CA Endevor®/DB for CA IDMS™

Administration Guide

Release 18.5.00

technologies

CA Technologies Product References

This document references the following CA products:

- CA IDMS™/DC Transaction Server Option (CA IDMS/DC)
- CA IDMS™/DC Transaction Server Option or CA IDMS Database Universal Communications Facility Option (DC/UCF)

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Chapter 1: Introduction

This document describes the administration of Endevor/DB for CA IDMS.

This section contains the following topics:

Syntax Diagram Conventions (see page 9)

Syntax Diagram Conventions

The syntax diagrams presented in this guide use the following notation conventions:

UPPERCASE OR SPECIAL CHARACTERS

Represents a required keyword, partial keyword, character, or symbol that must be entered completely as shown.

lowercase

Represents an optional keyword or partial keyword that, if used, must be entered completely as shown.

italicized lowercase

Represents a value that you supply.

lowercase bold

Represents a portion of the syntax shown in greater detail at the end of the syntax or elsewhere in the document.

◄─

Points to the default in a list of choices.

►►────────────────────

Indicates the beginning of a complete piece of syntax.

────────────────────►◄

Indicates the end of a complete piece of syntax.

─────────────────────►

Indicates that the syntax continues on the next line.

►─────────────────────

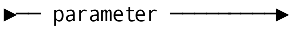
Indicates that the syntax continues on this line.

────────────────────►─

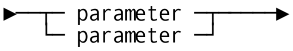
Indicates that the parameter continues on the next line.

─►────────────────────

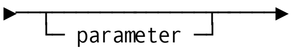
Indicates that a parameter continues on this line.



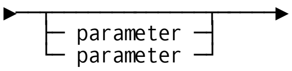
Indicates a required parameter.



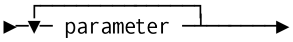
Indicates a choice of required parameters. You must select one.



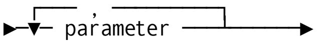
Indicates an optional parameter.



Indicates a choice of optional parameters. Select one or none.



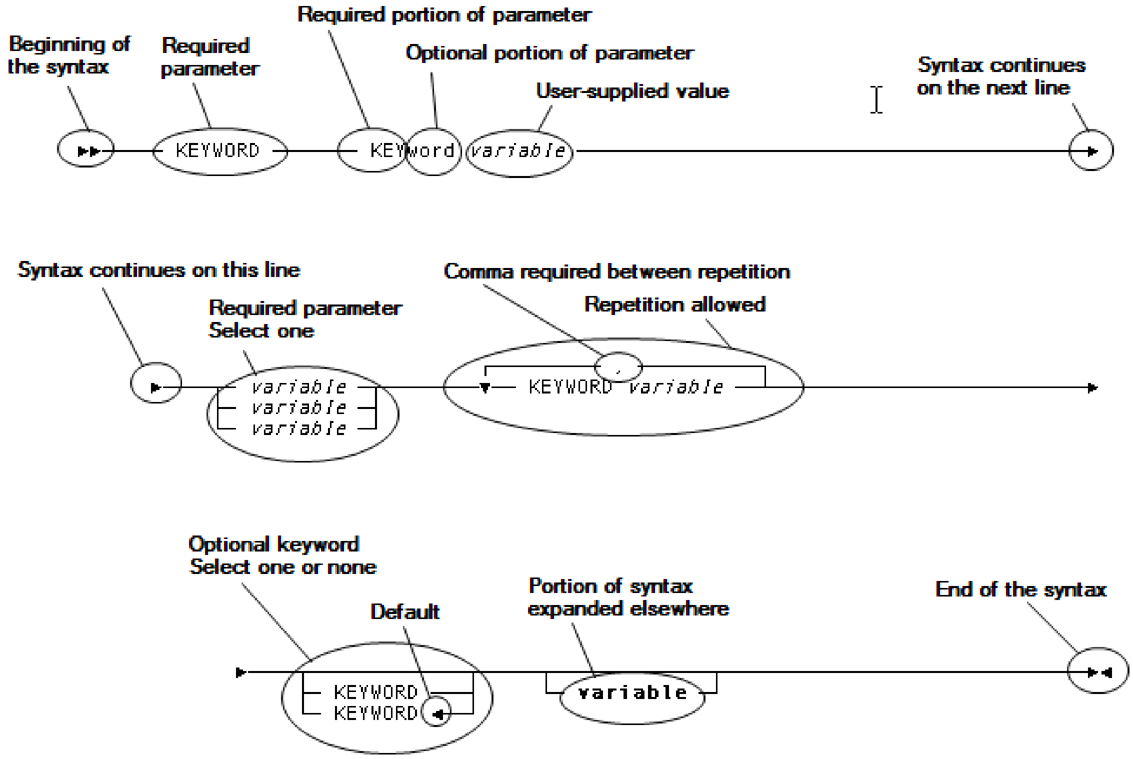
Indicates that you can repeat the parameter or specify more than one parameter.



Indicates that you must enter a comma between repetitions of the parameter.

Sample Syntax Diagram

The following sample explains how the notation conventions are used:


Beginning of the syntax
Required parameter
Required portion of parameter
Optional portion of parameter
User-supplied value
Syntax continues on the next line
KEYWORD
KEYword
variable
Syntax continues on this line
Required parameter Select one
Comma required between repetition
Repetition allowed
variable
variable
variable
,
KEYWORD variable
Optional keyword Select one or none
Default
Portion of syntax expanded elsewhere
End of the syntax
KEYWORD
KEYWORD
variable

Chapter 2: Monitoring Change Activity

This section contains the following topics:

Change Manager Architecture (see page 13)
Establishing a CCDB (see page 14)
Linking a Dictionary to the Change Monitor (see page 14)
DBName Table Coding Rules (see page 15)
Seeding the CCDB (see page 16)
Change Monitor Configuration (see page 17)
Configuration Table (see page 18)
Change Monitor Operations (see page 23)

Change Manager Architecture

The CA Endevor/DB Change Monitor authorizes and logs updates to any IDD in an accompanying Change Control Database (CCDB). Logically, the CCDB is an extension of the dictionary. Updates to the CCDB and the dictionary being monitored are kept in synchronization through the CA Endevor/DB system software.

The Change Monitor operates as a standard CA IDMS database procedure through the subschema used to update the dictionary. The Change Monitor is “hooked” into a dictionary by mapping the CA Endevor/DB-supplied NDVRNWKA for the IDMSNWKA subschema. From this point forward all updates attempted through NDVRNWKA will be routed to the Change Monitor for logging and authorization. (Actual dictionary updates are performed by Computer Associates compilers.)

Once the Change Monitor receives control, it establishes the relationship between a dictionary and its CCDB through the DBNAME table. To achieve

monitoring, the NDVRNWKA subschema, which describes the dictionary, as well as the NDVRSUBS subschema, which defines the CCDB, are mapped to a common DBNAME. The Change Monitor supports as many CCDBs as are defined in the DBNAME table. The Change Monitor decodes the DBNAME table at system startup to determine the proper pairing of CCDBs to dictionaries.

To summarize, change monitoring is initialized by mapping the IDMSNWKA subschema to the NDVRNWKA subschema and establishing a CCDB for the database names to be monitored.

Note: CA Endevor/DB cannot be used with Data Sharing and Dictionaries managed by CA Endevor/DB cannot be shared.

Establishing a CCDB

Installing a CCDB is analogous to installing a dictionary. JCL and parameters to accomplish these tasks are supplied with the installation media and are fully documented in the *CA IDMS Installation and Maintenance Guide—z/OS*. Execute the following jobs from the installation procedure:

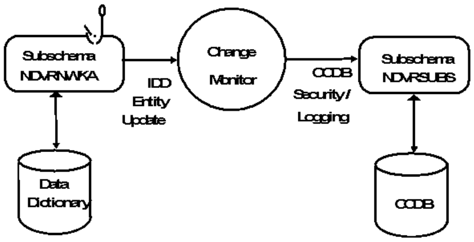
- **Job 6**: Creates the segments, areas, and files for the Change Control Database (CCDB) and place in the Global DMCL. This step also specifies the IDMSNWKA to NDVRNWKA subschema mapping for each database name to be monitored.
- **Job 7**: Allocates the Change Control Database.
- **Job 8**: Punches and link-edits the local DMCL.
- **Job 9**: Modifies the CV startup JCL to include the CA Endevor/DB load library.
- **Job 10**: Assembles the Change Control Data Base server/data base name configuration table (NDVRCNFG) and links it to your CV load library.
- **Job 11**: Cycles the CV.

Linking a Dictionary to the Change Monitor

The Change Monitor runs as a task named NDVRSERV under CV, or as a subtask of the operating system in local mode operation. The task definition and programs for the Change Monitor are provided on the CA Endevor/DB installation media. Once the installation procedure (shipped with the media) is executed, the Change Monitor is available to any dictionary for which the IDMSNWKA -to- NDVRNWKA subschema mapping has been specified (for the applicable database name in the table). It is only necessary to install the Change Monitor once per CV. Any number of dictionary/CCDB pairs can be run through the monitor.

