structure the Confirm Entity Replace screen (1), shown below, appears with a warning message indicating that templates associated with the entity will be replaced.

Note: Entities contained in dictionaries defined in your central version are not affected by this operation.
Exhibit 3.30: Confirm Entity Replace Screen (1)

If the entity structure you have chosen to replace does contain a template which is indirectly referenced by another template, the Confirm Entity Replace screen (2), shown below, appears with a warning message indicating the existence of indirect referencing and the type of action that will be taken if the operation is completed.

If you complete the replacement, all indirect references are resolved to wildcards (*) and bracket mode templates converted to non-bracket mode.

** Note: Entity types contained in dictionaries defined in your central version are not affected by the confirmation of the function.**

Exhibit 3.31: Confirm Entity Replace Screen (2)

The Add function of the Add/Copy Template screen is used to add an initialized template to an existing dictionary/node structure.

The Copy function is used to:

- Copy an existing template to a new or existing template
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- Copy multiple templates associated with a dictionary/node and entity type.

CA IDMS Enforcer Rnn.n Add/Copy Template mm/dd/yy hh:mm
OPTION ===>

A - Add a new Template
C - Copy a Template to a new/existing Template or copy MULTIPLE Templates

ADD/COPY TO:
Dictionary ==> (Blank for Default Dict)
Node ==> (Blank for Default Node)
Entity ==> (Blank for MULTIPLE copies)
Template ==> (Blank for MULTIPLE copies)
Replace ==> N (Y-Yes, N-No)

If option "A" has been selected, enter the following:
  Runtime Enforcement Search Order ==> 01 (0-99)
  Include/Exclude in Next Generation ==> I (I-Include, E-Exclude)
  Enforcement Severity Class Code ==> 001 (0-999)

COPY FROM:
Dictionary ==> (* for List of all Dictionaries within
  Node, blank for default Dictionary)
Node ==> (* for List of all Nodes within
  Dictionary, blank for default Node)
Entity ==> (Blank for Entity List)
Template ==> (Blank for Template List)

Exhibit 3.32: Add/Copy Template Screen

Adding an Initialized Template

To add an initialized template to a dictionary/node structure that already exists in the CA IDMS
Enforcer database:

1. Type A in the OPTION field.
2. Specify information in the fields detailed below.
3. Press the Enter key.

If you specify the Add Option:

- No value sets, value ranges, or indirect references are added
- The Replace field and all fields in the COPY FROM portion of the screen are disregarded.

Copying Single or Multiple Templates

The Copy function of the Add/Copy Template screen is used to copy one or all of the templates
associated with a specified dictionary, node, and entity type.

To use the Copy function:

1. Type C in the OPTION field.
2. Specify information in the fields detailed below or use a series of selection list screens to
   select structure information.
3. Press the Enter key.
To replace an existing template, the Replace field response must be Y. A confirmation screen appears prior to completing the overlay.

**Confirm Template Replace Screen**

The Confirm Template Replace screen appears to verify the replacement of an entity type. The replacement includes the replacement of all templates, template fields and field values or value ranges associated with each template.

The Confirm Template Replace screen offers two options:

- Press the Enter key to confirm the replacement.
- Type **END** in the Command line and press the Enter key to cancel the replacement.

If the template structure you have chosen to replace is **not** indirectly referenced by another template structure the Confirm Template Replace screen (Exhibit 3.33) appears with a warning message indicating that the template structure will be erased.

If you complete the replacement, any template that may have indirectly referenced the replaced template is changed to wildcards (*), with no value references. In addition, if the template containing the indirect reference is a bracketed template, that template is changed to a non-bracketed template.

**Exhibit 3.33: Confirm Template Replace Screen (1)**

If the template structure you have chosen to replace is indirectly referenced by another template structure, the Confirm Template Replace screen (2), shown below, appears with a warning message indicating the existence of indirect referencing and the type of action that will be taken if the replacement is completed.

If you complete the replacement, any template that may have indirectly referenced the replaced template is changed to wildcards (*), with no value references. In addition, if the template containing the indirect reference is a bracketed template, that template is changed to a non-bracketed template.
System Table Maintenance Screen

Use the System Table Maintenance screen to:

- Add a system table to the CA IDMS Enforcer system
- Modify existing system tables
- Delete existing system tables.

You can specify the name of the system table you want to modify or delete or you can select the system table name from the System Table List screen (Exhibit 3.36).

To access the System Table List screen from the System Table Maintenance screen, either leave the OPTION field blank and press the Enter key or leave the Table Name field blank and press the Enter key.

Additional Information

For more information on using the System Table Maintenance screen, see the online documentation.
System Table List Screen

The System Table List screen lists the names of all existing system tables in alphabetically ascending order.

Use the selection field (to the left of the system table name) to indicate the action you want to take:

- **S** indicates that you want to select the System Table to change the content of the table’s value set or range values.
- **M** indicates that you want to modify the generation option (Include or Exclude for next generation) or the length of the value set or range associated with the system table.
- **D** indicates that you want to remove a system table and its value set or ranges from the CA IDMS Enforcer structure. If you indicate D, a confirmation screen appears.

Additional Information

See the online documentation for more information on the System Table List screen.

<table>
<thead>
<tr>
<th>TABLE NAME</th>
<th>INCL/EXCL</th>
<th>VAL/RNG</th>
<th>ENTRY LENGTH</th>
<th>Updated</th>
<th>User</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEMENT_DESIGNATORS</td>
<td>I</td>
<td>V</td>
<td>40</td>
<td>mm/dd/yy</td>
<td>UPLOAD</td>
</tr>
<tr>
<td>EMPLOYEE</td>
<td>E</td>
<td>R</td>
<td>05</td>
<td>mm/dd/yy</td>
<td>UPLOAD</td>
</tr>
<tr>
<td>EMPLOYEE NUMBER</td>
<td>E</td>
<td>R</td>
<td>05</td>
<td>mm/dd/yy</td>
<td>UPLOAD</td>
</tr>
<tr>
<td>STATE</td>
<td>E</td>
<td>V</td>
<td>02</td>
<td>mm/dd/yy</td>
<td>UPLOAD</td>
</tr>
<tr>
<td>ZIP</td>
<td>I</td>
<td>V</td>
<td>10</td>
<td>mm/dd/yy</td>
<td>UPLOAD</td>
</tr>
</tbody>
</table>

**END**

Exhibit 3.36: System Table List Screen

Confirm System Table Delete Screen

The Confirm System Table Delete screen is used to confirm the deletion of a system table including the adjustment of all associated templates and template fields. Template fields referencing the indicated system table will be converted to wildcards (*) with a field value type of “D” representing a data-only type field, and bracket mode templates will be reset to non-bracketed template status.

The Confirm System Table Delete screen offers two options:

- Press the Enter key to confirm the deletion.
- **Type END in the Command line and press the Enter key to cancel the deletion.**

END
** INSTRUCTIONS: Press "ENTER" key to confirm delete request. **
** Enter "END" command to cancel delete request. **

Exhibit 3.37: Confirm System Table Delete Screen

System Table Field Value(s) Screen

The System Table Field Value(s) screen is used to specify one or more values into a system table. Values and value descriptions can be added, modified, or deleted through line command specifications. The entire value set can be included or excluded from the enforcement structure generation.

Use the selection field (to the left of the field value) to indicate the action you want to take:

- A indicates a new value is being added to the system table
- M indicates that you want to modify the value description
- D indicates that you want to remove that value from the table.

For Adds, key over blank or existing entries and specify the REFRESH command to review the altered field value list.

The following fields echo, as protected literals, the name of the System Table, field length indicator, and the Data Type.

Additional Information

See the online documentation for more information on the System Table Field Value(s) screen.

CA IDMS Enforcer Rnn.n System Table Field Value(s) $&CONT. mm/dd/yy hh:mm

COMMAND ===> ESXAEFV

DICTIONARY: N/A NODE: N/A ENTITY: SYSTEM TABLE

TABLE: ZIP FIELD: +----1 DATA TYPE: ALPHANUMERIC

Include/Exclude Field Value(s) for next generation? ===> I (I-include/E-exclude)

FIELD VALUE VALUE DESCRIPTION
11530-4787 GARDEN CITY NY
23860-3860 HOPEWELL VA
29710-8763 LAKE WYLIE SC
33618-5510 TAMPA FL
52556-3757 FAIRFIELD IA
60532-8532 LISLE IL
60631-8631 CHICAGO IL
64081-4801 JOPLIN MO
76611-8601 ARLINGTON TX
76086-8086 WEATHERFORD TX
77705-7705 BEAUMONT TX
77845-2517 COLLEGE STATION TX
78217-8217 SAN ANTONIO TX
78570-8570 MERCEDES TX
79545-9545 ROSCOE TX
System Table Field Range Value(s) Screen

The System Table Field Range Value(s) screen is used to specify one or more range values into a system table. Range values and descriptions can be added, modified, or deleted through line command specifications. The entire value set can be included or excluded from the enforcement structure generation.

Use the selection field (to the left of the Include/Exclude field) to indicate the action you want to take:

- **A** indicates a new range value is being added to the system table
- **M** indicates that you want to modify the range value description
- **D** indicates that you want to remove that range value from the table.

The following fields echo, as protected literals, the name of the System Table, field length indicator, and the Data Type.

Additional Information

See the online documentation for more information on the System Table Field Range Value(s) screen.

Exhibit 3.39: System Table Field Range Value(s)

Exit Option

Select the Exit Option to sign off of CA IDMS Enforcer. When the Exit Option is selected, all of CA IDMS Enforcer operations are terminated and you are returned to the CA IDMS/DC Entry screen.
Signing Off of CA IDMS Enforcer

To exit CA IDMS Enforcer from the Primary Menu screen:

1. Type X (for exit) in the OPTION field.
2. Press the Enter key.

To exit CA IDMS Enforcer from any lower level screen:

1. Type =X in the COMMAND field.
2. Press the Enter key.

Edit Option

Contents

- Accessing an Enforcement Template (see page 43)
  - Direct Access (see page 44)
  - Indirect Access (see page 44)
- Edit Security (see page 44)
- Edit Option Screens (see page 44)
- Selection List Screens (see page 45)
  - CA IDMS Enforcer Dictionary/Node List Screen (see page 45)
  - CA IDMS Enforcer Entity List Screen (see page 45)
  - Template List Screen (see page 45)
  - Additional Information (see page 45)
- Standards Enforcement Access Screen (Edit) (see page 45)
- Edit Template Format and Fields Screen (see page 46)
- Confirm Field Modification Screen (see page 46)
- Confirm Field Deletion Screen (see page 47)
- Indirect Field Reference Screen (see page 48)
  - Rules for Indirect References (see page 48)
- Edit Template Field Range Value(s) Screen (see page 49)
- System Table Reference Screen (see page 49)
- Edit Template Field Value(s) Screen (see page 50)

The Edit Option allows authorized users to modify or delete template structures that exist in the CA IDMS Enforcer database.

Accessing an Enforcement Template

You can access an enforcement template directly or indirectly.
Direct Access

You can directly access an enforcement template from the Standards Enforcement Access screen by typing specific dictionary, node, entity type, and template names and pressing the Enter key. It is not necessary to type the dictionary and node names if you want to access the default dictionary and node. After you press the Enter key, the Edit Template Format/Fields screen is displayed.

Indirect Access

You can also access an enforcement template indirectly from the Standards Enforcement Access screen by using a series of selection list screens that enable you to choose dictionary, node, entity type, and template names.

Use CA IDMS Enforcer scroll commands to scroll forward and backward through selection lists of more than one page. For information on these commands, see the online documentation.

⚠️ Note: Following an Edit session, you must generate or regenerate the relocatable table used for runtime enforcement. See Utilities Option (see page 19).

Edit Security

If task or CA IDMS Enforcer structure security is defined in your centralized security system, your CA IDMS/DC user ID used to signon to CA IDMS/DC will require the following execution privileges for:

- The task category resource assigned for the CA IDMS Enforcer Edit option
- The Edit activity resource assigned to the dictionary/node structure defined in the CA IDMS Enforcer database.

Edit Option Screens

CA IDMS Enforcer provides a series of screens within each option. The Edit Option uses the following screens:

- Standards Enforcement Access (Edit)
- CA IDMS Enforcer Dictionary/Node List
- CA IDMS Enforcer Entity List
- Template List
- Edit Template Format/Fields
  - Confirm Field Modification
  - Confirm Field Deletion
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- Indirect Field Reference
- Edit Template Field Range Value(s)
- System Table Reference
- Edit Template Field Value(s).

Selection List Screens

The Selection List screens, detailed previously within the Browse Option, are also used to select dictionary/node, entity type, and template names for the Edit Option.

To select an item from any of these list screens:

1. Type S in the selection field (to the left of the item name).
2. Press the Enter key.

CA IDMS Enforcer Dictionary/Node List Screen

The Dictionary/Node List screen (Exhibit 3.3) presents a list of dictionary/node structures.

The Entity List screen is displayed after you make your selection.

CA IDMS Enforcer Entity List Screen

The Entity List screen (Exhibit 3.4) presents a list of all entity type names within the selected or specified dictionary/node structure established in the CA IDMS Enforcer database.

The Template List screen is displayed after you make your selection.

Template List Screen

The Template List screen (Exhibit 3.5) presents a list of templates within a specified or selected entity type.

The Edit Template screen is displayed after you make your selection.

Additional Information

See the online documentation for additional information on the Edit option, commands, and PF keys for scrolling and template editing.

Standards Enforcement Access Screen (Edit)

To display the Standards Enforcement Access screen (Edit) from the Primary Menu screen:

1. Type the character 2 (which represents the Edit Option) in the OPTION field.
2. Press the Enter key.

This screen provides direct and indirect access to CA IDMS Enforcer's Edit structure.
Edit Template Format and Fields Screen

The Edit Template Format/Fields screen is used to edit template field formats and enforcement value specifications.

For a description of each field presented on this screen and information on the commands available, see the online documentation. For details on template bracket mode, refer to Operations (https://docops.ca.com/display/IDMS19/CA+ADS+Alive+Operations).

Confirm Field Modification Screen

The Confirm Field Modification screen appears to verify the modification of a template field on the Edit Template Format/Fields screen.
To complete the modification:

- Press the Enter key.

To terminate the modification:

- Type **END** in the COMMAND field and press the Enter key.

After completing or terminating the modification, you return to the Edit Template Format/Fields screen.

---

**Exhibit 3.9: Confirm Field Modification Screen**

**Confirm Field Deletion Screen**

The Confirm Field Deletion screen appears to verify the deletion of a template field on the Edit Template Format/Fields screen.

To complete the deletion:

- Press the Enter key.

To terminate the deletion:

- Type **END** in the COMMAND field and press the Enter key.

After completing or terminating the deletion, you return to the Edit Template Format/Fields screen.
** ENTITY: AREA **
** TEMPLATE: AREA-NAME **
** V **
** FIELD: sssssssstAREA*** **
** +-----1-----+ **
** DESC: "s" = The 8 character descriptor of the database system the area name definition is for. Example: CUSTOMER-FIL1-AREA CUSTOMER-FIL2-AREA CUSTOMER-FIL3-AREA Where CUSTOMER represents the "s" field designator portion of the template format. **
** INSTRUCTIONS: Press "ENTER" key to confirm delete request. Enter "END" command to cancel delete request. **

*Exhibit 3.10: Confirm Field Deletion Screen*

** Indirect Field Reference Screen **

The Indirect Field Reference screen is used to indirectly reference a pre-defined template structure for entity occurrence naming standards.