Note: Disabling CA Endevor/DB is only recommended when unloading and reloading the dictionary for expansion purposes.

Figure 1.1 below depicts the flow of operation surrounding installation of CA Endevor/DB change monitoring on a dictionary.



DBName Table Coding Rules

During execution the Change Monitor detects the DICTNAME and SUBSCHEMA name when an update to an IDD is requested. It then searches for this name in the DBNAME table to determine the appropriate CCDB to which activity should be logged.

The relationship between a dictionary (that is, an IDMSNWKA mapping) and a CCDB (that is, a xxxxCCDB segment) must be one-to-one. The same pair of mappings must always occur together under a DBNAME.

The DBName for the dictionary linked, or "hooked" to the Change Monitor **should** be the same as the Segment Name of the segment in the DMCL containing the dictionary's DDLDML area. Failure to do so may allow the Change Monitor to be bypassed if the segment name of the DDLDML is specified as a DBName or Dictname. A valid DBName for a "hooked" dictionary must include:

- Segment(s) describing the areas of a dictionary (DDLDML, DDLDCLOD, and, optionally, DDLDCMSG)
- Segment(s) describing all areas of a CCDB (NDVR-ADM, NDVR-LOG, and NDVR-PAK)
- Subschema mapping of IDMSNWKA to NDVRNWKA

For example, if the DMCL contains the following segment definitions:

```
SEGMENT APPLDICT
     AREA APPLDICT.DDLDML
     AREA APPLDICT.DDLDCLOD
SEGMENT SYSMSG
     AREA SYSMSG.DDLDCMSG
SEGMENT APPLCCDB
     AREA APPLCCDB.NDVR-ADM
     AREA APPLCCDB.NDVR-LOG
     AREA APPLCCDB.NDVR-PAK
```

The correct DBName definition to link the APPLDICT dictionary to the Change Monitor would be:

```
CREATE DBNAME dbtable-name.APPLDICT
   INCLUDE SEGMENT APPLDICT
   INCLUDE SEGMENT SYSMSG
   INCLUDE SEGMENT APPLCCDB
   SUBSCHEMA IDMSNWKA MAPS TO NDVRNWKA
   SUBSCHEMA NDVRSUBS MAPS TO NDVRSUBS;
```

If APPLDICT is the default dictionary for the system, in addition to the above, you must establish subschema mappings at the DBTable level as follows:

```
MODIFY DBTABLE dbtable-name
  SUBSCHEMA IDMSNWKA MAPS TO NDVRNWKA
         DBNAME APPLDICT
  SUBSCHEMA IDMSNWK? MAPS TO IDMSNWK?
         DBNAME APPLDICT
```

Note: Pointing two separate dictionaries at the same CCDB is not permitted. View the CCDB as a logical and physical extension to the dictionary.

Seeding the CCDB

When the CA Endevor/DB system encounters an empty Change Control Database (CCDB), it loads the first Dictionary Descriptor and Security Class records automatically. The initial CCDB is under the control of a Security Class named NDVR-GLOBAL. NDVR-GLOBAL enables all menu options, allows modification without a CCID or userid, and has preassignment and Auto-Signout turned off. The Dictionary record is named after the DBNAME of the dictionary for which the CCDB was established. The initial global dictionary options specify no Userid required, no password required, Auto-User, and a default Security Class of NDVR-DDA. Therefore, the first user will be running under the restrictions imposed by NDVR-DDA since Auto-User will add the first user. This prevents users from accidentally gaining access to the CA Endevor/DB Security System while the system is being set up by the installer.

After establishing a physical CCDB, the CA Endevor/DB Online front end must be used to assign a security administrator, assign a System Identifier name, and set default security options. The first time the CA Endevor/DB Online front end is used, the system will encounter the empty Change Control Database (CCDB) and load the dictionary a nd security class records described above.

To establish a security administrator, refer to Chapter 3, "Global Security."

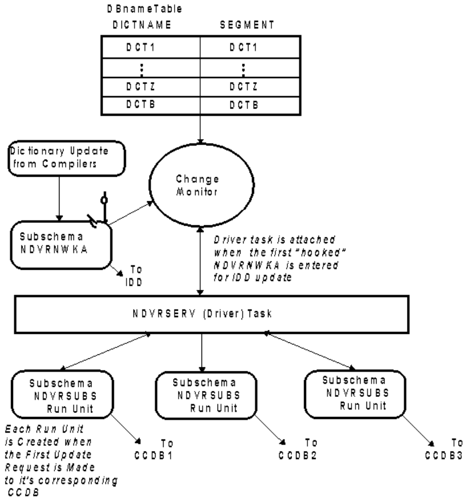
After setting up the security administrator, the dictionary and security options may be changed to conform to a specific installation. Options such as requiring a password can be specified for the dictionary, and permissions can be modified for each security class. The ability to use the CA Endevor/DB Batch front end is initially disabled for the loaded security classes and must be enabled to use this facility. To enable the Batch front end, refer to Chapter 3, "Global Security."

Change Monitor Configuration

The Change Monitor runs with a driver task under CV, or as a subtask of the operating system in local mode operation. For CV, the task definition and programs for the driver are provided on the CA Endevor/DB installation media (in dictionary member CA-ENDEVOR-DB-SYSGEN). Once the installation procedure shipped with the media is executed, the Change Monitor and driver are available to any dictionary which has been "hooked" through the IDMSNWKA-to-NDVRNWKA mapping. Any number of dictionary/CCDB pairs can be run through the monitor.

During execution, the Change Monitor automatically attaches a driver task (named NDVRSERV under CV) when it is first invoked. The driver task opens one protected update run unit (on demand) for each CCDB under its control. While thi s run unit is active, NDVRSERV has exclusive control of the CCDB. This run unit remains active throughout the day and is responsible for all updates performed against the CCDB.

Figure 1.2 depicts the run time architecture of the CA Endevor/DB system.



DBnameTable

DICTNAME	SEGMENT
DCT1	DCT1
⋮	⋮
DCTZ	DCTZ
DCTB	DCTB

Dictionary Update from Compilers
Change Monitor
Subschema NDVRNWKA
To IDD
Driver task is attached when the first "hooked" NDVRNWKA is entered for IDD update
NDVRSERV (Driver) Task
Subschema NDVRSUBS Run Unit
Subschema NDVRSUBS Run Unit
Subschema NDVRSUBS Run Unit
Each Run Unit is Created when the First Update Request is Made to it's corresponding CCDB
To CCDB1
To CCDB2
To CCDB3

Configuration Table

As part of the initial installation procedure (STEP 3), a null configuration table (load module NDVRCNFG) was placed in the CA Endevor/DB load library with other executable components of the system. The NDVRCNFG table can be optionally modified to:

- Assign base names when multiple DBNAMEs point to the same dictionary and CCDB.
- Cause the Change Monitor to attach more than one driver task.
- Configure CCDBs to driver tasks.

When running with the null NDVRCNFG table supplied at installation, all CCDBs defined to a CV run with default base names, and run under one driver task as depicted in Figure 1.2. This is more than adequate for the majority of installations and need not be modified. It must be kept in mind that CCDB activity is extremely minor in comparison to the work performed in the IDD.

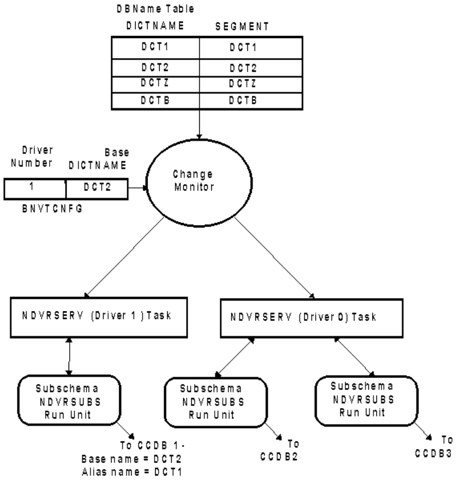
The configuration table is a simple two-entry table with a Driver Number in column one and a DBNAME in column two. The DBNAME in the table is used as the base name (DICTNAME) for the CCDB/IDD pair to which it belongs. The Driver Number is a digit from 1 to 9 that specifies the driver task assigned to handle the CCDB for that DBNAME. If a Driver Number is not specified, it defaults to 0.

When the driver task detects a newly initialized CCDB, it automatically primes the database with the records required for execution. One of the records stored in the CCDB (the Dictionary Record) contains the DICTNAME of its associated IDD. However, if the DICTNAME is changed (by a new DBNAME table) after initial install, the CCDB is automatically updated by the driver to reflect the new name. These are normally straightforward operations, except where two or more DICTNAMEs point to the same IDMS dictionary at initial startup or when renaming (by a new DBNAME table).