** Rules for Indirect References **

Indirect references have some restrictions:

- Indirect references may only be made to structures within the same dictionary and node as the structure being accessed or edited.

- The template being referenced cannot itself contain an indirect reference.

- Indirect references must be made with respect to the rules governing the template being referenced.

- The length of the indirect field must be exactly equal to the maximum length of the specified entity.

Information about the template/field from the Edit Template Format/Fields screen appear as protected literals: Dictionary, Node, Entity, Template, Field Identifier, Data Type, Field Number, and Template Bracket Mode status.

*Exhibit 3.11: Indirect Field Reference Screen*
Edit Template Field Range Value(s) Screen

The Edit Template Field Range Values screen is used to specify a FROM and TO set of values into which the characters in a particular field must fit.

A field may have both included and excluded value ranges. For example, a 5-byte field in a template may represent an accounting code. The code may be defined to fit into the following two value ranges:

- **INCLUSIONARY RANGE:** 00001-66666
- **EXCLUSIONARY RANGE:** 55555-55557
- **INCLUSIONARY RANGE:** 88888-99999
- **EXCLUSIONARY RANGE:** 90137-90935

The following fields echo, as protected literals, the name of the template structure displayed on the Edit Template Format/Fields screen: Dictionary, Node, Entity, Template, Field Identifier, and Data Type, Field Number, and Template Bracket Mode status.

CA IDMS Enforcer Rnn.n Edit Template Field Range Value(s) mm/dd/yy hh:mm
COMMAND ===> ESXAEFR

- **DICTIONARY:** PROD
- **NODE:** NODELD09
- **ENTITY:** AREA
- **TEMPLATE:** AREA-NAME
- **FIELD:** ssssssss
- **DATA TYPE:** ALPHANUMERIC
- **FIELD NUMBER:** 01
- **TEMPLATE BRACKET MODE:** Y

---

INCLUDE/EXCLUDE? ===> (I/E) DESC ==>
FROM RANGE ==> 
TO RANGE ==>
---

INCLUDE/EXCLUDE? ===> (I/E) DESC ==>
FROM RANGE ==> 
TO RANGE ==>
---

INCLUDE/EXCLUDE? ===> (I/E) DESC ==>
FROM RANGE ==> 
TO RANGE ==>
---

INCLUDE/EXCLUDE? ==>
FROM RANGE ==> 
*** END *** 
TO RANGE ==>
---

Exhibit 3.12: Edit Template Field Range Value(s) Screen

System Table Reference Screen

Use the System Table Reference screen to associate a field with a system-owned value set or value range.

To make this association:

- The system table must be defined to the CA IDMS Enforcer system
- If the system table represents a value range, the associated field cannot be compressible
- The length of the system table entry must be greater than or equal to the field’s length.

Information about the template/field from the Edit Template Format/Fields screen appear as protected literals: Dictionary, Node, Entity, Template, Field Identifier, Data Type, Field Number, Template Bracket Mode, and the Table Type.
CA IDMS Enforcer  Rnn.n  System Table Reference  mm/dd/yy  hh:mm
COMMAND ===> ESXASTE

DICTIONARY: PROD NODE: NODELD09 ENTITY: AREA
TEMPLATE: AREA-NAME
FIELD: sssssssss
FIELD NUMBER: 01 TEMPLATE BRACKET MODE: Y
TABLE TYPE: (V-VALUE SET, R-RANGE SET)

FIELD SYSTEM TABLE REFERENCE:
System Table Name ==> Table Description ==>

Exhibit 3.13: System Table Reference Screen

Edit Template Field Value(s) Screen

The Edit Template Field Values screen is used to specify those values that must be included or excluded for the field position and length in a template for the entity occurrence. A field value may not exceed the maximum length of the field.

The following fields echo, as protected literals, the name of the template structure displayed on the Edit Template Format/Fields screen: Dictionary, Node, Entity, Template, Field Identifier, Data Type, Field Number, and Template Bracket Mode status.

Exhibit 3.14: Edit Template Field Value(s) Screen

Tutorial Option

The Tutorial Option provides you with information on CA IDMS Enforcer. You can view the online documentation sequentially or, by making selections from the menus offered within this documentation, you can view information on specific topics.

Accessing the Online Documentation

To access the online documentation:

1. Type T (for Tutorial) in the OPTION field of the Primary Menu screen.
2. Press the Enter key.
You can exit the tutorial at any time by pressing PF3.

You can also access the online documentation from any screen within CA IDMS Enforcer by using the HELP command. To do this:

1. Type HELP in the COMMAND field.
2. Press the Enter key.

Information about the current screen is displayed.

Signing Off CA IDMS Enforcer

You can exit CA IDMS Enforcer from the Primary Menu screen or from any of the lower level screens.

To exit CA IDMS Enforcer from the Primary Menu screen:

- Type an X (indicating the Exit Option) in the OPTION field and press the Enter key.

To exit CA IDMS Enforcer from any lower level screen:

- Type =X in the COMMAND field and press the Enter key.

Online Definition and Maintenance

This portion of the section details CA IDMS Enforcer's online definition and maintenance system. It includes information to help you display, add, modify, or delete the enforcement values found in the CA IDMS Enforcer database.

Note: CA IDMS Enforcer is not a front-end processor to CA IDMS security features and in no way establishes CA IDMS or CA IDMS/DC data resource structures or components.

Specifically:

- Adding a dictionary and node structure to the CA IDMS Enforcer database does not establish a dictionary in the central version where CA IDMS Enforcer is installed.

- Assigning security to a CA IDMS Enforcer internal dictionary and node structure does not define security counterparts required for CA IDMS centralized security feature implementation.

- Adding an entity type to the CA IDMS Enforcer database in no way establishes that entity type as a data resource component in a CA IDMS dictionary. (A "user-defined entity" must be established following Data Dictionary Definition Language (DDDL) conventions.)
Using the CA IDMS Enforcer Online System

CA IDMS Enforcer online system is used to define and maintain enforcement values. By using the menu-driven screens that make up the online system, you can add, modify, delete, or display these enforcement values.

Establishing Enforcement Values

Enforcement values can be established at your site by adding, modifying, or deleting enforcement structures, entity types, and template definitions using the Utilities and Edit options.

Active Enforcement

This portion of the section details active enforcement available both online and batch. Best-fit templates are described and examples of diagnostic documentation are given.

What is Active Enforcement?

Active enforcement prevents the update of the data dictionary with entity names that do not comply with the standards established at your site. The level of enforcement is user-specified and may vary for each dictionary/node structure.

Active Enforcement can be established for the:

- System Generation compiler
- Schema compiler
- Subschema compiler
- Data Dictionary Definition Language compiler
- Data Dictionary Menu Facility.

For details on entity types actively enforced, see Operations (https://docops.ca.com/display/IDMS19/CA+ADS+Alive+Operations).
In addition, CA IDMS Enforcer delivers diagnostics, both online and in batch, so that you can more easily comply with the established standards.

Authorized users can override active enforcement online by using the OVERRIDE command. See the online documentation for information on CA IDMS Enforcer commands. Different types of override capabilities are described in Operations (https://docops.ca.com/display/IDMS19/CA+ADS+Alive+Operations).

Levels of Enforcement

Levels of enforcement are user-specified. Through the online definition and maintenance system’s environment utilities, you can:

- Assign runtime severity levels
- Specify runtime enforcement directives
- Generate the runtime enforcement table

For more information on the levels of enforcement, see Environment Utilities Screen (see page 24).

Activating Enforcement Online

Activating enforcement for one or all of the online CA IDMS compilers is described in Active Enforcement (see page 52). This section also provides instructions for installing your CA IDMS compiler user exit. Security Options (see page 99) describes how to install CA IDMS Enforcer enforcement exits as subordinate exits to CA-ACF2 security exits.

Active Enforcement--Online

Based upon the runtime specifications made during online definition and maintenance, update of the data dictionary may or may not be allowed.

- If an attempted entity name occurrence matches the naming standard template that is first in the search order for that entity, no errors result and the name is allowed.
• If the attempted entity name occurrence does not match the first naming standard template, CA
IDMS Enforcer searches through all remaining templates. If the attempted name complies with a
template that is not first in the search order, the name is allowed and an informational message is
registered.

• If no templates match, CA IDMS Enforcer determines the best-fit template.

Best-fit Template

The best-fit template is the template that most closely matches the attempted entity name. CA IDMS
Enforcer selects the template that:

• Registers the least severe error level (I--Informational, W--Warning, or E--Error)

• Has the least number of fields in error.

If the DISPLAY ERRORS feature has been enabled, the Active Enforcement screen, (Exhibit 3.40) is
displayed.

Active Enforcement Screen

The Active Enforcement screen, displayed when naming compliance fails, offers information on the
best-fit template. Each of the fields presented on this screen are detailed below. Refer to the Active
Enforcement screen shown below and the online documentation for more information.

The names of the dictionary/node structure and the entity type against which update was attempted
are displayed as protected literals in the DICTIONARY, NODE, and ENTITY fields. These literals
represent the data dictionary and entity type in the central version for current activity and the
dictionary/node structure and entity type of the CA IDMS Enforcer database structure against which
naming compliance is being determined.

CA IDMS Enforcer Rnn.n Active Enforcement mm/dd/yy hh:mm
COMMAND ==> IDDUXIT
DICTIONARY: PROD
NODE: NODELD09
ENTITY: ELEMENT
TEMPLATE: ELEMENT-NAME
SEVERITY: E - ERROR
TOTAL # ERRORS: 05

The following NAME OCCURRENCE is invalid.
The NAME failed all templates for the indicated ENTITY above.
The following represents the "best-fit" FORMAT which failed update criteria.

TEMPLATE FORMAT: COST-ssssss+++qqq+++++++x
NAME OCCURRENCE: NICK
++++1--------2---------3--

Specify the "DISPLAY" command to expand the requirements of this TEMPLATE.
Specify the "HELP" command for more information on your options.
Specify the "END" command to continue the Dictionary session.
Specify the "OVERRIDE" command to bypass naming compliance.

Exhibit 3.40: Active Enforcement Screen

The TEMPLATE field contains the name of the best-fit template—the template that most closely
matches the attempted entity name.
The SEVERITY field displays the severity level (I--Informational, W--Warning, or E--Error) of the best-fit template.

The number of errors found in the best-fit template is displayed in the TOTAL # ERRORS field.

The TEMPLATE FORMAT field provides a symbolic representation of the best-fit template.

The actual entity-name occurrence that failed compliance appears in the NAME OCCURRENCE field.

For additional information to enable or disable presentation of the Active Enforcement screen and alternative processing, see Modify CA IDMS Enforcer Tuning Parameters (see page 98).

Active Enforcement Screen Commands

After you review the information presented on the Active Enforcement screen, you must enter one of these commands: DISPLAY, HELP, END, or OVERRIDE. To do so:

1. Type the command in the COMMAND field.
2. Press the Enter key.

If you specify the DISPLAY command, the Browse Template screen is displayed. This screen offers more detailed information on the best-fit template. For more information on the Browse Template screen, see Browse Option (see page 15) and the online documentation.

If you enter the HELP command, online documentation about the current screen is displayed.

With the END command, you acknowledge the error information presented and return to the active compiler for utility exit processing.

Authorized users can bypass naming compliance with the OVERRIDE command. The entity-name occurrence displayed on the Active Enforcement screen is accepted. For additional information on overriding active enforcement and the different types of override processing, see Operations (https://docops.ca.com/display/IDMS19/CA+ADS+Alive+Operations).

For more information on these commands, see the online documentation.

Active Enforcement Exit Processing--Online

If you enter the END command at the Active Enforcement screen, you are returned to the active compiler for further utility processing.

Data dictionary updates are allowed or not allowed based on the template’s severity level and the PREVENT DICTIONARY UPDATE error level specifications (I--Informational, W--Warning, or E--Error). For more information on these specifications, see Environment Utilities Screen (see page 24).

If the best-fit template’s severity level has PREVENT DICTIONARY UPDATE enabled, dictionary update is aborted. If PREVENT DICTIONARY UPDATE is not enabled, dictionary update is allowed.

CA IDMS Enforcer directs further CA IDMS utility processing by returning one of these codes:
Active Enforcement Messages

Regardless of error display levels specified, active enforcement for a data dictionary results in naming compliance messages presented in CA IDMS utility message format. These messages, which are displayed in the CA IDMS Utility Scratch Pad, offer information on compliance or non-compliance.

An example of CA IDMS Enforcer messages presented during attempted dictionary update is shown below. These messages are distinguished by the utility identifier Extractor, and preceded by *+ I, *+ W, or *+ E. See the Online Message Facility for an explanation of each message.

```
IDD 15.0 ONLINE 3 ERRORS 1/17
ADD PROGRAM NAME IS ARBUDT02.
*+ I Extractor ENF0067I ENFORCEMENT PASSED DUE TO SUBORDINATE
*+ - Extractor TEMPLATE (OTHER THAN FIRST)
ADD PROGRAM NAME IS ESAUPD99
*+ E Extractor ENF0076W UPDATE ABORTED- ENFORCEMENT FAILED FOR
*+ - Extractor PROGRAM
*+ W DC60107 FORWARD SPACING TO NEXT PERIOD
ADD ELEMENT NAME IS ADDR-EMPLOYEE-CLAIM-PROCESSED.
*+ E Extractor ENF0076E UPDATE ABORTED- ENFORCEMENT FAILED FOR
*+ - Extractor ELEMENT
*+ W DC601017 FORWARD SPACING TO NEXT PERIOD
ADD CLASS NAME IS CA-UDNS CLASS TYPE IS ENTITY.
ADD CA-UDNS NAME IS CA-UDNS-NAME.
*+ E Extractor ENF0076E UPDATE ABORTED- ENFORCEMENT FAILED FOR
*+ - Extractor CA-UDNS
*+ W DC601017 FORWARD SPACING TO NEXT PERIOD
```

Exhibit 3.41: Enforcement Message Format for Active Enforcement--Online

Activating Enforcement--Batch

Contents

- **Active Enforcement--Batch (see page 57)**
  - Best-fit Template (see page 57)
  - Diagnostic Documentation (see page 57)
- **Active Enforcement Exit Processing--Batch (see page 58)**
  - Message Displays--Batch (see page 58)
Activating enforcement for one or all of the batch counterparts to online CA IDMS compilers is
described in Active Enforcement (see page 52). That section also provides instructions for installing
your CA IDMS compiler user exit. Security Options (see page 99) describes how to install CA IDMS
Enforcer enforcement exits as subordinate exits to CA-ACF2 security exits.

Active Enforcement--Batch

Active Enforcement for batch jobs is also based upon the runtime specifications made through the
online definition and maintenance system. You can specify the level of enforcement and also tailor
the display of diagnostic information. For more information, see Online Definition and Maintenance
(see page 51).

- If an attempted entity name occurrence matches the naming standard template that is first in the
  search order for that entity, no errors result and the name is allowed.

- If an attempted entity name occurrence does not match the naming standard template that is
  first in the search order, CA IDMS Enforcer searches through all naming standard templates for
  that entity. An informational message is registered and the name is allowed if the attempted
  name complies with a template that is not first in the search order.

- If no templates match, CA IDMS Enforcer determines the best-fit template.

Best-fit Template

The best-fit template is the template that most closely matches the attempted entity name. CA IDMS
Enforcer selects the template that:

- Registers the least severe error level

- Has the least number of fields in error.

If the DISPLAY ERRORS feature is enabled, diagnostic documentation is generated.

Diagnostic Documentation

If the DISPLAY ERRORS feature is enabled by the enforcement administrator, the best-fit template
compliance information is written to the SYSLST output of the CA IDMS Batch Utility. Requirements
for executing this utility, including input parameters, is detailed in Batch Utilities (see page 66). An
example of the diagnostic documentation generated is shown in Exhibit 3.42.

IDMSDDDL rr.r INTEGRATED DATA DICTIONARY ACTIVITY LIST
yy hhmmss nnnn mm/dd

0001 SIG DIC ' ' USE 'CULL DBA' PAS .
0002 SET OPT SESS INP 1 THRU 72.
0003 ADD EL AMT-PAYROLL-PROCESSED VERSION IS 1
0004 ELEMENT DESCRIPTION IS
0005 'TEST ELEMENT DESCRIPTION ADD'
0006 PICTURE IS X(2) USAGE IS DISPLAY.
0007 ADD EL AMT-RECEIVABLE-PROCESSED.
0008 ADD EL AMT-RECEIVABLE-CREDIT.
0009 ADD RECORD NAME IS CUSTOMER-MAST VERSION IS 1
0010 RECORD DESCRIPTION IS 'TEST RECORD DESCRIPTION ADD'
*+ENF0083I NAMING ENFORCEMENT FAILURE ANALYSIS Follows:
Active Enforcement Exit Processing--Batch

Dictionary updates for batch jobs (central version or local mode runs) is based on PREVENT DICTIONARY UPDATE specifications made through the online definition and maintenance system.

Dictionary updates are allowed or not allowed based on the template's severity level and the PREVENT DICTIONARY UPDATE error level specifications (I--Informational, W--Warning, or E--Error). For more information on these specifications, Environment Utilities Screen (see page 24).

If the best-fit template's severity level has PREVENT DICTIONARY UPDATE enabled, dictionary update is not allowed. If PREVENT DICTIONARY UPDATE is not enabled, dictionary update is allowed.

CA IDMS Enforcer directs further CA IDMS Batch Utility processing by returning one of these codes:

- **8** -- PREVENT DICTIONARY UPDATE enabled and the attempted entity name occurrence does not match templates for that entity. *+ E CA IDMS Batch Utility message-type is generated for this error level.

- **4** -- PREVENT DICTIONARY UPDATE disabled and the attempted entity name occurrence does not match templates for that entity. *+ W CA IDMS Batch Utility message-type is generated for this error level.

- **1** -- PREVENT DICTIONARY UPDATE enabled or disabled and enforcement passed due to a subordinate template (other than first). *+ I CA IDMS Batch Utility message-type is generated for this error level.

- **0** -- PREVENT DICTIONARY UPDATE enabled or disabled and the attempted entity name occurrence matched the first template encountered. No messages are generated and CA IDMS Batch Utility processing continues for this error level.

Message Displays--Batch

Regardless of DISPLAY ERROR specification, active enforcement for a data dictionary results in naming compliance messages presented in CA IDMS Batch Utility message format. These messages offer information on entity compliance or non-compliance.

An example of CA IDMS Enforcer messages written to the utility SYSLST is shown below. These messages are distinguished by the utility identifier Extractor, and preceded by *+ I, *+ W, or *+ E. See the Online Message Facility for an explanation of each message.

```
0003           ADD PROGRAM NAME IS ARBUDT02.
0003*+ I Extractor ENF0067I ENFORCEMENT PASSED DUE TO SUBORDINATE TEMPLATE (OTHER THAN FIRST)
```
Passive Enforcement

This portion of the section describes the passive enforcement component of CA IDMS Enforcer. The Dictionary Audit Utility used for this purpose is explained and examples of the two report modes are given.

What is Passive Enforcement?

Passive enforcement audits established naming standards against simulated data dictionary updates using CA IDMS Enforcer enforcement values as the basis for naming compliance determinations. This is accomplished through the Dictionary Audit Utility (ESXAUDIT). Entity name occurrences already contained in the dictionary are audited against the naming standards established at your site through CA IDMS Enforcer’s online definition and maintenance system.

Batch reports in both Terse and Expanded modes are available to help you determine the level of naming compliance at your site. You can tailor output for a dictionary/node structure by:

- Selecting or excluding specific entity types.
- Limiting selection to entities added within a start and/or end date.

In addition, CA IDMS Enforcer delivers summary information with both modes of reporting.

Activating Passive Enforcement--Batch

Contents

- Dictionary Audit Utility (ESXAUDIT) (see page 60)
  - Parameter Keyword Example (see page 60)
  - Structure Specification Parameters (see page 60)
  - Report Specification Parameters (see page 60)
- Report Output--Expanded Mode (see page 61)
- Report Output--Terse Mode (see page 63)
- Naming Compliance Audit Summary (see page 65)
The CA IDMS Enforcer enforcement table generated in the Environment Utilities of the online definition and maintenance system is the only requirement for activating enforcement for the Dictionary Audit Utility. CA IDMS compilers do not apply to this procedure. For more details on activating enforcement, see Operations.

Dictionary Audit Utility (ESXAUDIT)

This utility audits the specified data dictionary for naming compliance by simulating Active Enforcement. Each entity name occurrence for a specified entity type is logically re-applied against the dictionary as an ADD function which passes through Active Enforcement. Theoretical update of the dictionary may or may not be allowed, resulting in diagnostic information on the level of compliance.

You can limit the number of entities audited and also limit the amount of information yielded for each entity. Details on the parameters used to make these specifications are given on the following pages.

Parameter Keyword Example

A parameter keyword example is shown below:

```
PROCESS, DICTIONARY=dictionary-name,
NODE=node-name,
TERSE
SELECT=select-value(s)
EXCLUDE=exclude-value(s)
STARTDATE=mmddyy
ENDDATE=mmddyy
```

Structure Specification Parameters

**PROCESS** is the required keyword which signals the beginning of the parameter set.

Use the keywords **DICTIONARY** and **NODE** to specify the name of the data dictionary in the central version to be audited.

Report Specification Parameters

The expanded version of the Dictionary Audit Report offers diagnostic information on the naming compliance for a specified data dictionary. Details about this report are given on the following pages.

**TERSE** is an optional keyword used to request a limited version of the Dictionary Audit Report. If you do not use this keyword, the expanded version of the Dictionary Audit Report is given. Details about this report, shown in Exhibit 3.46, are given on the following pages.

The required keyword **SELECT** allows you to specify which entities are included in the dictionary audit. The table of values for this keyword is shown in Exhibit 3.44.

The optional keyword **EXCLUDE** allows you to specify which entities are excluded from the dictionary audit. The table of values for this keyword is shown in Exhibit 3.44.

You can further qualify the output generated by specifying the **STARTDATE** and **ENDDATE** keyword parameters.
If STARTDATE is specified, it is compared against the date that each entity name occurrence was added to the dictionary. If the name occurrence was added prior to the STARTDATE, it is not included in the audit.

If ENDDATE is specified, it is compared against the date that each entity name was added to the dictionary. If the name occurrence was added after the ENDDATE, it is not included in the audit.

Refer to Batch Utilities (see page 66) for additional information on the Dictionary Audit Utility and keyword parameter specifications.

<table>
<thead>
<tr>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA</td>
<td>LOGICAL-TERMINAL</td>
<td>REPORT-SYNONYM</td>
</tr>
<tr>
<td>ATTRIBUTE</td>
<td>MAP</td>
<td>SCHEMA</td>
</tr>
<tr>
<td>CLASS</td>
<td>MESSAGE</td>
<td>SCHEMA-RECORD</td>
</tr>
<tr>
<td>COBOL-ELEMENT</td>
<td>MODULE</td>
<td>SET</td>
</tr>
<tr>
<td>DESTINATION</td>
<td>PANEL</td>
<td>SUBSYSTEM</td>
</tr>
<tr>
<td>ELEMENT</td>
<td>PHYSICAL-TERMINAL</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>ELEMENT-SYNONYM</td>
<td>PROCESS</td>
<td>TABLE</td>
</tr>
<tr>
<td>ENTRY-POINT</td>
<td>PROGRAM</td>
<td>TASK</td>
</tr>
<tr>
<td>FILE</td>
<td>QFILE</td>
<td>TRANSACTION</td>
</tr>
<tr>
<td>FILE-SYNONYM</td>
<td>QUEUE</td>
<td>TRANSACTION-SYNONYM</td>
</tr>
<tr>
<td>LINE</td>
<td>RECORD</td>
<td>USER</td>
</tr>
<tr>
<td>LOAD-MODULE</td>
<td>RECORD-SYNONYM</td>
<td>user-defined-entity-type</td>
</tr>
<tr>
<td>LOGICAL-RECORD</td>
<td>REPORT</td>
<td>VIEW-ID</td>
</tr>
</tbody>
</table>

Exhibit 3.44: SELECT/EXCLUDE Table Values

Report Output--Expanded Mode

The Naming Compliance Audit Detail Report, shown in Exhibit 3.45, provides a single line entry for each selected occurrence name which passed enforcement or failed with a severity level of I--Informational, W--Warning, or E--Error. These are presented in TERSE report format.

For compliance status other than passed, detailed diagnostic information shows the selected occurrence name in comparison to the naming standard template. The total number of compliance failures is indicated by one or more pointers directly above the error.

All versions of an entity name occurrence for a specified entity are validated. Each name occurrence is compared against every template defined for an entity type. Once all names have been processed against a template, the entire procedure is restarted for the next template.

Literal information describing the report appears at the top of each page. The name of the entity-type against which the audit was run is displayed above the column headings. Each entity-type is treated as a single report with unique sets of page numbers.
The following fields are found on the report:

**ENTITY NAME**—all entity name occurrences audited for the specified entity type appear in this column.

**VERSION**—the entity name occurrence version number appears adjacent to the name in this column.

**TEMPLATE ERROR ANALYSIS**—CA IDMS Enforcer entity type's template name used to compare against the occurrence name appears after the literal

**TEMPLATE**: Detailed diagnostic information is also presented under this column heading.

**USER**—identifying name of the user that last prepared or revised the entity name occurrence.

**LEVEL**—the severity level of the template (I--Informational, W--Warning, E--Error).

**Diagnostic Detail**—the template used for a name occurrence comparison is shown above the attempted dictionary update name. One or more pointers positioned directly above an entity name display the location of the error as well as the total number of errors.

**KEY**—the template format key which is used to validate an entity name occurrence is shown after this literal.

**Pointer**—the pointer to error locations in the name occurrence is depicted by the literal V placed directly above the entity name occurrence. One or more of these pointers indicate the location and total number of errors.

**Column-indicator**—a column indicator is provided below the entity name occurrence. This is used as a section for additional information on the field position and length of the template format key.

**Position nn**—the integer position of the first and subsequent fields contained in a template KEY is shown for each field.

**Length nn**—the length of a field is shown for each field contained in the template KEY.

**Values**—field value sets, value ranges, or indirect references to another template's field values or ranges appears following the position and length requirements. Whether the value or range is a valid or invalid entry is also indicated.

(s) may be used:

ATA
ESS
### Exhibit 3.45: Naming Compliance Audit Detail Report--Expanded

<table>
<thead>
<tr>
<th>Name</th>
<th>Template:</th>
<th>Passed</th>
<th>Template:</th>
<th>Passed</th>
<th>User:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSK-DATA-AREA</td>
<td>AREA-</td>
<td></td>
<td>AREA-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>ESS-TXT-AREA</td>
<td>AREA-</td>
<td></td>
<td>AREA-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>ACCT-RECV-1-AREA</td>
<td>AREA-</td>
<td>E-ERROR</td>
<td>AREA-</td>
<td></td>
<td>DBA</td>
</tr>
</tbody>
</table>

Position 01. Length 03. Literal. The following value(s) may be used:

- ATA
- ESS
- GSD
- GSI
- GSM
- GSS
- SSK
- TPS
- USA
- USD
- USE
- USF
- USG
- USL
- USM
- USN
- USR
- USX
- XDM

### Report Output--Terse Mode

The Naming Compliance Audit Detail Report--Terse, shown in Exhibit 3.46, provides only the template name and compliance status for each selected occurrence name for every template of its entity type.

The compliance status is either the severity level of the template (I--Informational, W--Warning, or E--Error) or PASSED.

All versions of an entity name occurrence for a specified entity are validated. Each name occurrence is compared against every template defined for an entity type. Once all names are processed against a template, the entire procedure is restarted for the next template.
Literal information describing the report appears at the top of each page. The name of the entity-type against which the audit was run is displayed above the column headings. Each entity-type is treated as a single report with a unique set of page numbers.

**ENTITY NAME**--all entity name occurrences audited for the specified entity type appear in this column.

**VERSION**--the entity name occurrence version number appears adjacent to the name in this column.

**TEMPLATE NAME**--CA IDMS Enforcer entity type's template name used to compare against the occurrence name appears under this heading.

**LEVEL**--the severity level of the template (I--Informational, W--Warning, E--Error).

**USER RESPONSIBILITY**--the identifying name of the user that last prepared or revised the entity name occurrence.

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>VERSION</th>
<th>TEMPLATE NAME</th>
<th>LEVEL</th>
<th>USER RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDIRECT-TEMPLATE</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>VALUE-RANGE</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>VALUE-SET</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>DATA-ONLY</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>FLD-VALUE-TYPE</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>TMP-USER-LAST-UPDATED</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>TMP-DATE-LAST-UPDATED</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>TMP-TEMPLATE-NAME</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>TMP-SEARCH-ORDER</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>FLD-DESCRIPTION</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>FLD-DESCRIPTION-LENGTH</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>FLD-FILLER-20</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>FLD-LITERAL</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>FLD-FILLER</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>ENT-USER-LAST-UPDATED</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>ENT-DATE-LAST-UPDATED</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>ENT-MAX-TEMPLATE-LENGTH</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>ENT-ENTITY-NAME</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>WARNING</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
<tr>
<td>SEV-CLASS</td>
<td>0001</td>
<td>ELEMENT-</td>
<td></td>
<td>DBA</td>
</tr>
</tbody>
</table>
Naming Compliance Audit Summary

The Naming Compliance Audit Summary Report provides the total number of successful logical dictionary update attempts. Error, warning, and informational messages generated by the dictionary are also included in the totals. The CA IDMS Enforcer audit utility totals the error level response for each ADD entity name performed during the dictionary update simulation.

Each entity name occurrence is counted once based upon the lowest CA IDMS Enforcer return code, from comparison against all templates for that entity type, as if the name occurrence had been added through Active Enforcement.

Literal information describing the report appears at the top of each page. Entity types are listed to the left of the totals column.

Following is a description of the columns containing totals. Totals are shown for the entity types selected for utility function.

⚠️ Note: User-defined entity types are not included in the summary. However, the expanded and terse report detail shows diagnostic information for these entities.

SUCCESES--this column contains the totals for the entity name occurrences which passed the first template in the search order.