Note: If a site does not use multiple DBNAMES to point to the same IDMS dictionary, base name set up can be ignored.

The *base name* is stored internally in the CCDB Dictionary Record by the driver at startup. Only one base name can exist per dictionary. The base name displays at the top of all CA Endevor/DB Online screens (in the header area) regardless of the DICTNAME used to gain access to that dictionary (for example, through DCUF SET DICTNAME or CA Endevor/DB Signon). The default base name for a CCDB will be the lowest in collating sequence unless the system is instructed otherwise (as explained below). It is important to note that the primary dictionary is always known as ' ' under these rules regardless of coding in the DBNAME table. Base names become important when using the Promotion Support Facilities (see Chapter 8, "Promotion Support Facilities") to create migration audit trail records in the CCDB.

Figure 1.3 depicts a system running with a NDVRCNFG table.


DBName Table
DICTNAME
SEGMENT
DCT1
DCT1
DCT2
DCT2
DCTZ
DCTZ
DCTB
DCTB
Driver Number
Base DICTNAME
1
DCT2
BNVTCNFG
Change Monitor
NDVRSERV (Driver 1) Task
NDVRSERV (Driver 0) Task
Subschema NDVRSUBS Run Unit
Subschema NDVRSUBS Run Unit
Subschema NDVRSUBS Run Unit
To CCDB 1 -
Base name = DCT2
Alias name = DCT1
To CCDB2
To CCDB3

Notice that DBNAMEs (DCT1 and DCT2) both point to the same CCDB. Since DCT2 is coded in the NDVRCNFG table, DCT2 is the base name. DCT1 becomes an alias name. All non-base names become alias names. DCT1 will function normally (in DCUF commands and CA Endevor/DB search criteria) in all respects. When an alias name is used to sign-on, or in DCUF commands prior to using CA Endevor/DB online screens, the base name will be echoed in the screen header DICTNAME field.

Also notice in Figure 1.3 that a driver number other than 0 was specified with DCT2. This will cause the Change Monitor to establish another task, and assign it DCT2's CCDB run unit. Although the example shows a separate task assigned to DCT2, this is not necessary. If the Driver Number for DCT2 was specified as 0 or omitted, DCT2 would have its CCDB run unit managed by driver 0.

The following rules apply to this table:

- The DBNAME specified in the NDVRCNFG table becomes the base name for that CCDB.
- A given DBNAME can only appear once in the table.
- All CCDBs not assigned through the NDVRCNFG table are assigned to driver 0.

At system startup, the NDVRCNFG Table is loaded and analyzed along with the DBNAME table. The following actions take place:

- The table is edited for consistency, and appropriate diagnostics are produced.
- All CCDBs are assigned base names and/or assigned to drivers according to the table.
- If any CCDBs are unassigned after the NDVRCNFG table is processed (those coded in the DBNAME table but not entered in the NDVRCNFG table), they are allocated to driver 0 and assigned the default base name (lowest in collating sequence).
- All drivers specified and the default driver 0 (if needed) are started. If all the CCDBs are allocated to other drivers, driver 0 will not be started. Run units for CCDBs will be bound by the appropriate drivers when the first access request is made.

Note: Under local mode, one driver subtask is started for the CCDB being accessed. Be sure to supply the correct NDVRCNFG table and IDMSDBTB in the job step.

Sample JCL for NDVRCNFG

To assign base names, and/or establish more than one driver and assign CCDBs to drivers, Job 10 is supplied on the CA Endevor/DB installation media. If the job from the install library is used, all substitutable parameters except for *driver no* and *base name* were established as part of the installation procedure.

```
//JOBNAME   JOB (AAA),'JOB 10 INSTALLATION',CLASS=A,
//    MSGCLASS=X
//*****************************************************************
//*                                                               *
//*  STEP 1:  ASSEMBLE CCDB SERVER/DBNAME CONFIGURATION TABLE.    *
//*                                                               *
//*  STEP 2:  LINK CONFIGURATION TABLE TO USERCV.LOADLIB.         *
//*                                                               *
//*                                                               *
//*****************************************************************
//STEP1   EXEC PGM=your.assembler,REGION=2048K,
//             PARM='DECK,NOLOAD,NORLD,NOXREF'
//STEPLIB   DD DSN=idms.loadlib,
//             DISP=SHR
//SYSPRINT  DD SYSOUT=*
//SYSLIB    DD DSN=ndvrdb.srclib,
//             DISP=SHR
//SYSPUNCH  DD DSN=&.&ASMOP.,DISP=(NEW,PASS),UNIT=TDISK,
//             DCB=BLKSIZE=80,SPACE=(TRK,(5,1))
//SYSUT1    DD DSN=&.&ASMWRK1.,UNIT=TDISK,SPACE=(TRK,(5,1))
//SYSUT2    DD DSN=&.&ASMWRK2.,UNIT=TDISK,SPACE=(TRK,(5,1))
//SYSUT3    DD DSN=&.&ASMWRK3.,UNIT=TDISK,SPACE=(TRK,(5,1))
//SYSIN     DD DSN=ndvrdb.srclib,
//             DISP=SHR
//*
//*  LINK THE NDVRCNFG TABLE:
//*
//STEP2   EXEC PGM=your.linkeditor,REGION=2048K,COND=(4,LE),
//             PARM='RENT,LET,LIST,MAP,XREF,SIZE=(256K,64K),NCAL'
//SYSPRINT  DD SYSOUT=*
//SYSUT1    DD DSN=&.&LNKWORK.,UNIT=TDISK,SPACE=(CYL,(5,1))
//SYSLMOD   DD DSN=usercv.loadlib (NDVRCNFG),
//             DISP=SHR
//SYSLIN    DD DSN=&.&ASMOP.,DISP=(OLD,DELETE)
//*
//* END OF JOB 10
```

NDVRCNFG Coding Examples

To establish base names for a dictionary pointed to by more than one DICTNAME, code:

```
//SYSIN    DD   *
         NDVRSERV DBNAME=DBNAMEA       set up first CCDB name
         NDVRSERV DBNAME=DBNAMEB       set up second CCDB name
         NDVRSERV END=YES
         END
```

To establish two driver tasks and run DBNAME DB1 and DB2 under a common separate driver, code:

```
//SYSIN    DD   *
         NDVRSERV SERVER=1,DBNAME=DB1
         NDVRSERV SERVER=1,DBNAME=DB2
         NDVRSERV END=YES
         END
```

All DBNAMEs not specified above will go to driver 0.

To establish three driver tasks and assign DB1 to one separate driver and DB2 to another separate driver, code:

```
//SYSIN    DD   *
         NDVRSERV SERVER=1,DBNAME=DB1
         NDVRSERV SERVER=2,DBNAME=DB2
         NDVRSERV END=YES
         END
```

All DBNAMEs not specified above, but defined to the DBNAME table will go to driver 0.

Change Monitor Operations

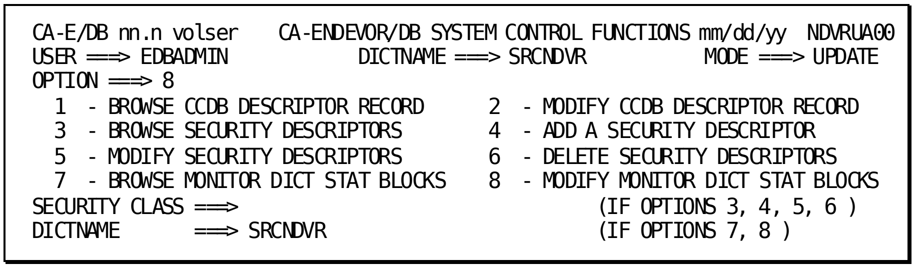
Under CV, an authorized user can employ the CA Endevor/DB online system to turn the Change Monitor, the CCDB, or the Security System on or off for a dictionary. This may be required in emergency situations when there is a critical need to bypass security.

Note: Since the NDVRSERV driver task(s) keeps an open run unit for each active CCDB, the areas in the CCDB cannot be varied offline by DCMT commands until the run unit bound by task NDVRSERV under program NDVRFLIO completes. The Control Functions Menu allows the user to release the CCDB run unit via an online command.

To turn off the monitor, security, or release a CCDB run unit:

1. Sign-on to CA Endevor/DB by entering NDVRMIS at the NEXT TASK CODE prompt.
2. Enter OPTION ===>**10** (CONTROL FUNCTIONS) on the MAIN MENU.

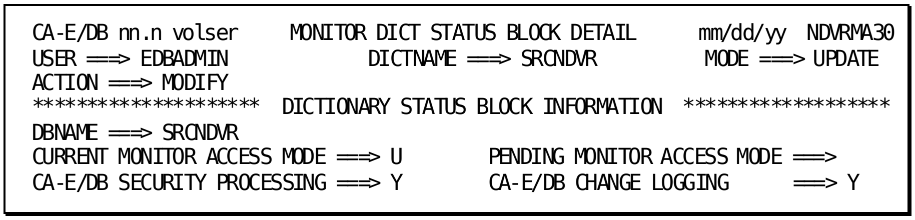
   The System Control Functions menu appears:



```
CA-E/DB nn.n volser    CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS mm/dd/yy  NDVRUA00
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 8
  1  - BROWSE CCDB DESCRIPTOR RECORD      2  - MODIFY CCDB DESCRIPTOR RECORD
  3  - BROWSE SECURITY DESCRIPTORS        4  - ADD A SECURITY DESCRIPTOR
  5  - MODIFY SECURITY DESCRIPTORS        6  - DELETE SECURITY DESCRIPTORS
  7  - BROWSE MONITOR DICT STAT BLOCKS    8  - MODIFY MONITOR DICT STAT BLOCKS
SECURITY CLASS ===>                                  (IF OPTIONS 3, 4, 5, 6 )
DICTNAME       ===> SRCNDVR                          (IF OPTIONS 7, 8 )
```

3. Enter OPTION ===>**8** (MODIFY MONITOR DICT STAT BLOCKS).
4. Enter the base name of the CCDB to be varied in the DICTNAME field.

   The Monitor DICT Status Block Detail screen appears:



```
CA-E/DB nn.n volser     MONITOR DICT STATUS BLOCK DETAIL      mm/dd/yy  NDVRMA30
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
*********************  DICTIONARY STATUS BLOCK INFORMATION  *******************
DBNAME ===> SRCNDVR
CURRENT MONITOR ACCESS MODE ===> U        PENDING MONITOR ACCESS MODE ===>
CA-E/DB SECURITY PROCESSING ===> Y        CA-E/DB CHANGE LOGGING      ===> Y
```

If you left the DICTNAME blank on the prior screen, a list of all the active CCDBs running under the driver task for the dictionary under which you are operating will appear. In this case, place a non-blank character next to the correct DICTIONARY and press ENTER to get to the screen shown above. This screen contains Change Monitor control information for the specified dictionary.

Current Monitor Access Mode

This field displays the current status of the Change Monitor.

Option	Description
U	Update mode. In update mode the CCDB areas are readied in update mode.
R	Retrieval mode. In retrieval mode the CCDB areas are readied in retrieval. **Note:** This mode would only be used when an emergency offline process needs to be run against the CCDB while the dictionary is still available for update. No Change Logging is accomplished.
O	Offline. In offline mode the Change Monitor does not ready the CCDB areas. No CCDB or dictionary processing can take place in the CV. **Note:** This mode would only be used in an emergency situation when the CCDB is required of an offline updating process. **O** must be specified before the CCDB can be varied offline with DCMT commands.

The following table summarizes the actions, which the CA Endevor/DB Change Monitor performs for various combinations of the Dictionary Status Block settings:

Access Mode	Security Processing	Change Logging	Action Description
O	- - -	- - -	Fail all requests
R	N	N	Allow all requests; log nothing
R	- - -	Y	This combination is not allowed by CA Endevor/DB
R	Y	N	Do security
U	N	N	Allow all requests; log nothing
U	N	Y	Allow all requests; log all updates
U	Y	N	Do security; log nothing

Pending Monitor Access Mode

Set this field to **U** (Update), **R** (Retrieval), or **O** (Offline) to change the CURRENT MONITOR ACCESS MODE status. The requested action will take effect as soon as work-in-progress is completed. Setting this field to **R** automatically turns off Change Logging. Setting this field to **O** automatically turns off Change Logging and Security Processing. It is highly recommended that the Data Dictionary be varied offline or retrieval before setting the CCDB to **O** or **R**.

Important! When the mode is reset to U, after being set to O or R, the Security and Logging switches are left at N. Remember to set these switches to Ys for full CA Endevor/DB services to be in effect. Vary the Data Dictionary to update mode after enabling CA Endevor/DB services.

Security Processing

Current status of the security system for this dictionary. To modify, set this field to **Y** or **N**.

- Y -- Security system is enabled
- N -- Security system is disabled. All updates are allowed to process regardless of signout, lock, or preauthorization. No signouts are attempted.

Change Logging

Current status of the change monitor for this dictionary. To modify, set this field to **Y** or **N**.

- Y -- Change Log Entries are created in the CCDB when entities are updated.
- N -- Change Log Entries are not created in the CCDB when entities are updated. Vary the Data Dictionary areas to retrieval mode before turning off logging.

Chapter 3: Security System Overview

This section contains the following topics:

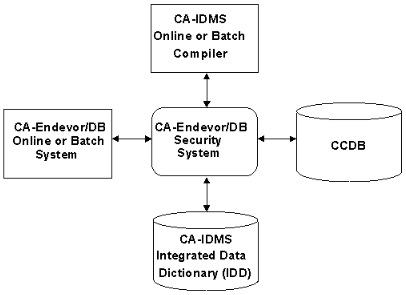
Security System Architecture (see page 28)
Security Facilities (see page 29)
Security Components (see page 31)
Security Implementation (see page 32)
Security Classes and Levels (see page 37)
Sign-on (see page 38)
Change Monitor Processing (see page 42)

Security System Architecture

The CA Endevor/DB Security System enhances IDD-level security enforcement. All CA Endevor/DB users and the Change Monitor run under control of the CA Endevor/DB Security System. Conceptually, the CA Endevor/DB Security System resides between the CA IDMS compilers and the dictionary. At execution time, all requests to modify entities in the CCDB or the IDD are cleared through CA Endevor/DB security. After passing CA Endevor/DB security edits, a dictionary update request is then passed to the IDD to be handled in the usual manner. If the user has already established IDD-level security, CA Endevor/DB adds a layer of additional capability on top of that already set up. If no IDD security is in effect, CA Endevor/DB security can be used exclusively to control updates to IDD entities. The security administrator can establish any combination of CA Endevor/DB security, as well as IDD options.

Please note: No security is enforced when dictionary entities are retrieved immediately prior to update. CA Endevor/DB security is enforced when the update actually occurs. If you fail IDD security, the system generates an IDD error message indicating that you cannot perform that action. If you fail CA Endevor/DB security, the system generates an CA Endevor/DB error message indicating that you cannot perform that action. Immediately after that message, the system displays an IDD error message telling you that the update has failed.

Figure 2.1 illustrates the conceptual flow of requests through the CA Endevor/DB Security System. Both the CA Endevor/DB Online System and the CA IDMS compilers gain authorization to update entities through CA Endevor/DB.



The CA Endevor/DB Security System determines overall processing options through procedure enforcement, entity attributes, and discrete function masks. These concepts are explained in more detail below.

Security Facilities

The CA Endevor/DB Security System is designed to prevent unauthorized users from modifying entities in the CCDB and/or IDD. There are several reasons for wanting to closely control who modifies what. For example:

- Some entities may be critical or sensitive, and should only be updated by specific users (for example, disbursement programs).
- Some users may be restricted to updating only specific *types* of entities (for example, programmers may not be allowed to modify schema definitions).
- Some users may be restricted to updating only specific entity *occurrences* (for example, trainee programmers may be restricted to only updating the classroom study applications).
- Some shops may want to enforce a rule allowing only one programmer (or one group of programmers) to work on an entity at a time. In this case, once someone modifies an entity, no one else is allowed to modify it until the "initial modifier" releases it.
- Certain actions may only be performed by appropriate personnel (for example, migration).

The CA Endevor/DB Security System provides these capabilities through special security facilities.

Note: No CA Endevor/DB security facility is required - they are all optional. If a facility is not needed at a site, it can be disabled.

Entity Type MONITOR Flags

For each entity type that CA Endevor/DB handles, there is a MONITOR flag. The effects of these flags are global: if you set a MONITOR flag to **N**, then CA Endevor/DB simply ceases to pay any attention to that entity type. At installation time, all MONITOR flags are **Y**.

SIGNON Rules

There are various rules that govern the CA Endevor/DB signon process. These rules can be determined on a user-by-user basis, or a CCID-by-CCID basis, or can be set globally. These rules determine:

- Whether a USER must be predefined in the CCDB before SIGNON is allowed;
- Whether a password must be correctly specified before SIGNON is allowed;
- Whether the CA IDMS/DC userid must be used as the CA Endevor/DB userid;
- Whether changes by the user to entities in the dictionary must be attributed to the user alone or to a CCID.
- If changes must be attributed to a CCID, whether the user must identify that CCID at SIGNON time or if predefined CCID associations will be used.