ERRORS--the totals in this column indicate the total number of entity name occurrences that failed all templates, where none of the templates allowed dictionary update (that is, prevent dictionary update for all template severity levels was enabled).

WARNINGS--the totals in this column indicate name occurrences which failed all templates, where one or more of the templates would have allowed dictionary update (that is, prevent dictionary update for one or more template severity levels was disabled).
INFORMATIONALS--the totals in this column indicate name occurrences which passed at least one template other than the first in search order.

(%)--the percentage in these columns indicate the equivalent percentile of successes, errors, warnings, and informationals totals.

TOTAL FOR ENTITY--the sum total of successes, errors, warnings, and informationals.

ENTITIES SUMMARIZED BY SEVERITY LEVEL:

<table>
<thead>
<tr>
<th>ENTITY TYPE</th>
<th>TOTAL FOR ENTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA</td>
<td>0000000008-(014%)</td>
</tr>
<tr>
<td>ATTRIBUTE</td>
<td>0000000000-(000%)</td>
</tr>
<tr>
<td>CLASS</td>
<td>0000000000-(000%)</td>
</tr>
<tr>
<td>COBOL ELEMENT</td>
<td>0000000048-(085%)</td>
</tr>
<tr>
<td>DESTINATION</td>
<td>0000000000-(000%)</td>
</tr>
<tr>
<td>ELEMENT</td>
<td>0000000000-(000%)</td>
</tr>
<tr>
<td>ELEMENT SYNONYM</td>
<td>0000000000-(000%)</td>
</tr>
<tr>
<td>ENTRY POINT</td>
<td></td>
</tr>
<tr>
<td>FILE</td>
<td></td>
</tr>
<tr>
<td>FILE SYNONYM</td>
<td></td>
</tr>
<tr>
<td>LINE</td>
<td></td>
</tr>
<tr>
<td>LOAD MODULE</td>
<td></td>
</tr>
<tr>
<td>LOGICAL RECORD</td>
<td></td>
</tr>
<tr>
<td>LOGICAL-TERMINAL</td>
<td></td>
</tr>
<tr>
<td>MAP</td>
<td></td>
</tr>
<tr>
<td>MESSAGE</td>
<td></td>
</tr>
<tr>
<td>MODULE</td>
<td></td>
</tr>
</tbody>
</table>

Exhibit 3.47: Naming Compliance Audit Summary Report

Batch Utilities

This section contains explanations of each batch utility for CA IDMS Enforcer and descriptions of input parameters for job execution and sample z/OS and Z/VSE JCL are also provided for each batch utility.

Note: This release of CA IDMS supports Z/OS V2R10 as well as z/OS 1.1 and above. However, we will always refer to z/OS and Z/OS in this document.

For more information, see the following Batch Utilities topics:
- CA IDMS Enforcer Batch Utilities (see page 66)
There are five batch utilities that you can run in CA IDMS Enforcer. These utilities may generate messages when they are run. Refer to the Online Message Facility for an explanation of each message.

- Download Enforcement Structure (ESXDLOD)
- Upload Enforcement Structure (ESXULOD)
- Enforcement Structure Print (ESXPRINT)
- Dictionary Audit (ESXAUDIT)
- Batch Compiler Utilities--Enforcer Example (ESXSAMPL)

For more information on the Enforcer Batch Utilities, see the following topics.

- CA IDMS Enforcer Parameter Statement (see page 67)
- Audit Reporting (see page 68)
- Download Enforcement Structure (ESXDLOD) (see page 68)
  - Download Enforcement Report Output (see page 68)
- Upload Enforcement Structure (ESXULOD) (see page 72)
  - Upload Enforcement Report Output (see page 73)
- Enforcement Structure Print (ESXPRINT) (see page 77)
  - Enforcement Structure Print Report Output (see page 77)
  - Print SELECT Values (see page 77)
- Dictionary Audit (ESXAUDIT) (see page 82)
  - Dictionary Audit Report Descriptions (see page 83)
  - SELECT EXCLUDE Table (see page 84)
- Batch Compiler Utilities--Enforcer Example (ESXSAMPL) (see page 88)
  - Activating Enforcement (see page 88)
  - SYSLST Limitations (see page 88)
  - Report Output (see page 88)

CA IDMS Enforcer Parameter Statement

CA IDMS Enforcer has one parameter statement--PROCESS--with subparameters available to it. All keywords appear in UPPERCASE. The minimum required portion of each keyword is underscored. You can omit the portion of a keyword that is not underscored without altering the meaning of the statement, for example:

```plaintext
PROCESS,DICT=IRONMENT=dictionary-name
```

Variables appear in LOWERCASE underscored. You **must** substitute an appropriate value for each variable (i.e., `dictionary-name`).
Audit Reporting

After executing a batch utility, review the Audit Report for messages. Successful execution produces informative and/or warning messages. Informative messages do not require remedial action. Warning messages may require corrective action, depending upon individual analysis of the warning message.

If the utility does not execute successfully, error messages appear on the Audit Report. Correct any errors and resubmit the batch job.

Download Enforcement Structure (ESXDLOD)

This utility downloads CA IDMS Enforcer’s installed enforcement database structure to a transportable file. When you execute this utility, database structures for the indicated dictionary/node are encoded into a sequential file or partitioned data set (Z/OS and Z/OS).

The model JCL and keys to variables are contained in Target or Distribution source library member ESXDLOD (Z/OS and Z/OS), TOOLJCL library member ESXDLOD.S (Z/VSE), or the ESXDLOD EXEC (Z/VM). These members are shown below.

Keyword Parameter Example

```
PROCESS, DICTIONARY=dictionary-name, NODE=node-name, TABLES
```

Optional Parameters

- **dictionary-name**
  This one-to eight-character subparameter is used to specify the CA IDMS Enforcer database dictionary name for enforcement structure download.

- **node-name**
  This one- to eight-character subparameter is used to specify the node name for enforcement structure download.

- **TABLES**
  The TABLES optional keyword directs download processing to extract all system table definitions contained in the installed database. If TABLES is specified, DICTIONARY and NODE are ignored.

Download Enforcement Report Output

After executing ESXDLOD, review the Audit Report. If ESXDLOD does not execute successfully, warning and/or error messages appear on the report. Correct any errors and resubmit the job.

```
//ESXDLOD JOB (job card parameters),CLASS=A,MSGCLASS=A
//ESXDLOD EXEC PGM=ESXBDLD,REGION=1000K
//STEPLIB DD DISP=SHR,DSN=your.ca.loadlib
// SYSCON DD DISP=SHR,DSN=your.idms.loadlib
// SYSDMS DD *
DMCL=your.dmcl.name
//AUDIT DD SYSOUT=a
//LODFILE DD DSN=your.enforcer.structure
```
Exhibit 4.1: Model z/OS and Z/OS JCL (ESXDLOD)

Key to Variables

- **job card parameter** -- The job card parameters required at your company.

- **your.ca.loadlib** -- The name of the load library into which CA IDMS Enforcer load modules were link edited.

- **your.idms.loadlib** -- The name of the load library into which the CA IDMS load modules were link edited.

- **your.idms.sysctl** -- The dataset name of the SYSCTL file for the Central Version (CV) used during CA IDMS Enforcer batch processing.

- **your.dmcl.name** -- The name of your runtime system DMCL.

- **a** -- An appropriate SYSOUT class for your company.

- **your.enforcer.structure** -- The disk file into which the CA IDMS Enforcer structure will be downloaded.

- **dictionary-name** -- Is optional. If specified, must be a 1- to 8-character name of the dictionary specified for utility function.

- **node-name** -- Is optional. If specified, must be a 1- to 8-character name of the node specified for utility function.

* $$ JOB JNM=ESXDLOD
// JOB ESXDLOD
// OPTION NODUMP
// UPSI a
// ASSGN SYS009,IGN
*  
* *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL ca,'your.corelib'
// EXTENT ,volserc
// LIBDEF PHASE,SEARCH=(ca.sublibrary,idms.sublibrary),TEMP
*  
* *** INPUT - SYNTAX
// ASSGN SYSIPT,SYSRDR
*  
* *** OUTPUT - AUDIT REPORT FILE
// ASSGN SYS011,SYSLST
*  
* *** OUTPUT - STRUCTURE DOWNLOAD FILE
// DLBL LODFILE,'your.enforcer.structure',0,SD
// EXTENT SYS014,volserw,,strtrks,trks
// ASSGN SYS014,DISK,VOL=volserw,SHR
*  
* *** DOWNLOAD Enforcer STRUCTURE
// DLBL SYSIDMS,'#SYSIPT',0,SD
// EXEC ESXBOLD,SIZE=(ESXBOLD,400K)
PROCESS,
  DICTIONARY=dictionary-name,
  NODE=node-name
/*
 * Rnn.n OPTIONAL SYSIDMS PARAMETERS
 */
/* $ E0J
*/

Exhibit 4.2: Model Z/VSE JCL (ESXDLOD.S)

Key to Variables

- **a** -- The UPSI switch to be replaced with specifications from the IDMSOPTI module.

- **ca** or **ca.sublibrary** - The file name of the core image library into which the executable phases of CA IDMS Enforcer were installed.

- **your.corelib** - The name of the core image library into which the executable phases of CA IDMS Enforcer were installed.

- **volser** - The volume serial number or generic assignment of the disk volume on which the library, as specified in the previous statement, resides. The following letters identify the type of library or installation media: c=core image library, w=work file, r=relocatable library, and s=source statement library.

- **idms** or **idms.sublibrary** - The file name of the core image library into which the executable phases of CA IDMS were installed.

- **your.enforcer.structure** - The name of the file to which the CA IDMS Enforcer structure is downloaded.

- **strtrks** - The starting track of the disk file specified in the previous statement.

- **trks** - The number of tracks of the disk file specified in the previous statement.

- **dictionary-name** - The name of the alternate dictionary specified for download.

- **node-name** - The name of the node specified for download.

/* */
TRACE OFF; SIGNAL ON ERROR
/* */
/* ESXDLOD */
/* */
CA_LOADLIB_FN = 'yourlib'
IDMS_LOADLIB_FN = 'idmslib'
IDMS_TXTLIB_FN = 'txtlib'
/* */
/* Link and access the Minidisks containing the required librarie(s) */
/* */
'GLOBAL TXTLIB IDMS TXTLIB FN'
'GLOBAL LOADLIB CA LOADLIB FN IDMS LOADLIB_FN'
'CP SPOOL PRINTER NOCONT CLOSE'
'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
/* */
/* Create the input parameter file. */
/* */
CALL CREATE_INPUT_PARM_FILE
/*
/* Product specific files.
/*
/* 'FILEDEF AUDIT PRINTER'
'FILEDEF LODFILE DISK LODFILE SYSIPT A'
'FILEDEF SYSIPT DISK ESXDL0D SYSIPT A'
/*
/* You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS
/* parameters you use to specify your runtime environment.
/*
/* 'FILEDEF SYSIDMS DISK SYSIDMS INPUT A'
/*
*/
SIGNAL OFF ERROR
SAY 'STARTING RUN OF CA IDMS/Enforcer DOWNLOAD'
'EXECOS OSRUN ESXBDLD'
ESXBDLD RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXDLOD LISTING'
'CP SPOOL PRINTER OFF'
SAY 'Enforcer DOWNLOAD FINISHED WITH A RETURN CODE OF ' ESXBDLD_RC
'GLOBAL LOADLIB'
'GLOBAL TXTLIB'
'FILEDEF * CLEAR'
EXIT ESXBDLD_RC
/*
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
CREATE_INPUT_PARM_FILE:
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
SIGNAL OFF ERROR
'ERASE ESXDLOD SYSIPT A'
/*
/*
PUSH 'FFILE'
PUSH
PUSH 'TABLES'
PUSH 'NODE=node-name,'
PUSH 'DICTIONARY=dictionary-name,'
PUSH 'PROCESS,'
PUSH 'INPUT'
PUSH 'SET LRECL 80'
PUSH 'SET RECFM F'
'XEDIT ESXDLOD SYSIPT A'
'(NOPROFILE NOSCREEN NOMSG'
RETURN
/*
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
ERROR:
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR
/*
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
/*
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXDLOD LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC
/*

Exhibit 4.3: Model Z/VM EXEC -- ESXDLOD

Key to Variables

- **yourlib** -- The file name of the load library into which you downloaded CA IDMS Enforcer.
idmslib -- The file name of the load library containing your CA IDMS SUBSCHEMA and DMCL modules.

txtlib -- The name of the text library containing your CA IDMS text files.

LODFILE SYSIPT A -- The name of the disk file into which the CA IDMS Enforcer structure will be downloaded. If necessary, rename the file to suit your site's naming standards.

dictionary-name -- The name of the alternate dictionary specified for download.

node-name -- The name of the node specified for download.

Upload Enforcement Structure (ESXULOD)

This utility uploads a downloaded enforcement structure into the installed database. When you execute this utility, a file that has been downloaded is reconstituted into an enforcement structure.

Keyword parameters direct upload processes to a specific structure contained in the database or to CA IDMS Enforcer system-owned structures. As an option, you can replace the entire contents of an existing dictionary and node structure with the contents of the downloaded structure file (LODFILE) by specifying the REPLACE option in the PROCESS input file (see keyword parameters below). System TABLES can be uploaded exclusively or WORDSETS can replace existing system tables.

The model JCL and key to variables are contained in Target or Distribution source library member ESXULOD (z/OS and Z/OS), TOOLJCL library member ESXULOD.S (Z/VSE), or the ESXULOD EXEC (Z/VM). These members are shown below.

Keyword Parameter Example

```
PROCESS,   DICTIONARY=dictionary-name,
            NODE=node-name,
            REPLACE,
            WORDSET=wordset-name,
            TABLE
```

Optional Parameters

- **dictionary-name** -- This one- to eight-character subparameter is used to specify the CA IDMS Enforcer database dictionary name for enforcement structure upload. Dictionary name is ignored for WORDSET or TABLES upload.

- **node-name** -- This one- to eight-character subparameter is used to specify the node name for enforcement structure upload. Node name is ignored for WORDSET or TABLES upload.

- **REPLACE** -- REPLACE is optional. If specified, the existing CA IDMS/Enforcer dictionary/node structure contained on the database will be replaced using the downloaded enforcement structure file, LODFILE, as input. If REPLACE is not specified and a target enforcement structure exists, an error is printed and processing terminates. REPLACE is ignored for TABLES upload.

- **wordset-name** -- This 1- to 32-character subparameter is the system table name into which the contents of the comma delimited file, CDFILE, will be uploaded. If specified, DICTIONARY and NODE are ignored. LOADFILE is ignored when this parameter has been specified.
- **TABLES** -- TABLES is required if the downloaded structure file (LODFILE) contains system tables from the downloaded utility (ESXDLOD). If specified, DICTIONARY, NODE, and REPLACE are ignored.

### Upload Enforcement Report Output

After executing ESXULOD, review the Audit Report. If ESXULOD does not execute successfully, error messages appear on the Audit Report. Correct any errors and resubmit the job.

```plaintext
//ESXULOD JOB (job card parameters),CLASS=A,MSGCLASS=A
//ESXULOD EXEC PGM=ESXBULD,REGION=1000K
//STEPLIB DD DISP=SHR,DSN=your.ca.loadlib
// DD DISP=SHR,DSN=your.idms.loadlib
//SYSCTL DD DISP=SHR,DSN=your.idms.sysctl
//SYSIDMS DD *
// DMCL=your.dmcl.name
//AUDIT DD SYSOUT=a
//LODFILE DD DISP=SHR,DSN=your.enforcer.structure
//CDFILE DD DISP=SHR,DSN=your.enforcer.cdfile
//WORKFIL DD DSN=your.enforcer.workfile,
// SPACE=(CYL,(2,1))
//SYSIPT DD *
// PROCESS,
// DICTIONARY=dictionary-name,
// NODE=node-name,
// REPLACE,
// WORDSET=wordset-name,
// TABLES
/*
*/
```

*Exhibit 4.4: Model z/OS and Z/OS JCL (ESXULOD)*

### Key to Variables

- **job card parameters** -- The job card parameters required at your company.
- **your.ca.loadlib** -- The name of the load library into which CA IDMS Enforcer load modules were link edited.
- **your.idms.loadlib** -- The name of the load library into which CA IDMS load modules were link edited.
- **your.idms.sysctl** -- The dataset name of the SYSCTL file for the Central Version (CV) used during CA IDMS Enforcer batch processing.
- **a** -- An appropriate SYSOUT class for your company.
- **your.enforcer.structure** -- The disk file that contains the CA IDMS Enforcer downloaded enforcement structure or system tables.
- **your.enforcer.cdfile** -- The disk file that contains 80 byte records of comma delimited word-sets for system table upload.
- **your.enforcer.workfile** -- The work file used by this utility.
• **dictionary-name** -- Is optional. If specified, must be a 1- to 8-character name of the dictionary specified for utility function.

• **node-name** -- Is optional. If specified, must be a 1- to 8-character name of the node specified for utility function.

• **wordset-name** -- Is optional. If specified, the upload represents the upload of a comma delimited file of element-designators to be read into the system table specified by the 1- to 32-character system-table name (wordset-name).

```plaintext
* $$ JOB JNM=ESXULOD
// JOB ESXULOD
* // OPTION NODUMP
// UPSI a
// ASSGN SYS009,IGN
*
* *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL ca,'your.corelib'
// EXTENT ,volserc
// LIBDEF PHASE,SEARCH=(ca.sublibrary,idms.sublibrary),TEMP
*
* *** INPUT - SYNTAX
// ASSGN SYSIPT,SYSRDR
*
* *** OUTPUT - AUDIT REPORT FILE
// ASSGN SYS011,SYSLST
*
* *** INPUT - STRUCTURE UPLOAD FILE
// DLBL LODFILE,'your.enforcer.structure',0,SD
// EXTENT SYS014,volserw,,strtrks,trks
// ASSGN SYS014,DISK,VOL=volserw,SHR
*
* *** WORK - TRANSIENT WORK FILE
// DLBL WORKFIL,'your.enforcer.workfile',0,SD
// EXTENT SYS015,volserw,,strtrks,trks
// ASSGN SYS015,DISK,VOL=volserw,SHR
*
* *** UPLOAD Enforcer STRUCTURE
// DLBL SYSIDMS,'#SYSIPT',0,SD
// EXEC ESXBULD,SIZE=(ESXBULD,400K)
// PROCESS,
// DICTIONARY=dictionary-name,
// NODE=node-name,
// replace
/*
* Rnn.n OPTIONAL SYSIDMS PARAMETERS
/*
*/
* $$ E0J
```

*Exhibit 4.5: Model Z/VSE JCL (ESXULOD.S)*

**Key to Variables**

• **a** -- The UPSI switch to be replaced with specifications from the IDMSOPTI module.

• **ca** or **ca.sublibrary** -- The file name of the core image library into which the executable phases of CA IDMS Enforcer were installed.

• **your.corelib** -- The name of the core image library into which the executable phases of CA IDMS Enforcer were installed.
**volser** -- The volume serial number or generic assignment of the disk volume on which the library, as specified in the previous statement, resides. The following letters identify the type of library or installation media: c=core image library, w=work file, r=relocatable library and s=source statement library.

**idms** or **idms.sublibrary** -- The file name of the core image library into which the executable phases of CA IDMS were installed.

**your.enforcer.structure** -- The name of the file from which the CA IDMS Enforcer structure will be uploaded.

**strtrks** -- The starting track of the disk file specified in the previous statement.

**trks** -- The number of tracks of the disk file specified in the previous statement.

**your.enforcer.workfile** -- The work file used by this utility.

**dictionary-name** -- The name of the alternate dictionary specified for upload.

**node-name** -- The name of the node specified for upload.

```/* */
TRACE OFF; SIGNAL ON ERROR
/* */
CA LOADLIB FN = 'yourlib'
IDMS LOADLIB FN = 'idmslib'
IDMS TXTLIB FN = 'txtlib'
/
/*/ Link and access the Minidisks containing the required librarie(s) */
'GLOBAL TXTLIB IDMS TXTLIB FN'
'GLOBAL LOADLIB CA LOADLIB FN IDMS LOADLIB FN'
'CP SPPOOL PRINTER NOCONT CLOSE'
'CP SPPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
/* Create the input parameter file. */
CALL CREATE_INPUT_PARM_FILE
/* */
/*/ Product specific files. */
'FILEDEF AUDIT PRINTER'
'FILEDEF WORKFIL DISK FILE WORKFIL a'
'FILEDEF LODFIL DISK LODFIL SYSIPT A'
'FILEDEF SYSIPT DISK ESXULOD SYSIPT A'
/* You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS */
/* parameters you use to specify your runtime environment. */
'FILEDEF SYSIDMS DISK SYSIDMS INPUT A'
/* */
SIGNAL OFF ERROR
SAY 'STARTING RUN OF CA IDMS Enforcer UPLOAD'
EXECOS OSRUN ESXBULD
ESXBULD RC = RC
'CP SPPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXULOD LISTING'
'CP SPPOOL PRINTER OFF'
SAY 'Enforcer UPLOAD FINISHED WITH A RETURN CODE OF ' ESXBULD_RC
'GLOBAL LOADLIB'
'GLOBAL TXTLIB'
'FILEDEF * CLEAR'
EXIT ESXBULD RC
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++ */
CREATE_INPUT_PARM_FILE:
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++ */
SIGNAL OFF ERROR
'ERASE ESXULOD SYSIPT A'
PUSH 'FFILE'
PUSH
PUSH 'REPLACE'
```
PUSH 'NODE=node-name,'
PUSH 'DICTIONARY=dictionary-name,'
PUSH 'PROCESS,'
PUSH 'INPUT,'
PUSH 'SET LRECL 80'
PUSH 'SET RECFM F'
'XEDIT ESXULOD SYSIPT A',
'(NOPROFILE NOSCREEN NOSMSG'
RETURN
/
ERROR:
/
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR
/
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
/
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXULOD LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC

Exhibit 4.6: Model Z/VM EXEC -- ESXULOD

Key to Variables

- **yourlib** -- The file name of the load library into which you downloaded CA IDMS Enforcer.

- **idmslib** -- The file name of the load library containing your CA IDMS SUBSCHEMA and DMCL modules.

- **txtlib** -- The name of the text library containing your CA IDMS text files.

- **LODFILE SYSIPT A** -- The name of the disk file into which the CA IDMS Enforcer structure will be downloaded. If necessary, rename the file to suit your site's naming standards.

- **CDFILE SYSIPT A** -- The name of the disk file that contains the 80-byte records of comma-delimited word-sets for system table upload. If necessary, rename the file to suit your site's naming standards. An example of comma-delimited words follows: EMPLOYEE, PAYROLL, ACCOUNTS, INVENTORY, etc. Words must begin in column 1 of the 80-byte record; may not be continued from one 80-byte record to the next; may be terminated within an 80-byte record with a comma or trailing spaces; and may not contain embedded dashes, underscores, or spaces.

- **FILE WORKFIL A** -- The name of the work file used by this utility. If necessary, rename the file to suit your site's naming standards.

- **dictionary-name** -- The name of the alternate dictionary specified for download.

- **node-name** -- The name of the node specified for download.

- **wordset-name** -- The mutually exclusive WORDSET option is specified when the input file is CDFILE, containing 80-byte records with comma-delimited word-sets. Words are stored as values in the system table represented by the wordset-name (system table name).
Enforcement Structure Print (ESXPRINT)

This utility prints the contents of a CA IDMS Enforcer structure including: all or selected entities, all templates within those entities, all fields defined for each template, and all values, value ranges, system-owned table values and range values, and indirect references for each field. In addition, if you use the optional SNAPSHOT parameter, you can print the structure that was last backed up. If you do not use this parameter, the primary structure is printed. The Structure Hard-Copy Report generated by this utility is shown in Exhibit 4.11.

The model JCL and key to variables are contained in Target or Distribution source library member ESXPRINT (z/OS and Z/OS), TOOLJCL member ESXPRINT.S (Z/VSE), or the ESXPRINT EXEC (Z/VM). These members are shown below.

Keyword Parameter Example

```
PROC
   DICTIONARY=dictionary-name,
   NODE=node-name,
   SNAPSHOT
   SELECT=select-value(s)
```

Required Parameters

- `select-value(s)` -- The required keyword, SELECT, provides the entity types that you want to print. Possible values are presented in Exhibit 4.7. You must select one or more entity types or specify the ALL parameter on the SELECT statement. If you choose to select more than one entity, the entity names must be encased in parenthesis and separated with commas.

Optional Parameters

- `dictionary-name` -- This one- to eight-character subparameter is used to specify the CA IDMS Enforcer database dictionary name for enforcement structure print.
- `node-name` -- This one- to eight-character subparameter is used to specify the node name for enforcement structure print.
- `SNAPSHOT` -- This optional subparameter, with a minimum length of two characters, is used to direct print procedures to the backed up version of an enforcement structure. If this parameter is not specified, structures are printed from the primary enforcement structure. See for more details.

Enforcement Structure Print Report Output

After executing ESXPRINT, review the Audit Report. If ESXPRINT does not execute successfully, error messages appear on the Audit Report, correct any errors and resubmit the job.

Print SELECT Values

Each of the entity-type names must be fully specified as listed below.

You must select one or more entity types or specify the ALL parameter on the SELECT statement. If you select more than one entity, the entity name must be encased in parenthesis and separated with commas.
Exhibit 4.7: Print SELECT Values

//ESXPRINT JOB (job card parameters),CLASS=A,MSGCLASS=A
//ESXPRINT EXEC PGM=ESXBPRT,REGION=1000K
//STEPLIB DD DISP=SHR,DSN=your.ca.loadlib
// DD DISP=SHR,DSN=your.idms.loadlib
//SYSCTL DD DISP=SHR,DSN=your.idms.sysctl
//SYSIDMS DD *
 DMCL=your.dmcl.name
//WORKFIL DD DSN=your.print.work.file,
 // DISP=(NEW,DELETE,DELETE),
 // UNIT=SYSDA,
 // SPACE=(CYL,(1,1))
//SYSLST DD SYSOUT=a
//SYSIPT DD *
 PROCESS,
 DICTIONARY=dictionary-name,
 NODE=node-name,
 SNAPSHOT
SELECT=select-value(s)
/*
 */

Exhibit 4.8: Model z/OS and z/OS JCL (ESXPRINT)

Key to Variables

- **job card parameters** -- The job card parameters required at your company.

- **your.ca.loadlib** -- The name of the load library into which CA IDMS Enforcer load modules were link edited.

- **your.idms.loadlib** -- The name of the load library into which CA IDMS load modules were link edited.

- **your.idms.sysctl** -- The dataset name of the SYSCTL file for the Central Version (CV) used during CA IDMS Enforcer batch processing.
- **your.dmcl.name** -- The name of your runtime system DMCL.

- **a** -- An appropriate SYSOUT class for your company.

- **your.print.work.file** -- The work file used by the print utility.

- **dictionary-name** -- Is optional. If specified, must be a 1- to 8-character name of the dictionary specified for utility function.

- **node-name** -- Is optional. If specified, must be a 1- to 8-character name of the node specified for utility function.

- **select-value(s)** -- The entity-type name(s) selected for print. The required keyword, SELECT, provides the entity types that are selected for print. Select one or more entity types or specify the ALL parameter on the SELECT statement. Multiple entity names must be encased in parenthesis and separated by commas. See Print SELECT Values (see page 77) for SELECT values.

```plaintext
* $$ JOB JNM=ESXPRINT
// JOB ESXPRINT
* // OPTION NODUMP
// UPSI  a
// ASSGN  SYS009,IGN
* // *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL  ca,'your.corelib'
// EXTENT ,volserc
// LIBDEF PHASE,SEARCH=(ca.sublibrary,idms.sublibrary),TEMP
* // *** INPUT - SYNTAX
// ASSGN  SYSIPT,SYSRDR
* // *** OUTPUT - PRINT REPORT FILE
// ASSGN  SYS011,SYSLST
* // *** WORK - Enforcer PRINT WORK FILE
// DLBL WORKFIL,'your.print.work.file,,0,SD
// EXTENT SYS015,volserw,,strtrks,trks
// ASSGN  SYS015,DISK,VOL=volserw,SHR
* // *** PERFORM Enforcer ENTITY-TYPE PRINT
// DLBL SYSIDMS,'#SYSIPT',0,SD
// EXEC ESXBPRT,SIZE=(ESXBPRT,400K)
PROCESS,
  DICTIONARY=dictionary-name,
  NODE=node-name,
  SNAPSHOT
SELECT=(select-values)
/*
* Rnn.n OPTIONAL SYSIDMS PARAMETERS
*/
/*
* $$ EOJ
```

*Exhibit 4.9: Model Z/VSE JCL (ESXPRINT.S)*

**Key to Variables**

- **a** -- The UPSI switch to be replaced with specifications from the IDMSOPTI module.

- **ca** or **ca.sublibrary** -- The file name of the core image library into which the executable phases of CA IDMS Enforcer were installed.
- **your.corelib** -- The name of the core image library into which the executable phases of CA IDMS Enforcer were installed.

- **volser** -- The volume serial number or generic assignment of the disk volume on which the library, as specified in the previous statement, resides. The following letters identify the type of library or installation media: c=core image library, w=work file, r=relocatable library and s=source statement library.

- **idms or idms.sublibrary** -- The file name of the core image library into which the executable phases of CA IDMS were installed.

- **your.print.work.file** -- The work file used for internal processing during the print process.

- **strtrks** -- The starting track of the disk file specified in the previous statement.

- **trks** -- The number of tracks of the disk file specified in the previous statement.

- **dictionary-name** -- The name of the alternate dictionary specified for upload.

- **node-name** -- The name of the node specified for upload.