SIGNOUT Processing

An entity can be signed out to a USER or a CCID. Once signed out, only users signed on as that USER or under that CCID can update the entity. An entity can be signed out manually or automatically. There is a set of entity type AUTO SIGNOUT flags. For each entity type that CA Endevor/DB handles, there is an AUTO SIGNOUT flag. The effects of these flags are global: if you set an AUTO SIGNOUT flag to **Y**, an entity is automatically signed out when it is modified. It is signed out to the USER or CCID who modified it. There is also a SIGNOUT function in the Promotion Support Selection utility - if used, all entities selected for migration are signed out when selected, and then signed in when the migration is confirmed.

PREAUTHORIZATION Processing

A USER or CCID can be preauthorized to an entity. Preauthorizations can be used in any or all of five places:

- For specific entities - to set restrictions so that only preauthorized users can change them.
- For specific users - to restrict which entities they are allowed to change.
- To control which users are allowed to SIGNON or to make changes under given CCIDs.
- To control which users are allowed to establish entity-status relationships for certain statuses. These relationships are used to control the promotion process.
- To predefine the CCID to which changes will be attributed for certain entities.

LOCK Processing

A USER, a CCID, or the entire dictionary can be locked.

- Once a USER is locked, no one can sign on as that user or perform any updates as that user.
- Once a CCID is locked, no one can sign on under that CCID or make changes attributed to that CCID.
- Once a DICTIONARY is locked, no one can update anything in that dictionary.

ACTION Rules

There are rules governing the ability to perform various CA Endevor/DB actions. These rules can be set on a user-by-user basis, or a CCID-by-CCID basis, or globally. These rules determine:

- Whether a user is allowed to run the Archive/Compress utility;
- Whether a user is allowed to run the Promotion Support utilities;
- Which functions of the Online front end a user is allowed to operate.
- Whether a user is allowed to run the Batch front end and if so, which functions of the Batch front end a user is allowed to operate.

Security Components

The CA Endevor/DB Security System consists of assigned security procedures in the CCDB, the security enforcement logic inside the Change Monitor itself, the portions of the MIS Front End used to maintain the CCDB, and the portions of the Promotion Support utilities that perform SIGNOUT and SIGNIN processing. The security administrator uses the MIS Front End to establish the security procedures in the CCDB, and the Change Monitor automatically watches over those procedures. To understand the CA Endevor/DB Security System, it is essential to understand the various security-related data structures in the CCDB, how they interrelate, and how the Change Monitor uses them to provide the features described above.

Component	Description
Dictionary Descriptor	Contains control flags that affect all dictionary entities and users. Some of the SIGNON rule control flags are kept in the Dictionary Descriptor, along with the MONITOR flags and the AUTO SIGNOUT flags. This descriptor also contains a LOCK flag for the dictionary, the name of the Security Class for the dictionary, and the name of a Security Class to use when signon processing is performed without a specified user.
Security Class Descriptor	Contains the remainder of the control flags (not contained in the Dictionary Descriptor). There is a Security Class associated with the dictionary, with each USER, and with each CCID. During signon processing, the security administrator identifies a dictionary, and optionally a USER and up to 12 CCIDs -- each with an associated Security Class. It is possible, then, to have a total of up to 14 Security Class Descriptors as implied by the signon process. The control flags from these Security Class Descriptors are merged under the following rules: ■ An **N** value for a flag in any Security Class means the user operates with N. ■ A **Y** value for all security classes means the user operates with Y.

Component	Description
USER Descriptor	Contains the name, password, security class, and most recent list of CCIDs for a user. When a user signs on, if no CCIDs are specified, the list is assumed to identify the CCIDs to use; if one or more CCIDs are specified, they are assumed to replace the old list. An exception to this use of Signon CCIDs is when DERIVED CCID processing is in effect for the user. Then Signon CCIDs are not used, and predefined CCID to entity associations are used to identify what CCIDs to associate as the updates to dictionary entities occur. The USER Descriptor also contains a LOCK flag for the user.
CCID Descriptor	Contains the name and security class for a CCID. It also contains a LOCK flag for the CCID.
SIGNOUT and PREAUTH Record	Acts as a junction between ENTITY and either USER or CCID. It contains a signout flag, a PREAUTH flag, and a DERIVE CCID flag. A given SIGNOUT/ PREAUTHORIZATION record can serve three purposes: ■ To record that an entity is signed out to the user or CCID involved in the junction ■ To record that the user of the CCID involved in the junction is preauthorized to the entity. ■ To record that changes made by any user running in DERIVED CCID mode will be attributed to the CCID that participates in the junction.

Security Implementation

This section describes the CA Endevor/DB security planning process, and the features that are used to implement each desired capability.

Entity Type Monitoring

The security administrator's first consideration is to decide which entity types to monitor (and thus secure through the CA Endevor/DB Security System). If, for instance, you do not wish to control the update of ELEMENT entities, set the MONITOR flag for ELEMENTs to **N**.

For more information on entity types, see Appendix B, "CA Endevor/DB Entity Types," in the *CA Endevor/DB for CA IDMS Batch Reference Guide*.

Security Classifications

The security administrator's next consideration is whether to establish security by USER, security by CCID, global security, or no security at all.

- **No security** is the easiest to implement. Simply change the name of the default user Security Class (in the Dictionary Descriptor) to the global privileges Security Class.
- **Global security** is only slightly more difficult. Change the name of the default user Security Class to the global security class, and then disable (in that Security Class) those features, which no user is to be able to perform.

To establish security by USER or CCID, you must divide your user population into classes, based upon which actions users in a given class are to be allowed to perform. You then set up a Security Class Descriptor for each class. Choose one of these as the default class, and specify it as the default user Security Class in the Dictionary Descriptor. In order to guarantee that a user signs on under the proper USER or CCID, set the NO-PASS flag in the Dictionary Descriptor to **N** (thus forcing all users to specify a password when they sign on).

- **To establish security by USER**, modify each USER Descriptor to specify the name of the appropriate Security Class. CCIDs may be left optional but, if defined, would have the same Security Class as the Dictionary.
- **To establish security by CCID**, modify each USER Descriptor to specify the same Security Class as the Dictionary, set the appropriate Security Class in each CCID Descriptor, mark every CCID (that has special privileges) as **PRIVATE**, and establish the preauthorizations that determine which users are allowed to operate under each CCID.

Use of the CA Endevor/DB Batch Front End

The Batch front end provides a similar set of functions to the CA Endevor/DB Online front end. Through the use of a batch command language, massive updates can be issued from simple, powerful commands. Also, command syntax can be created using existing data from a CCDB. This can be very effective when cloning CCDB information. The Security Administrator must decide whether to disallow this facility and if so, what security classes to disable it for. To disable this facility, set the BATCH flag in the Security Class to **N**. A complete discussion of this facility is available in the *CA Endevor/DB for CA IDMS Batch Reference Guide*.

Note: Setting the Batch flag to **Y** or N will have no effect on the use of other CA Endevor/DB Batch utilities.

AUTO SIGNOUT

Another issue to be decided is whether you want to use AUTO SIGNOUT to prevent simultaneous update by multiple users. You control this feature on an entity-type by entity-type basis, by setting AUTO-SO flags in the Dictionary Descriptor. If you elect to use AUTO-SO, then you must also decide whether to have the entities automatically signed out to USER or CCID.

- If you want AUTO SIGNOUT to USER, set the SO-USER flag in every Security Class to **Y** and the NO-USER flag in every Security Class to **N**.
- If you want AUTO SIGNOUT to CCID, set the SO-USER flag in every Security Class to **N**, the SO-CCID flag to **Y**, and the NO-CCID flag in every Security Class to **N**.

STATUS

Next, you must decide whether you want to control the setting of STATUS. This utility allows only certain user classes to set the STATUS functions of the Online front end or the Batch front end. STATUS may be used to control the Promotion Support Selection utility and, thus, should be considered very sensitive. If you must distinguish between specific STATUS values (for Promotion or any other reason), then you will have to set up the preauthorizations that determine which USER is allowed to set the sensitive STATUS, and mark that STATUS as **PRIVATE**.

Preauthorization

The next five areas of concern are all addressed by the use of preauthorizations. They are:

- **Dangerous Users** - These dictionary users are to be restricted to only updating certain entities in the dictionary. For example, trainees would fit into this category. The restriction is specified through the use of the NO-AUTH, LIM-AUTH, and A-OPT flags in the appropriate SECURITY CLASS records. Set the flags in the SECURITY-CLASS record named in the USER descriptor for each "dangerous user" to:

  LIM-AUTH = N

  NO-AUTH = N

  Set the A-OPT flags in the same SECURITY-CLASS record to **N** for all entity types that are to be protected. Then establish a PREAUTHORIZATION junction between each "dangerous user" and all of the entities that the user is to be allowed to change.