- **select-value(s)** -- The entity-type name(s) selected for print. The required keyword, SELECT, provides the entity types that are selected for print. You must select one or more entity types or specify the ALL parameter on the SELECT statement. Multiple entity names must be encased in parenthesis and separated by commas. See Print SELECT Values (see page 77) for SELECT values.

```plaintext
/* */
TRACE OFF; SIGNAL ON ERROR
CA LOADLIB FN = 'yourlib'
IDMS LOADLIB FN = 'idmslib'
IDMS TXTLIB FN = 'txtlib'
/* Link and access the Minidisks containing the required libraries */
GLOBAL TXTLIB IDMS TXTLIB FN
GLOBAL LOADLIB CA LOADLIB FN IDMS LOADLIB_FN
'CP SPOOL PRINTER NOCONT CLOSE'
'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
/*
/* Create the input parameter file.
/* CALL CREATE_INPUT_PARM_FILE
/* Product specific files. */
'FILEDEF SYSLST PRINTER'
'FILEDEF SYSIPT DISK ESXPRINT SYSIPT A'
'FILEDEF WORKFIL DISK FILE WORKFIL A'
/*
/* You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS */
/* parameters you use to specify your runtime environment. */
'SIGNAL OFF ERROR
SAY 'STARTING RUN OF CA IDMS/DICITIONARY PRINT UTILITY'
'EXECOS OSRUN ESXBPRT'
ESXBPRT RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXPRINT LISTING'
'CP SPOOL PRINTER OFF'
SAY 'DICITIONARY PRINT FINISHED WITH A RETURN CODE OF ' ESXBPRT_RC
'GLOBAL LOADLIB'
'GLOBAL TXTLIB'
'FILEDEF * CLEAR'
EXIT ESXBPRT_RC
/*+++++++++++++++++++++*/
CREATE_INPUT_PARM_FILE:
/*+++++++++++++++++++++*/
```
SIGNAL OFF ERROR
'ERASE ESXPRINT SYSIPT A'
/* */
PUSH 'FFILE'
PUSH
PUSH 'SELECT=select-values'
PUSH 'SNAPSHOT'
PUSH 'NODE=node-name,'
PUSH 'DICTIONARY=dictionary-name,'
PUSH 'PROCESS,'
PUSH 'INPUT'
PUSH 'SET LRECL 80'
PUSH 'SET REC FM F'
'XEDIT ESXPRINT SYSIPT A'
'jured profile noscreen nomsg'
RETURN
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++*/
ERROR:
/*++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++*/
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR
/* */
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
/* */
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXPRINT LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC

Exhibit 4.10: Model Z/VM EXEC--ESXPRINT

Key to Variables

- **yourlib** -- The file name of the load library into which you downloaded CA IDMS Enforcer.

- **idmslib** -- The file name of the load library containing your CA IDMS SUBSCHEMA and DMCL modules.

- **txtlib** -- The name of the text library containing your CA IDMS text files.

- **FILE WORKFIL A** -- The name of the work file used by this utility. If necessary, rename the file to suit your site's naming standards.

- **dictionary-name** -- The name of the alternate dictionary specified for download.

- **node-name** -- The name of the node specified for download.

- **select-value(s)** -- The entity-type name(s) selected for print. The required keyword, SELECT, provides the entity types that are selected for print. You must select one or more entity types or specify the ALL parameter on the SELECT statement. Multiple entity names must be encased in parenthesis and separated by commas. See **Print SELECT Values (see page 77)** for SELECT values.

---

15-Jan-2018  81/104
Dictionary Audit (ESXAUDIT)

This utility audits the specified central version data dictionary structure for naming compliance using CA IDMS Enforcer enforcement values as the basis for compliance determinations. The expanded version of the Dictionary Audit Report, shown in Exhibit 4.45 in , offers detailed diagnostic information. By using the TERSE parameter, you can limit the amount of information on the Dictionary Audit Report. An example of the terse version of the report is shown in Exhibit 4.46 in . Both the expanded and terse version of the Dictionary Audit Report offer summary information (see Exhibit 4.47 in ).
You can limit the data dictionary entities to be audited by selecting or excluding specific entities. To minimize the size of the output file, expanded mode runs should be made as selective as possible.

Refer to for passive enforcement requirements to audit data dictionaries defined in your central version.

The model JCL and key to variables are contained in Target or Distribution source library member ESXAUDIT (z/OS and Z/OS), TOOLJCL library member ESXAUDIT.S (Z/VSE), or the ESXAUDIT EXEC (Z/VM). These members are shown below.

**Keyword Parameter Example**

```plaintext
PROC
DICTIONARY=dictionary-name,
NODE=node-name,
TERSE
SELECT=select-value(s)
EXCLUDE=exclude-value(s)
STARTDATE=mmddyy
ENDDATE=mmddyy
```

**Required Parameters**

- `select-value(s)` -- The required keyword, SELECT, provides the entity-types that are selected for audit. You must select one or more entity types or specify the ALL parameter on the SELECT statement. If you select more than one entity, the entity names must be encased in parentheses and separated by commas. See Exhibit 4.12 for SELECT values.

**Optional Parameters**

- `TERSE` -- This optional keyword limits the amount of audit information on the report. If you use this parameter, only the template name and compliance status for each selected occurrence name for every template of its entity type is presented. If you do not use this keyword, you will receive the expanded version of the Dictionary Audit Report.

- `dictionary-name` -- This one- to eight-character subparameter is used to specify an alternate dictionary name for dictionary audit.

- `node-name` -- This one- to eight-character subparameter is used to specify an alternate node name for dictionary audit.

- `exclude-value(s)` -- Use the optional keyword, EXCLUDE, to further limit the entity selections made with the SELECT parameter. The entities that you exclude are not audited. If you specify more than one entity type for exclusion, the entity names must be encased in parenthesis and separated by commas. See Exhibit 4.12 for a list of possible values.

- `STARTDATE` and `ENDDATE` -- These optional keywords indicate the dates against which entity name occurrences are compared for the purpose of audit selection. Any entity that was added to the dictionary prior to the STARTDATE specified is not included in the audit. Any entity that was added to the dictionary after the ENDDATE is not included in the audit.

**Dictionary Audit Report Descriptions**

After executing ESXAUDIT, review the Audit Report. If ESXAUDIT does not execute successfully, error messages appear on the Audit Report, correct any errors and resubmit the job.
Refer to for a complete description of the expanded and terse versions of the Dictionary Audit Report and detailed information on Summary reporting.

**SELECT EXCLUDE Table**

Each of the entity-type names must be fully specified as listed below.

<table>
<thead>
<tr>
<th>Entities</th>
<th>Entities</th>
<th>Entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA</td>
<td>LOGICAL-TERMINAL</td>
<td>REPORT-SYNONYM</td>
</tr>
<tr>
<td>ATTRIBUTE</td>
<td>MAP</td>
<td>SCHEMA</td>
</tr>
<tr>
<td>CLASS</td>
<td>MESSAGE</td>
<td>SCHEMA-RECORD</td>
</tr>
<tr>
<td>COBOL-ELEMENT</td>
<td>MODULE</td>
<td>SET</td>
</tr>
<tr>
<td>DESTINATION</td>
<td>PANEL</td>
<td>SUBSYSTEM</td>
</tr>
<tr>
<td>ELEMENT</td>
<td>PHYSICAL-TERMINAL</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>ELEMENT-SYNONYM</td>
<td>PROCESS</td>
<td>TABLE</td>
</tr>
<tr>
<td>ENTRY-POINT</td>
<td>PROGRAM</td>
<td>TASK</td>
</tr>
<tr>
<td>FILE</td>
<td>QFILE</td>
<td>TRANSACTION</td>
</tr>
<tr>
<td>FILE-SYNONYM</td>
<td>QUEUE</td>
<td>TRANSACTION-SYNONYM</td>
</tr>
<tr>
<td>LINE</td>
<td>RECORD</td>
<td>USER</td>
</tr>
<tr>
<td>LOAD-MODULE</td>
<td>RECORD-SYNONYM</td>
<td>user-defined-entity-type</td>
</tr>
<tr>
<td>LOGICAL-RECORD</td>
<td>REPORT</td>
<td>VIEW-ID</td>
</tr>
</tbody>
</table>

**Exhibit 4.12: SELECT/EXCLUDE Dictionary Entities**

```plaintext
//ESXAUDIT JOB (job card parameters),CLASS=A,MSGCLASS=A
//ESXAUDIT EXEC PGM=ESXBDIC,REGION=1000K
//STEPLIB DD DISP=SHR,DSN=your.ca.loadlib
//SYSCTL DD DISP=SHR,DSN=your.idms.sysctl
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
//SYSLIB DD DISP=SHR,DSN=your.idms.loadlib
```

**Exhibit 4.13: Model z/OS and z/OS JCL (ESXAUDIT)**

**Key to Variables**

- **job card parameters** -- The job card parameters at your company.

- **your.ca.loadlib** -- The name of the load library into which the CA IDMS Enforcer load modules were link edited.
your.idms.loadlib -- The name of the load library into which the CA IDMS load modules were link edited.

your.idms.sysctl -- The dataset name of the SYSCTL file for the Central Version (CV) used during CA IDMS Enforcer batch processing.

your.dmcl.name -- The name of your runtime system DMCL.

a -- An appropriate SYSOUT class for your company.

dictionary-name -- Is optional. If specified, must be a 1- to 8-character name of the dictionary specified for utility function.

node-name -- Is optional. If specified, must be a 1- to 8-character name of the node specified for utility function.

select-value(s) -- The entity-type name(s) selected for audit. The required keyword, SELECT, provides the entity-types that are selected for audit. You must select one or more entity types or specify the ALL parameter on the SELECT statement. Multiple entity names must be encased in parenthesis and separated by commas. See SELECT\EXCLUDE Table (see page 84) for SELECT values.

exclude-value(s) -- Optional keyword EXCLUDE enables you to limit the entity selections made with the SELECT parameter. Multiple entity types specified must be encased in parenthesis and separated by commas. See SELECT\EXCLUDE Table (see page 84) for EXCLUDE values.

mmddyy -- The STARTDATE and ENDDATE parameters may be optionally specified. These optional keywords indicate the dates against which entity name occurrences are compared for the purpose of audit selection. Any entity that was added to the dictionary prior to the STARTDATE specified is not included in the audit. Any entity that was added to the dictionary prior to the ENDDATE specified is not included in the audit.

* $$ JOB JNM=ESXAUDIT
  // JOB ESXAUDIT
  *
  // OPTION NODUMP
  // UPSI a
  // ASSGN SYS009,IGN
  *
  *** CORE IMAGE LIBRARY FOR PRODUCT
  // DLBL dbms,'your.corelib'
  // EXTENT ,volserc
  // LIBDEF PHASE,SEARCH=(dbms.sublibrary,idms.sublibrary),TEMP
  *
  *** INPUT - SYNTAX
  // ASSGN SYSIPT,SYSRDR
  *
  *** OUTPUT - AUDIT REPORT FILE
  // ASSGN SYS011,SYSLST
  *
  *** PERFORM PASSIVE ENFORCEMENT
  // DLBL SYSIDMS,'#SYSIPT',0,SD
  // EXEC ESXBDIC,SIZE=(ESXBDIC,400K)
  *
  Rnn.n OPTIONAL SYSIDMS PARAMETERS
  /*
  PROCESS,
  DICTIONARY=dictionary-name,
  NODE=node-name,
  TERSE
  SELECT=(select-values)
Key to Variables

- **a** -- The UPSI switch to be replaced with specifications from the IDMSOPTI module.

- **ca** or **ca.sublibrary** -- The file name of the core image library into which the executable phases of CA IDMS Enforcer were installed.

- **your.corelib** -- The name of the core image library into which the executable phases of CA IDMS Enforcer were installed.

- **volser** -- The volume serial number or generic assignment of the disk volume on which the library, as specified in the previous statement, resides. The following letters identify the type of library or installation media: c=core image library, w=work file, r=relocatable library and s=source statement library.

- **idms** or **idms.sublibrary** -- The file name of the core image library into which the executable phases of CA IDMS were installed.

- **dictionary-name** -- The name of the alternate dictionary specified for this utility function.

- **node-name** -- The name of the node specified for this utility function.

- **select-value(s)** -- The entity-type name(s) selected for audit. The required keyword, SELECT, provides the entity-types that are selected for audit. Select one or more entity types or specify the ALL parameter on the SELECT statement. Multiple entity names must be encased in parenthesis and separated by commas. See SELECT\EXCLUDE Table (see page 84) for SELECT values.

- **exclude-value(s)** -- Optional keyword EXCLUDE enables you to limit the entity selections made with the SELECT parameter. Multiple entity types specified must be encased in parenthesis and separated by commas. See SELECT\EXCLUDE Table (see page 84) for EXCLUDE values.

- **mmddyy** -- The STARTDATE and ENDDATE parameters may be optionally specified. These optional keywords indicate the dates against which entity name occurrences are compared for the purpose of audit selection. Any entity that was added to the dictionary prior to the STARTDATE specified is not included in the audit. Any entity that was added to the dictionary after the ENDDATE is not included in the audit.
/* Create the input parameter file. */
CALL CREATE_INPUT_PARM_FILE
/* Product specific files. */
FILEDEF SYSLST PRINTER
'FILEDEF SYSIPT DISK ESXAUDIT SYSIPT A'
/* You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS */
/* parameters you use to specify your runtime environment. */
'FILEDEF SYSIDMS DISK SYSIDMS INPUT A'
SIGNAL OFF ERROR
SAY 'STARTING RUN OF CA IDMS/DICTIONARY AUDIT UTILITY'
'EXECOS OSRUN ESXBDIC'
ESXBDIC RC = RC
'CP SPool PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXAUDIT LISTING'
'CP SPool PRINTER OFF'
SAY 'DICTIONARY AUDIT FINISHED WITH A RETURN CODE OF ' ESXBDIC_RC
'GLOBAL LOADLIB'
'GLOBAL TXTLIB'
'FILEDEF * CLEAR'
EXIT ESXBDIC_RC

CREATE_INPUT_PARM_FILE:
Erase ESXAUDIT SYSIPT A'
/*

ERROR:
SIGNAL OFF ERROR
ERROR RC = RC
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
'EXECOS OSRUN ESXBDIC'
'CP SPool PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXAUDIT LISTING'
'CP SPool PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC

Exhibit 4.15: Model Z/VM EXEC--ESXAUDIT

Key to Variables

- yourlib -- The file name of the load library into which you downloaded CA IDMS Enforcer.
- idmslib -- The file name of the load library containing your CA IDMS SUBSCHEMA and DMCL modules.
- txtlib -- The name of the text library containing your CA IDMS text files.
dictionary-name -- The name of the alternate dictionary specified for download.

node-name -- The name of the node specified for download.

exclude-values -- Any of the CA IDMS Enforcer entity types.

select-values -- Any of the CA IDMS Enforcer entity types.

mmddyy -- Used to limit validation to entities added on or after this date.

Batch Compiler Utilities--Enforcer Example (ESXSAMPL)

ESXSAMPL presents example use of the CA IDMS Batch Utilities with CA IDMS Enforcer.

The Integrated Data Dictionary Activity List report (Exhibit 3.41 of ) is generated when you execute a CA IDMS compiler. Active enforcement against input syntax to the compiler and naming compliance reporting occurs after you have activated enforcement and re-assigned output to the appropriate output file.

The example JCL/EXEC (z/OS and Z/OS and Z/VM only), key to variables, and a description of utility processing with CA IDMS Enforcer are contained in Target or Distribution source library member ESXSAMPL (z/OS and Z/OS) or in the ESXSAMPL EXEC (Z/VM).

Activating Enforcement

Activating CA IDMS Enforcer depends on the load library concatenation specified in your batch utility JCL. You MUST include the load library containing CA IDMS Enforcer’s load module RHDCSGEN, IDMSCHEM, IDMSUBSC, or IDMSDDL, established at product installation. This loadlib MUST appear first in the STEPLIB. For more information on Activating Enforcement, see .