- **Sensitive Entities** - These entities are to be updated by only certain users. For example, a disbursement dialog would fit into this category. This restriction is also specified through the use of the NO-AUTH, LIM-AUTH, and A-OPT flags in the SECURITY-CLASS records. Set the flags in every SECURITY-CLASS record to:

  LIM-AUTH = Y

  NO-AUTH = N

  Set the A-OPT flags in every SECURITY-CLASS record to **N** for those entity types that are to be protected. Then establish a PREAUTHORIZATION junction between each sensitive entity and each user that is to be allowed to modify that entity.

  Note: The protection requires at least one PREAUTHORIZATION junction for each sensitive entity. If an entity participates in NO PREAUTHORIZATION junctions, it is assumed by the system not to be sensitive.

- **Derived CCID** - In some shops, it may be infeasible to require that all users sign on to CA Endevor/DB each time they switch from one CCID to another. For example, if a unique CCID is established for every change for every DIALOG, programmers would be issuing CA Endevor/DB signons on a frequent basis. To circumvent this problem, the administrator can predefine the relationships between CCIDs and dictionary entities, and the programmers can run in "DERIVED CCID" mode. When doing so, they only signon to CA Endevor/DB to specify their userid. The CCID to which a given change is attributed will be determined by the presence of a PREAUTHORIZATION junction. This processing mode is also specified through the SECURITY-CLASS record. In the SECURITY-CLASS records named in each DERIVED CCID user descriptor record, set the DE-CCID flag to **Y**. Then establish a PREAUTHORIZATION junction between each entity to be changed and the CCID to which changes are to be attributed. In each of those PREAUTHORIZATION junctions, set the DE-CCID flag to **Y**.

- **Private CCID** - You may need to make CCIDs private for several reasons. Perhaps you have established security by CCID or you manage "Sensitive Entities" by CCID. In these (and other) cases, you will need to control which users are allowed to signon or make changes under a CCID. The restriction is specified by setting the TYPE of each restricted CCID to PRIVATE. Then establish a PREAUTHORIZATION junction between each USER that is to have access to a given CCID and the following entity:

  ENTITY NAME = *ccid-name*

  TYPE = CCID

  VERSION = 1

- **Private Status** - In promotion processing, the NDVRDSEL program EXCLUDE command will exclude any entity associated with a given STATUS. The ability to associate entities with the STATUSes used in your shop's promotion processing is therefore important. To control that ability, set the TYPE of each STATUS used in promotion processing to PRIVATE. Then establish a PREAUTHORIZATION junction between each USER that is to have the ability and the following entity:

  ENTITY NAME = *status-name*

  TYPE = STATUS

  VERSION = 1

LOCK

The last area of concern in the implementation of the CA Endevor/DB Security System is LOCK. If a USER or CCID is to be disabled for any reason, lock it. If all updates to a dictionary are to be suspended, lock it.

Note: Locking a dictionary does not affect the ability to update the corresponding CCDB.

Security Classes and Levels

The CA Endevor/DB Security System is structured to allow global security options that apply to all users within a Dictionary/CCDB pair, as well as to allow tailored specifications to individual users and/or CCIDs. Global options for a Dictionary are maintained and established in the CCDB record that represents the Dictionary being monitored. Individual users and CCIDs cannot override options specified in this global record.

In addition to global security options specified only at the Dictionary level, each Dictionary, User, and CCID can be associated with a Security Class. The Security Class is a named set of rules that apply to the CCDB entity with which it is associated. In general, there is one Security Class for each unique set of permissions allowed. An installation usually sets up a separate Security Class for DBAs, CCDB Administrators, and general users. The CCDB Administrator simply relates the desired Security Class to Users, CCIDs, and Dictionaries. The administrator can establish installation standards in the Dictionary Security Class and be assured that no other Security Class can override it. Security Classes are also used to restrict the activities of individual users, or individuals working under a given CCID.

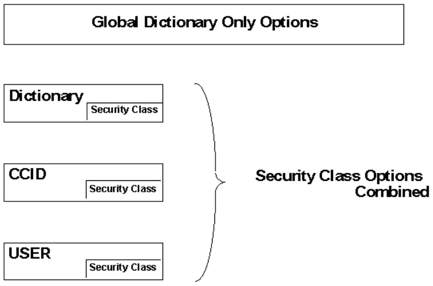
Security Class Options

Procedures	Entity Attributes	Function Mask
Sign-in	Update	All menu masks
Auto signout	Authorization	All Batch commands
CCID		
User		
Limited Preauthorization		
Full Preauthorization		
Archive		
Migrate		
NM-Mode		
Batch		
Derived CCID Mode		

Options specified exclusively at the Dictionary level only. (These cannot be varied by individual users):

Procedures	Entity Attributes	Function Mask
Auto-User	Monitor	Non
Synch	Sign-out	
Password		

Figure 2.2 illustrates the use of Dictionary and Security Class options in combination.


Global Dictionary Only Options
Dictionary
Security Class
CCID
Security Class
USER
Security Class
Security Class Options Combined

Sign-on

CA Endevor/DB Sign-on is a two phase process. Phase one establishes the userid, while phase two establishes the CCID(s) and Security Class options under which the user will be operating.

Phase 1

CA Endevor/DB performs two types of Phase 1 Sign-on:

Sign-on Type	Description
Explicit	Performed as a result of an CA Endevor/DB Sign-on screen or a SIGNON command. An CA Endevor/DB Sign-on element is built with the userid keyed into the screen (if any) or the CA IDMS/DC userid (if any). If Auto-User is in effect, the userid will be added to the CCDB automatically. If the global options require a password or a userid, it will be requested by the system if omitted.

Sign-on Type	Description
Implicit	Performed internally by the Change Monitor when it first encounters an attempt to update an entity in a Dictionary or CCDB. If no prior CA Endevor/DB Sign-on element exists for the user, the system will attempt an Implicit Sign-on. The userid in the CA IDMS/DC sign-on element will be used to obtain the CA Endevor/DB user definition. If the global options require a userid, and none can be obtained from a sign-on element, the attempted Dictionary update will be disallowed, and the user will be requested to perform an Explicit Sign-on. If Auto-User is in effect, the userid will be automatically added to the CCDB. When running CA IDMS compilers in CA Endevor/DB Batch mode, an Implicit Signon occurs if the Batch compiler is not run under NDVRBOOK, or if no userid was used in the SIGNON statement. The Implicit Signon will attempt to acquire a userid associated with the batch job. If no userid is available, the Implicit Signon will be for an unspecified userid. If the global options require a userid, the attempted dictionary update will be disallowed.

Phase 2

Once phase one of SIGNON is complete, phase two processing begins. The USER descriptor for the userid determined in phase one is fetched from the CCDB and the security class named therein is fetched. If no userid was determined, the DEFAULT SECURITY CLASS named in the DICTIONARY descriptor is fetched. In either case, the dictionary security class is also fetched, and the two sets of security flags are merged. At this point, CA Endevor/DB SIGNON processing checks the merged DE-CCID flag to determine if DERIVED CCID mode is in effect.

If DERIVED CCID mode is in effect (DE-CCID = Y), processing is as follows:

1. The CA Endevor/DB and CA IDMS/DC userids are compared. If SYNCH = N and the userids are different, the session is terminated.
2. The USER descriptor is checked. If it is LOCKED, the session is terminated.
3. The DICTIONARY descriptor is checked. If it is LOCKED, the session is terminated.
4. If there is not an existing USER descriptor for the user in the CCDB and AUTO-US = Y, CA Endevor/DB creates a USER descriptor with the security class set to the default security class and the password set to blanks.
5. If the userid is not specified and NO-USER = N, the session is terminated.
6. If the password is not specified and NO-PASS = N, the session is terminated.
7. If all the above checks are passed, the session is started in "DERIVED CCID" mode.

If DERIVED CCID mode is not in effect (DE-CCID = N), processing is as follows:

1. The CA Endevor/DB and CA IDMS/DC userids are compared. If SYNCH = N and the userids are different, the session is terminated.
2. The USER descriptor is checked. If it is LOCKED, the session is terminated.
3. The DICTIONARY descriptor is checked. If it is LOCKED, the session is terminated.
4. If a userid is specified and a USER descriptor exists in the CCDB, and if CCIDs were specified in the SIGNON, the CCID list in the USER descriptor is replaced. If no CCIDs were specified in the signon, the CCID list in the USER descriptor is picked up and processing proceeds as if those CCIDs had been specified.
5. For each CCID specified in the signon, the CCID descriptor is fetched. If the CCID is locked, the session is terminated. If the CCID is PRIVATE and the user is not preauthorized, the session is terminated. The security class named in the CCID descriptor is merged with the dictionary and user security classes.
6. If there is not an existing USER descriptor for the user in the CCDB and AUTO-US = Y, CA Endevor/DB creates a USER descriptor with the security class set to the default security class and the password set to blanks.
7. If the userid is not specified and NO-USER = N, the session is terminated.
8. If the password is not specified and NO-PASS = N, the session is terminated.