SYSLST Limitations

SYSLST must be assigned to SYSOUT unless all error levels are defined as "Display = N (NO)" through option 3.1.2 of the online definition and maintenance system.

For more information, see and "Batch Mode--SYSLST Limitations".

Report Output

If CA IDMS Enforcer’s error level display is enabled using option 3.1.2--Environment Runtime Directives Utility, you will receive the expanded mode version of report output similar to the . See "Batch Mode--SYSLST Limitations" for more information on enabling error displays.

Regardless of the error display specified, active enforcement for a data dictionary results in naming compliance messages presented in CA IDMS utility message format. Message displays presented during dictionary update are described in .

//ESXSAMPL JOB (job card parameters),CLASS=A,MSGCLASS=A
//ESXSAMPL EXEC PGM=batchjob,REGION=1000K
//STEPLIB DD DISP=SHR,DSN=your.ca.loadlib
//       DD DISP=SHR,DSN=your.idms.loadlib
//SYSCTL DD DISP=SHR,DSN=your.idms.sysctl
//SYSIDMS DD *
DMCL=your.dmcl.name
//SYSLST DD SYSOUT=a
//SYSPCH DD DUMMY
//SYSIPT DD *

 syntax-input

 /*

 Exhibit 4.16: Model z/OS and Z/OS JCL (ESXSAMPL)

 Key to Variables

- **job card parameters** -- The job card parameters at your company.
- **batchjob** -- The name of the batch compiler for execution: RHDCSGEN, IDMSCHEM, IDMSUBSC or IDMSDDDL.
- **your.ca.loadlib** -- The name of the load library into which CA IDMS Enforcer load modules were link edited.
- **your.idms.loadlib** -- The name of the load library into which the CA IDMS load modules were link edited.
- **your.idms.sysctl** -- The dataset name of the SYSCTL file for the Central Version (CV) used during CA IDMS Enforcer batch processing.
- **your.dmcl.name** -- The name of your runtime system DMCL.
- **a** -- An appropriate SYSOUT class for your company.
- **syntax-input** -- Your syntax for input to the batch utility.

 /* */
 TRACE OFF; SIGNAL ON ERROR
 CA_LOADLIB_FN = 'yourlib'
 IDMS_LOADLIB_FN = 'idmslib'
 IDMS_TXTLIB_FN = 'txtlib'
 /*
 /* Link and access the Minidisks containing the required librarie(s) */
 'GLOBAL TXTLIB IDMS TXTLIB FN'
 'GLOBAL LOADLIB CA LOADLIB FN IDMS_LOADLIB_FN'
 'CP SPOOL PRINTER NOCONT CLOSE'
 'CP SPOOL PRINTER TO * NOMOLD CONT FORM OFF DIST OFF'
 /*
 /* Create the input parameter file. */
 CALL CREATE_INPUT_PARM_FILE
 /*
 /* Product specific files. */
 'FILEDEF SYSLST PRINTER'
 'FILEDEF SYSIPT DISK ESXSAMPL SYSIPT A'
 /*
 /* You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS */
 /* parameters you use to specify your runtime environment. */
 'FILEDEF SYSIDMS DISK SYSIDMS INPUT A'
 SIGNAL OFF ERROR
 SAY 'STARTING RUN OF CA IDMS BATCH COMPILER WITH Enforcer'
 'EXECS OSRUN batchjob'
 ESXSAMPL_RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME ESXSAMPL LISTING'
'CP SPOOL PRINTER OFF'
SAY 'BATCH COMPILER FINISHED WITH A RETURN CODE OF ' ESXSAMPL_RC
'GLOBAL LOADLIB'
'GLOBAL TXTLIB'
'FILEDEF * CLEAR'
EXIT ESXSAMPL_RC

CREATE_INPUT_PARM_FILE:

SIGNAL OFF ERROR

'ERASE ESXSAMPL SYSIPT A'
PUSH 'FFILE'
PUSH
PUSH
PUSH batch-compiler-syntax
PUSH batch-compiler-syntax
PUSH batch-compiler-syntax
PUSH 'INPUT'
PUSH 'SET LRECL 80'
PUSH 'SET RECFM F'
'XEDIT ESXSAMPL SYSIPT A',
'(NOPROFILE NOSCREEN NOMSG'
RETURN

ERROR:

ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR
*/
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
*/

Exhibit 4.17: Model Z/VM EXEC--ESXSAMPL

Key to Variables

- **yourlib** -- The file name of the load library into which you downloaded CA IDMS Enforcer.
- **idmslib** -- The file name of the load library containing your CA IDMS SUBSCHEMA and DMCL modules.
- **txtlib** -- The name of the text library containing your CA IDMS text files.
- **batchjob** -- The name of the batch compiler for execution: RHDCSGEN, IDMSCHEM, IDMSUBSC, or IDMSDDDL.
- **batch-compiler-syntax** -- Syntax statements for the specific batch compiler.
CA IDMS Enforcer operations

This section describes system requirements, the enforcement structure, active and passive enforcement considerations, modifying runtime tuning parameters, security options, activating enforcement, interface to CA IDMS SASO (Standards Administration System Online), migration procedures for the CA IDMS Enforcer database, and the Online Documentation Facilities.

System Requirements

IDMS Enforcer supports CA IDMS and CA IDMS/DC.

Terminal Type

CA IDMS Enforcer can be used from these terminals

- IBM 3270 terminal (except model 1), including the 3279 color display
- Any other 3270-compatible terminal.

For more CA IDMS Enforcer operations information, see the following topics:

- Enforcement Structure (see page 91)
- Active Enforcement Basics (see page 93)
- Passive Enforcement 1 (see page 97)
- Modify CA IDMS Enforcer Tuning Parameters (see page 98)
- Security Options (see page 99)
- Activating Enforcement (see page 101)
- Migrating the CA IDMS Enforcer Database (see page 102)
- Online Documentation Facilities (see page 102)

Enforcement Structure

The online definition and maintenance system and batch utilities are used to define and maintain enforcement values. Batch operations provide easy specification of word or acronym sets and word delimitation values. By using the online system, you can establish enforcement structures.

Structures are organized by dictionary and node, entity types, and entity type templates for enforcement. A template consists of a collection of fields where each field can be associated with a fixed literal, multiple values, a system-owned table of values, or a field can indirectly reference another template already defined. The template example below demonstrates the use of a field designator with compressible characters (p++++++++), a literal value (AREA-), a fixed field designator (aaaaaaa), and wildcards (**************).
Field designators are a unique set of lower-case characters or a single character. Compressible characters are represented by a plus sign (+) and indicate that portion of a field which is variable. Literals represent the actual data required during active enforcement and wildcards allow for entry of any values at runtime. Field delimitations can be dashes (-), underscores (_), spaces ( ), or all three. Delimitations established at product installation can be altered at any time. Refer to Modify CA IDMS Enforcer Tuning Parameters (see page 98).

Entity types, templates, and field values can be selectively included or excluded from active enforcement. Once a structure is established using online definition and maintenance utilities, a table containing enforcement values can be generated. Enforcement can be activated for current or future dates and can be active online and in batch or it can be used to audit your dictionary for existing entity-name occurrences. For more details, see "Passive Enforcement".

- Bracket Mode Templating (see page 92)
- Enforcement Structure Backup Procedures (see page 92)
- Enforcement Structure Backup Access (see page 92)

Bracket Mode Templating

Bracket mode is a tutorial driven processor which steps you through template field definitions required for a bracketed template. A bracket mode template is comprised of a PREFIX portion, followed by 1 to n interactions of words in a single WORDSET (system table) and terminated by a SUFFIX.

The PREFIX and SUFFIX portion of the template may be any type of enforcer field designation except for wildcards or compressible types. The WORDSET portion must be a single, unique, lower-case character and assigned to a system table.

Enforcement Structure Backup Procedures

CA IDMS Enforcer provides the capability to backup an enforcement structure. This backup is accomplished through generation options specified at the Environment Runtime Generation screen.

A snapshot of the dictionary/node structure being generated for active enforcement is created if you enter Y for Yes in the Create Enforcement Structure Backup field. This snapshot roughly doubles the size of your database.

For more information on Runtime Generation, see .

Enforcement Structure Backup Access

Dictionary/node structures which have been backed up can be reviewed using the Browse option of the online definition and maintenance system. Enforcement structures can be further defined and edited while the backup version, created at the Environment Runtime Generation screen, remains a snapshot of that dictionary and node as it existed when it was generated for active enforcement.
In addition to using the Browse option to view structures which have been backed up, you can print those structures. With the keyword parameter specifications of the print utility, ESXPRINT (contained in your installation source library), you can print the hard copy image of the snapshot version of the structure.

Dictionary/node structures in the process of definition, or those with no backup, are considered to be the primary structure for that dictionary/node. These structures can also be printed.

For more information on the Print Utility see Batch Utilities (see page 66).

Active Enforcement Basics

The following operational considerations are discussed below:

- Entity Types Actively Enforced (see page 93)
- Stalled Generation (see page 95)
- Batch Mode--SYSLST Limitations (see page 96)
- CA IDMS Utility Processing (see page 96)
- Overriding Active Enforcement (see page 97)

For more information on enabling enforcement for the CA IDMS utilities, see Activating Enforcement (see page 101).

Entity Types Actively Enforced

CA IDMS Enforcer supports the following standard dictionary entity types and entity-type synonyms supported by the System Generation, Schema, Subschema, and Data Dictionary Definition Language Compilers for ADD functions:

- System Generation Compiler Entity Types Actively Enforced
  - DESTINATION
  - LINE
  - LOGICAL-TERMINAL
  - PHYSICAL-TERMINAL
  - PROGRAM
  - QUEUE
  - TASK
- Schema Compiler Entity Types Actively Enforced
  - AREA
- SCHEMA
- SCHEMA-RECORD
- SET

- Subschema Compiler Entity Types Actively Enforced
  - SUBSCHEMA

- Data Dictionary Entity Types Actively Enforced
  - ATTRIBUTE
  - CLASS
  - COBOL-ELEMENT
  - DESTINATION
  - ELEMENT
  - ELEMENT-SYNONYM
  - ENTRY-POINT
  - FILE
  - FILE SYNONYM
  - LINE
  - LOAD MODULE
  - LOGICAL-TERMINAL
  - MAP
  - MESSAGE
  - MODULE
  - PANEL
  - PHYSICAL-TERMINAL
  - PROCESS
  - PROGRAM
  - QFILE
  - QUEUE
Stalled Generation

Enforcement processing may be compromised under certain circumstances. Messages ENF0040E and ENF0042E detail these situations. For information on these messages, access the online message facility through the online documentation.

If these messages are accompanied by a terminal ID, it is probable that a user is holding the enforcement table through an active IDDUXIT session. Relinquishing this session should enable generation to proceed.

In those cases where the indicated terminal does not hold an IDDUXIT session, the in-use count of an enforcement table has been incremented, the session has aborted (perhaps due to a deadlock situation), and generation cannot proceed because the in-use count can never reach zero. In order to reset the in-use count, one of the following procedures must be followed:

1. Cycle the central version. This will reset the tables.

2. If your site does not use 24-hour central version procedures, implement generation on a future date as long as the central version cycles prior to that date.

3. Insure that all tasks are quiesced and enter the ENFRESET task code from the DC prompt. This resets all enforcement tables and allows generation to proceed.
Batch Mode--SYSLST Limitations

The SYSLST DD assignment must be to a SYSOUT unless all severity levels for the specific enforcement structure are defined with a DISPLAY Mode assignment of N (No) at the Environment Runtime Directives screen.

If the DISPLAY mode is enabled and SYSLST is assigned to DASD or TAPE, the results are unpredictable.

For more information on executing CA IDMS compilers in batch mode, refer to Batch Utilities (see page 66).

CA IDMS Utility Processing

The System Generation Compiler, Schema Compiler, Subschema Compiler, and the Data Dictionary Definition Compiler can be actively enforced in both batch and online. Active enforcement both batch and online is based on the type of processing code returned to the CA IDMS Utility from CA IDMS Enforcer. Dictionary update options for varying error levels (I--Informational, W--Warning, or E--Error) determine further utility processing. Displaying errors and preventing data dictionary updates for varying error levels is specified at the Environment Runtime Directives online definition and maintenance utility, option 3.1.2. CA IDMS Enforcer processing codes (0-No Error, 1-Informational, 4-Warning, or 8-Error) are returned to the executing utility based on enforcement compliance and dictionary update options as shown in the examples below:

1. The entity name occurrence matches the naming standard template that is first in the search order for that entity:
   - 0--PREVENT DICTIONARY UPDATE enabled.
   - 0--PREVENT DICTIONARY UPDATE disabled.

2. The entity name occurrence does not match the first naming standard template, but complies with a template that is not first in the search order:
   - 1--PREVENT DICTIONARY UPDATE enabled.
   - 1--PREVENT DICTIONARY UPDATE disabled.

3. The entity name occurrence does not match any templates defined for that entity type:
   - 4--PREVENT DICTIONARY UPDATE disabled.
   - 8--PREVENT DICTIONARY UPDATE enabled.

The CA IDMS utility formats one of the following messages based on CA IDMS Enforcer return codes:

- 0 -- no message type is generated for this error level.
- 1 -- *+ I -- . CA IDMS utility message type is generated for this error level.
Overriding Active Enforcement

Two types of override processing are available during an active enforcement session, the OVERRIDE command and internal processing to override the prefix specification requirements for bracketed template compliance. Both features are implemented through a combination of CA IDMS security and task definition established at product installation. The OVERRIDE command is associated with the ESXAOVE task and the internal prefix override is associated with the ESXPFIX task.

To implement these features, task category resources for ESXAOVE and ESXPFIX must be defined to your system catalog and access privileges granted to users allowed to override enforcement compliance. If resources are not defined in your catalog, anyone issuing the OVERRIDE command can bypass compliance to enforcement standards. For bracketed templates, entry of the prefix will be required to pass enforcement.

For additional information on bracketed templates and security, see Enforcement Structure (see page 91) and "Security Options". The OVERRIDE command is discussed in .

Passive Enforcement 1

CA IDMS Enforcer supports the following standard data dictionary entity types, entity-type synonyms, and CA IDMS components supported by the System Generation, Schema, Subschema, and Data Dictionary Definition Language Compilers:

<table>
<thead>
<tr>
<th>Entity</th>
<th>Entity</th>
<th>Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA</td>
<td>MAP</td>
<td>SCHEMA-RECORD</td>
</tr>
<tr>
<td>ATTRIBUTE</td>
<td>MESSAGE</td>
<td>SCREEN</td>
</tr>
<tr>
<td>CLASS</td>
<td>MODULE</td>
<td>SET</td>
</tr>
<tr>
<td>COBOL-ELEMENT</td>
<td>PANEL</td>
<td>SUBSYSTEM</td>
</tr>
<tr>
<td>DESTINATION</td>
<td>PHYSICAL-TERMINAL</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>ELEMENT</td>
<td>PROCESS</td>
<td>TABLE</td>
</tr>
<tr>
<td>ELEMENT-SYNONYM</td>
<td>PROGRAM</td>
<td>TASK</td>
</tr>
<tr>
<td>ENTRY POINT</td>
<td>QFILE</td>
<td>TRANSACTION</td>
</tr>
<tr>
<td>FILE</td>
<td>QUEUE</td>
<td>TRANSACTION-SYNONYM</td>
</tr>
<tr>
<td>FILE SYNONYM</td>
<td>RECORD</td>
<td>USER</td>
</tr>
<tr>
<td>LINE</td>
<td>RECORD-SYNONYM</td>
<td>user-defined-entity-type</td>
</tr>
<tr>
<td>LOAD-MODULE</td>
<td>REPORT</td>
<td>VIEW ID</td>
</tr>
<tr>
<td>LOGICAL-RECORD</td>
<td>REPORT-SYNONYM</td>
<td></td>
</tr>
</tbody>
</table>
Modify CA IDMS Enforcer Tuning Parameters

CA IDMS Enforcer tuning parameters are initially established at product installation. Values that may be altered include:

- The CA IDMS Enforcer task used to invoke the Online Definition and Maintenance system
- The Dictionary and Node used to contain the tutorials or help text for the Online Definition and Maintenance system
- The Version number of tutorials or help modules accessed at runtime from the specified dictionary and node
- The Lock Mode Directive to direct active enforcement online
- The Delimiters valid for word delimitations during active enforcement of entity name occurrences.

CA IDMS Enforcer Task

The default task code at installation is ENFORCER. If you alter this, you must also modify the task name in the ESXSYSGN member from initial installation to correspond.

Dictionary and Node--Tutorials

The Online Help or Tutorial feature of CA IDMS Enforcer uses a CA IDMS data dictionary to hold the tutorial text. You may load the tutorial text to the primary dictionary associated with the CA IDMS/DC under which this product runs. You may decide, however, to load the tutorial text in a secondary dictionary associated with the CA IDMS/DC under which this product runs.

The default dictionary and node at installation is the primary dictionary associated with the CA IDMS/DC under which this product runs. If you alter this, you must upload the help text or tutorial modules into the specified dictionary using the ESXTUTOR member from initial installation.

Version Number--Tutorials

The version number default is 1. VERSION 1 is contained in the ESXTUTOR member supplied at product installation. If the version number is changed, you must also change the version number in the ESXTUTOR member to correspond.
Locking Mode Directives--Active Enforcement

The default lock mode is D. Locking modes direct active enforcement during updates to the data dictionary using the System Generation Compiler, Schema Compiler, Subschema Compiler, or the Data Dictionary Definition Language Compiler. Specific lock modes and their functions are described below.

- **D** -- DEADLOCK. This directive enables full enforcement diagnostics which includes presentation of the Active Enforcement screen. This mode causes deadlocks when concurrent updates of the same entity type are requested in the same dictionary. Multiple transaction processing causes a currency failure when the enforcer attempts to commit the first transaction and process the next.

- **B** -- BATCH MODE. This directive disables presentation of the Active Enforcement screen. Only CA IDMS Enforcer messages are displayed. This mode minimizes the possibility of deadlocks.

- **I** -- IDDM ONLY. This directive enables full enforcement diagnostics when the Menu Facility is in use. Single transaction processing eliminates currency problems.

CA IDMS Enforcer message detailing naming compliance failures is presented in online compiler diagnostics and in printed batch output regardless of lock mode. For more information, see .

Delimitations

Delimiters used to separate words or acronyms can be limited to one or enabled for all. Delimitations established at installation allow all delimiters as the default. Words can be delimited by:

- () SPACE
- (-) DASH
- (_) UNDERLINE.

Modifying the ESXTPARM Macro

To alter values in the ESXTPARM macro, change the arguments in the assembler instruction(s) immediately before the END statement and assemble the program. To assemble ESXTPARM, you must have ESXCPARM in the assembly maclib. Following successful assembly, link edit ESXTPARM using appropriate parameters supplied at product installation.

Security Options

The CA IDMS Enforcer integrated security feature gives you the ability to provide security for the various online definition and maintenance browse, edit and utility functions, and for CA IDMS Enforcer dictionary and node structure access contained on the installed database. For more information, see
Securing CA IDMS Enforcer Tasks

You can secure online definition and maintenance functions, shown in Exhibit 5.3, by defining CA IDMS task category resources for a function's task. Once task category resource entities are defined, user can be granted execution privileges to access all or specific browse, edit, or utility functions.

Security checking is performed at CA IDMS Enforcer runtime. Task-level security is verified first. Tasks that are not defined to CA IDMS security will not be accessible by all users.

Securing CA IDMS Enforcer Dictionary/Node Structures

You can secure specific CA IDMS Enforcer dictionary and node structures by:

- Defining dictionary and node browse and update activity resources to CA IDMS centralized security system

- Using the online definition and maintenance Dictionary/Node Security Utility, option 3.0, to assign the resource activity number to the CA IDMS Enforcer dictionary/node for browse, update, or both

- Granting execution privileges to a user or group for access to the CA IDMS Enforcer dictionary and node structure for browse, update, or both.

<table>
<thead>
<tr>
<th>TRANSFER LEVEL</th>
<th>TASK NAME</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>ESXAMEN</td>
<td>CA IDMS Enforcer Online Definition and Maintenance Primary Menu.</td>
</tr>
<tr>
<td>1</td>
<td>ESXABAC</td>
<td>Standards Enforcement Access--Browse</td>
</tr>
<tr>
<td>2</td>
<td>ESXAEC</td>
<td>Standards Enforcement Access--Edit</td>
</tr>
<tr>
<td>3</td>
<td>ESXAUTL</td>
<td>Standards Enforcement Access--Utilities</td>
</tr>
<tr>
<td>3.0</td>
<td>ESXASL</td>
<td>Dictionary/Node Security</td>
</tr>
<tr>
<td>3.1</td>
<td>ESXAUCN</td>
<td>Environment Utility</td>
</tr>
<tr>
<td>3.1.1</td>
<td>ESXAES</td>
<td>Environment--Severity Levels</td>
</tr>
<tr>
<td>3.1.2</td>
<td>ESXAUCED</td>
<td>Environment--Runtime Directives</td>
</tr>
<tr>
<td>3.1.3</td>
<td>ESXAUEG</td>
<td>Environment--Runtime Generation</td>
</tr>
<tr>
<td>3.2</td>
<td>ESXAUAC</td>
<td>Structure Utility Access</td>
</tr>
<tr>
<td>3.3</td>
<td>ESXAUCD</td>
<td>Add/Copy Enforcement Structure</td>
</tr>
<tr>
<td>3.4</td>
<td>ESXAUCE</td>
<td>Add/Copy Entity Type</td>
</tr>
<tr>
<td>3.5</td>
<td>ESXAUCT</td>
<td>Add/Copy Template</td>
</tr>
<tr>
<td>3.6</td>
<td>ESXASTB</td>
<td>System Table Maintenance</td>
</tr>
</tbody>
</table>
CA-AF2 Security Exit Installation

Use these steps to install CA IDMS Enforcer as a subordinate exit to the CA-AF2 security exit:

- **Step 1--Modify the Prototype CA-AF2 Exit** -- A standard IBM linkage call must be added to the prototype CA-AF2 exit. This call should load a V-type address constant of SUBUXIT for every possible exit command type. If the command is a SIGNON command, SUBUXIT should only be called if the return code is less than eight.

  After modification, the CA-AF2 exit should be reassembled. It is assumed that the CA-AF2 exit does not use the User Work Area full word in the User Exit Control Block, and that parameters are passed intact from the CA IDMS Utility.

- **Step 2--Relink the CA IDMS Utility** -- Alter the appropriate linkage edit statements from the initial product installation to change the name of the CA IDMS Enforcer exit. To alter the name, use the CHANGE command in the following sequences for the target online or batch compiler:

  **Online**
  ```
  INCLUDE SYSLIB (IDDUXIT) CA-ACF2 Prototype
  CHANGE IDDUXIT(SUBUXIT)
  INCLUDE LOADLIB(IDDUXITA)
  ```

  **Batch**
  ```
  INCLUDE SYSLIB (IDDUXIT) CA-ACF2 Prototype
  CHANGE IDDUXIT(SUBUXIT)
  INCLUDE LOADLIB(IDDUXITA)
  ```

  See Exhibit 5.3 for a list of compilers containing user-exit support. Activating enforcement using CA IDMS compiler user exits is also described in this section.

Activating Enforcement

Activating Enforcement is accomplished by generating the CA IDMS Enforcement Table and testing for the presence or not of Enforcer modules in your CDMSLIB or STEPLIB library concatenation.

CA IDMS Enforcer Enforcement Table

The CA IDMS Enforcer enforcement table contains enforcement values defined in the online definition and maintenance system. For each data dictionary defined in your central version that must be actively and/or passively enforced, a table of enforcement values must be generated for the corresponding dictionary/node structure contained in the CA IDMS Enforcer database.

For more information on generating the required enforcement table, see .
Online Environment

Activating Enforcement for the online environment is achieved based on the presence of the ENFRXITO with an alias of ENFROXIT in your CDSMLIB library concatenation at runtime.

Batch Environment

Activating Enforcement for the batch environment is achieved based on the presence of the ENFRXITB with an alias of ENFRBXIT in your job STEPLIB library concatenation.

Passive Enforcement

Refer to for detailed information on passive enforcement. "Dictionary Audit Utility (ESXAUDIT)", does not require user exit processing to determine the levels of entity-name compliance. The only requirement for auditing a data dictionary is that the enforcement values are defined in the online definition and maintenance system and are generated into the required table format.

Migrating the CA IDMS Enforcer Database

To migrate the template definitions of a CA IDMS Enforcer database structure from one CA IDMS/DC environment to another (database), download the contents of the database and populate the database of the new environment with the downloaded text. Download the database using the Download Enforcement Structure batch utility (ESXDLOD). This procedure writes the entire contents of the structure to a disk file or tape. To populate another database with the tape or disk output file, use the Upload Enforcement Structure batch utility (ESXULOD) specifying appropriate keyword parameters to either replace an existing structure or add a new one. For more information, see Batch Utilities (see page 66).

Online Documentation Facilities

Online Documentation Print Utility

The CA Online Documentation Print Utility provided with CA IDMS Enforcer allows error messages and other product information to be printed upon request.

The Target or Distribution source library member GSIPRINT (z/OS and Z/OS), TOOLJCL library member GSIPRINT.S (Z/VSE), or the GSIPRINT EXEC (Z/VM), downloaded from the CA IDMS Enforcer installation media, contains the JCL to execute the Online Documentation Print Utility. The online documentation modules for CA IDMS Enforcer processing are listed in Exhibit 5.4.
The printed version of the online documentation is presented one screen per page and includes page reference indices for screen options. Characters highlighted in the online documentation appear bolded in the printed version.

Online Message Facility

CA IDMS Enforcer allows you to view message text in an online environment.

To access the Message Index screen:

1. Type M in the OPTION field of any HELP screen.
2. Press the Enter key.

The Message Index screen is displayed.

To view message text:

1. Type the message number in the INDEX line of the Message Index screen.
2. Press the Enter key.

The text for that message is displayed.

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSCMSG</td>
<td>General Service Messages</td>
</tr>
<tr>
<td>GSIHELP</td>
<td>General Service documentation</td>
</tr>
<tr>
<td>USXMSG</td>
<td>EDITOR Messages</td>
</tr>
<tr>
<td>ESXABAC</td>
<td>Standards Enforcement Access (browse)</td>
</tr>
<tr>
<td>ESXADL</td>
<td>Dictionary/Node List</td>
</tr>
<tr>
<td>ESXAEAC</td>
<td>Standards Enforcement Access (edit)</td>
</tr>
<tr>
<td>ESXAEFR</td>
<td>Indirect Field Reference</td>
</tr>
<tr>
<td>ESXAEFV</td>
<td>Field Range Values</td>
</tr>
<tr>
<td>ESXAEFL</td>
<td>Field Value(s)</td>
</tr>
<tr>
<td>ESXAECL</td>
<td>Entity List</td>
</tr>
<tr>
<td>ESXAEFMC</td>
<td>Confirm Field Modification</td>
</tr>
<tr>
<td>ESXAEFT</td>
<td>Edit Template Format/Fields</td>
</tr>
<tr>
<td>ESXAEKEY</td>
<td>Display PF Key Values</td>
</tr>
<tr>
<td>ESXAMEN</td>
<td>Primary Menu--documentation for all options</td>
</tr>
<tr>
<td>ESXAREC</td>
<td>CA IDMS Enforcer Recovery</td>
</tr>
<tr>
<td>ESXASL</td>
<td>Dictionary/Node Security List</td>
</tr>
<tr>
<td>ESXASTB</td>
<td>System Table Maintenance</td>
</tr>
</tbody>
</table>

15-Jan-2018
### Exhibit 5.4: Online Documentation Modules for CA IDMS Enforcer

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESXASTC</td>
<td>Confirm System Table Deletion</td>
</tr>
<tr>
<td>ESXASTE</td>
<td>System Table Reference</td>
</tr>
<tr>
<td>ESXASTL</td>
<td>System Table List</td>
</tr>
<tr>
<td>ESXATL</td>
<td>Template List</td>
</tr>
<tr>
<td>ESXAUAC</td>
<td>Structure Utility Access</td>
</tr>
<tr>
<td>ESXAUCC</td>
<td>Confirm Structure Replace</td>
</tr>
<tr>
<td>ESXAUCD</td>
<td>Add/Copy Enforcement Structure</td>
</tr>
<tr>
<td>ESXAUCE</td>
<td>Add/Copy Entity Type</td>
</tr>
<tr>
<td>ESXAUCT</td>
<td>Add/Copy Template</td>
</tr>
<tr>
<td>ESXAUDC</td>
<td>Confirm Structure Deletion</td>
</tr>
<tr>
<td>ESXAUED</td>
<td>Environment - Runtime Directives</td>
</tr>
<tr>
<td>ESXAUEG</td>
<td>Environment - Runtime Generation</td>
</tr>
<tr>
<td>ESXAUEN</td>
<td>Environment Utilities</td>
</tr>
<tr>
<td>ESXAUES</td>
<td>Environment - Severity Levels</td>
</tr>
<tr>
<td>ESXAUER</td>
<td>Confirm Template/Indirect Replace</td>
</tr>
<tr>
<td>ESXAUTC</td>
<td>Confirm Template/Indirect Deletion</td>
</tr>
<tr>
<td>ESXAUTL</td>
<td>Standards Enforcement Utilities</td>
</tr>
<tr>
<td>ESXAUUC</td>
<td>Confirm Entity Replace</td>
</tr>
<tr>
<td>ESXBROW</td>
<td>EDITOR Browse Commands</td>
</tr>
<tr>
<td>ESXSHOW</td>
<td>Browse Template</td>
</tr>
<tr>
<td>ESXMSG</td>
<td>CA IDMS Enforcer Online Message Facility</td>
</tr>
<tr>
<td>ESXSYNTX</td>
<td>General Syntax Notation Information</td>
</tr>
<tr>
<td>IDDUXIT</td>
<td>Active Enforcement documentation Facility</td>
</tr>
</tbody>
</table>

**Interface to CA IDMS SASO**

*CA IDMS Enforcer standards can be displayed in full detail in a CA IDMS SASO online browse session or in printed output. For more information, see the "Operations" section of the CA IDMS SASO User Section.*