9. If no CCIDs were specified in the signon or existing USER descriptor and NO-CCID = N, the session is terminated.

10. If all above checks are passed, the session is started in "Normal" mode.

Once the user session is started, each change made to a dictionary or CCDB entity is subject to security checking and logging.

The options in the Dictionary level Security Class apply to all users, including the security administrator. Be very careful when modifying the Security Class associated with the Dictionary. The options in the CCID Security Class apply to all users who are working with that CCID. The User Security Class options apply to the individual user. Security Class restrictions at the Dictionary level cannot be overridden. When no userid or CCID is required, or when a user is initially added with Auto-User, a default Security Class is assigned by CA Endevor/DB to cover the session. The CCDB administrator specifies the default mask in the CCDB Dictionary definition.

Change Monitor Processing

Every change made by every user in either the dictionary or CCDB is seen by the CA Endevor/DB change monitor. For every change, the processing takes place in two phases:

1. Before the change is applied to the dictionary/CCDB, it is checked by the security system.
2. After the change occurs, it is logged in the CCDB.

The security checking is as follows:

- If the CCDB is offline, the update request is disallowed.
- If security or monitoring is turned off, no other security validations are performed, and the update request is allowed.
- If the dictionary descriptor for the dictionary indicates that the dictionary is locked, the update request is disallowed.
- If the dictionary descriptor for the dictionary indicates that monitoring is not required for this record type, no other security validations are performed, and the update request is allowed.
- If the change is being made in DERIVED CCID mode, the CCID validations which would be performed at signon time must be performed for each CCID which had been preauthorized to the entity with the DERIVE CCID option. As the associated CCIDs (the ones related to the entity through DE-CCID = Y preauthorization junctions) are scanned, locked CCIDs are skipped, as are PRIVATE CCIDs to which the user is not preauthorized. If the security permission flags indicate that the user is not allowed to process without a CCID, and there are no associated CCIDs, the update request is disallowed. The authorization flags for each derived CCID's security class are merged into a net set of permission flags. If the change is being made in the "normal" mode (not DERIVED CCID mode), the net set of permission flags were built in phase 2 of signon processing and this step is skipped.
- The security permission flags must indicate that the user is allowed to update this record type. If not, the update request is disallowed.
- If the entity is signed out to another user or a CCID, the update request is disallowed.
- If the A-OPT flag for this record type is set to **Y**, the update is allowed and the next two checks for FULL AUTH and LIM AUTH classifications are skipped.
- If the security permission flags indicate that the user is "FULL AUTH" classification and a preauthorization for either the user or associated CCIDs does not exist, the update request is disallowed. This rule implements the "Dangerous User" function described earlier in the Preauthorization section of this chapter.

- If the security permission flags indicate a user is "LIM AUTH" classification, and the entity is preauthorized to another user or CCID, but not this user or CCID, the update request is disallowed. This rule implements the "Sensitive Entity" function described earlier in the Preauthorization section of this chapter.

At this point, if all validations have been successfully completed by the security system, the update takes place. After the change has taken place, it is logged in the CCDB. The log processing is as follows:

No logging of the update will be done if any of the following conditions are true:

- The CCDB is not in update mode.
- Logging is turned off.
- If the dictionary descriptor for the dictionary indicates that monitoring for this record type is not required.

If the request is to be logged, CA Endevor/DB performs the following processing:

- If the entity does not already exist, it will be added to the CCDB.
- A Change Log Entry (CLE) will be created, which is linked to all associated CCIDs (either the user's signon or the derived CCIDs for the entity).

Chapter 4: Global Security

This section contains the following topics:

Setting Up a Security Administrator (see page 46)
Disallowing Batch Processing (see page 49)
Setting Up Global Dictionary Options (see page 51)

Setting Up a Security Administrator

A security administrator with authority to set global options and maintain Security Classes can be set up through the CA Endevor/DB Online facility or the CA Endevor/DB Batch facility. To do this, you must accomplish the following tasks:

1. Set up a user description for the security administrator.

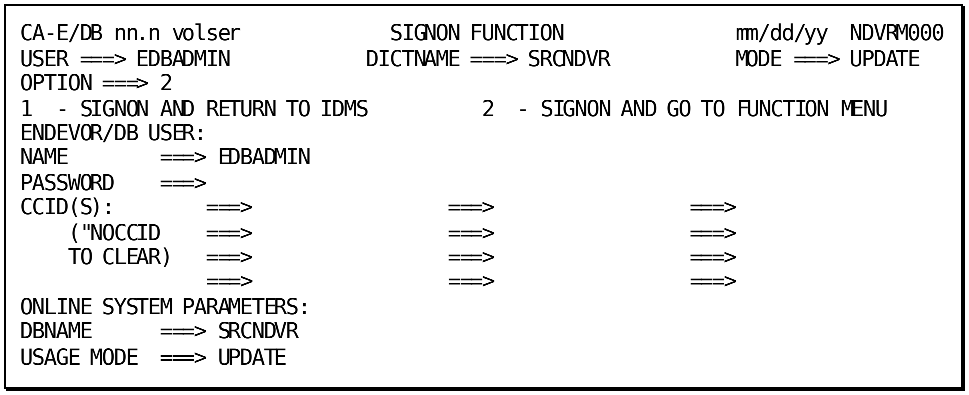
2. Associate the security administrator with an appropriate Security Class.

To do so using the Batch facility, submit a Batch job containing the following CA Endevor/DB commands:

```
SIGNON USER NAME IS user-name DICTNAME IS dictname.
MOD USER EDBADMIN SECURITY CLASS IS NDVR-GLOBAL.
```

To do so using the Online facility, sign on to DC/UCF. Then sign on to CA Endevor/DB by entering **NDVR** at the ENTER NEXT TASK CODE: prompt.

The Signon Function menu displays as follows:



```
CA-E/DB nn.n volser             SIGNON FUNCTION              mm/dd/yy  NDVRM000
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 2
1  - SIGNON AND RETURN TO IDMS          2  - SIGNON AND GO TO FUNCTION MENU
ENDEVOR/DB USER:
NAME        ===> EDBADMIN
PASSWORD    ===>
CCID(S):        ===>                 ===>                  ===>
    ("NOCCID    ===>                 ===>                  ===>
    TO CLEAR)   ===>                 ===>                  ===>
                ===>                 ===>                  ===>
ONLINE SYSTEM PARAMETERS:
DBNAME      ===> SRCNDVR
USAGE MODE  ===> UPDATE
```

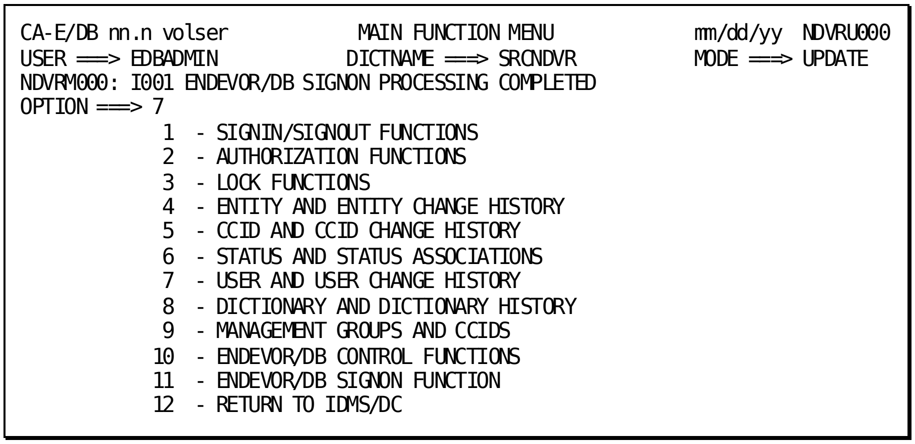
Perform the following tasks:

1. Enter **2** (SIGNON AND GO TO FUNCTION MENU) after OPTION ===>

2. Enter the Userid of the security administrator in the NAME field.

3. Enter the Dictionary name associated with this CCDB after DBNAME ===>.

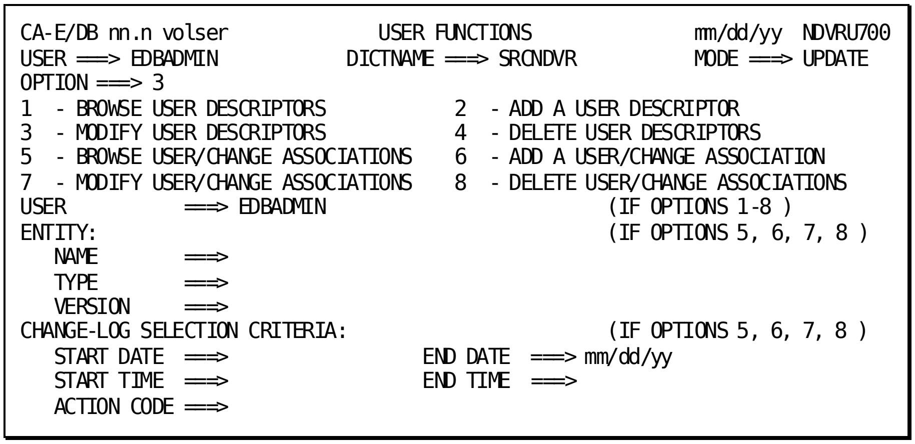
   Since Auto-User is in effect, the CA Endevor/DB system will automatically create a user record for the security administrator. This user will be automatically associated with the Security Class NDVR-DDA that is insufficient for security administration. In a later step, the Security Class will be changed. The Main Function Menu displays as follows:



```
CA-E/DB nn.n volser           MAIN FUNCTION MENU            mm/dd/yy  NDVRU000
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
NDVRM000: I001 ENDEVOR/DB SIGNON PROCESSING COMPLETED
OPTION ===> 7
              1  - SIGNIN/SIGNOUT FUNCTIONS
              2  - AUTHORIZATION FUNCTIONS
              3  - LOCK FUNCTIONS
              4  - ENTITY AND ENTITY CHANGE HISTORY
              5  - CCID AND CCID CHANGE HISTORY
              6  - STATUS AND STATUS ASSOCIATIONS
              7  - USER AND USER CHANGE HISTORY
              8  - DICTIONARY AND DICTIONARY HISTORY
              9  - MANAGEMENT GROUPS AND CCIDS
             10  - ENDEVOR/DB CONTROL FUNCTIONS
             11  - ENDEVOR/DB SIGNON FUNCTION
             12  - RETURN TO IDMS/DC
```

4. Enter **7** (USER AND USER CHANGE HISTORY) after OPTION ===>. Press ENTER.

   The system will respond with the USER FUNCTIONS menu as follows:



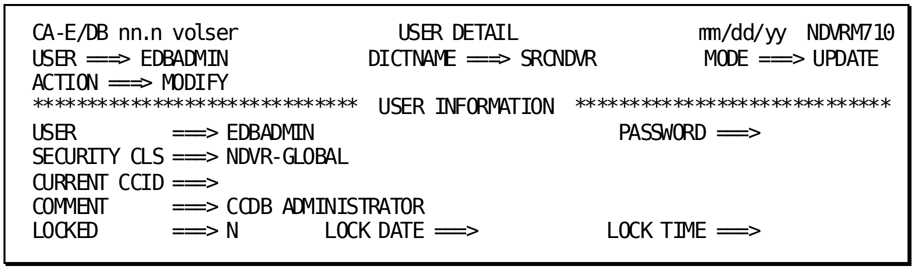
```
CA-E/DB nn.n volser             USER FUNCTIONS              mm/dd/yy  NDVRU700
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 3
1  - BROWSE USER DESCRIPTORS            2  - ADD A USER DESCRIPTOR
3  - MODIFY USER DESCRIPTORS            4  - DELETE USER DESCRIPTORS
5  - BROWSE USER/CHANGE ASSOCIATIONS    6  - ADD A USER/CHANGE ASSOCIATION
7  - MODIFY USER/CHANGE ASSOCIATIONS    8  - DELETE USER/CHANGE ASSOCIATIONS
USER           ===> EDBADMIN                          (IF OPTIONS 1-8 )
ENTITY:                                               (IF OPTIONS 5, 6, 7, 8 )
   NAME        ===>
   TYPE        ===>
   VERSION     ===>
CHANGE-LOG SELECTION CRITERIA:                        (IF OPTIONS 5, 6, 7, 8 )
   START DATE  ===>                 END DATE   ===> mm/dd/yy
   START TIME  ===>                 END TIME   ===>
   ACTION CODE ===>
```

5. Enter **3** (MODIFY USER DESCRIPTIONS) in the OPTIONS field.

6. Enter the security administrator's userid in the USER field.

   Press ENTER.

   The User Detail screen for the Security Administrator displays as follows:



```
CA-E/DB nn.n volser               USER DETAIL                mm/dd/yy  NDVRM710
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
*****************************  USER INFORMATION  ****************************
USER         ===> EDBADMIN                              PASSWORD ===>
SECURITY CLS ===> NDVR-GLOBAL
CURRENT CCID ===>
COMMENT      ===> CDDB ADMINISTRATOR
LOCKED       ===> N        LOCK DATE ===>             LOCK TIME ===>
```

   This user definition was added by the system automatically at Sign-on.

7. Tab down to SECURITY CLS ===>.

8. Enter **NDVR-GLOBAL**.

   Press ENTER.

   The system will now associate the userid for the security administrator with the NDVR-GLOBAL Security Class. From this point forward, the security administrator will have the capability to update anything in the CCDB (provided NDVR-GLOBAL is not altered). It is recommended that the security administrator be the only user with NDVR-GLOBAL as a Security Class.

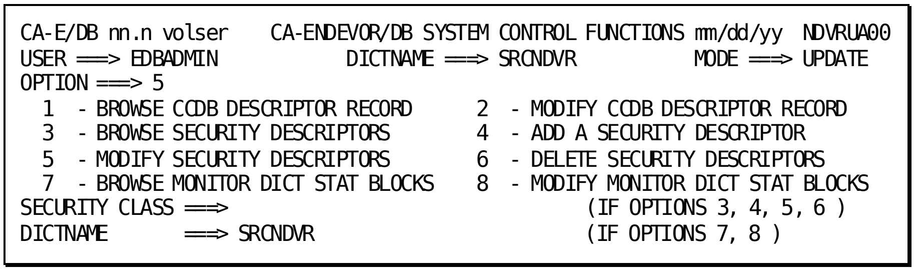
   The User Functions screen displays. The security administrator is now established.

Disallowing Batch Processing

To disallow performing Batch processing, the NDVR-GLOBAL security class must be modified so that the CA Endevor/DB Batch facility is disabled. To disable this processing using the Online facility:

1. Enter **=10** in the OPTION field on the Dictionary Function menu. This gives you direct access to the System Control Functions menu without going through the Main Function menu.

   The System Control Functions menu displays as follows:

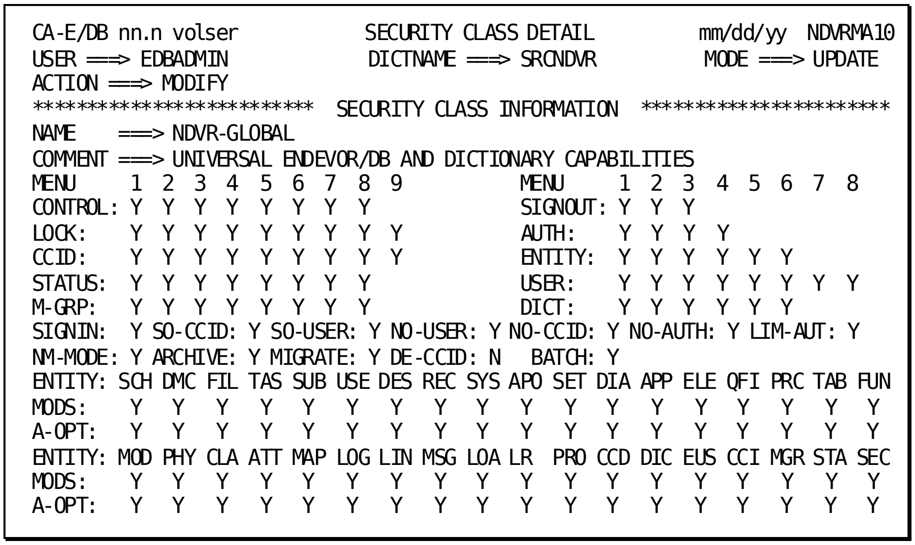


```
CA-E/DB nn.n volser    CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS mm/dd/yy  NDVRUA00
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 5
  1  - BROWSE CCDB DESCRIPTOR RECORD      2  - MODIFY CCDB DESCRIPTOR RECORD
  3  - BROWSE SECURITY DESCRIPTORS        4  - ADD A SECURITY DESCRIPTOR
  5  - MODIFY SECURITY DESCRIPTORS        6  - DELETE SECURITY DESCRIPTORS
  7  - BROWSE MONITOR DICT STAT BLOCKS    8  - MODIFY MONITOR DICT STAT BLOCKS
SECURITY CLASS ===>                                (IF OPTIONS 3, 4, 5, 6 )
DICTNAME       ===> SRCNDVR                        (IF OPTIONS 7, 8 )
```

2. Enter **5** in the OPTION field on the System Control Functions menu. Enter **NDVR-GLOBAL** in the Security Class field. Then press ENTER.

   Note: We are going to update the security class settings for the NDVR-GLOBAL security class, which is used by the security administrator. If we did not enter a security class, the system would provide a list of security classes from which we could select one or more for modifications. Refer to Chapter 4, "Security Class Maintenance," for further information on security class maintenance.

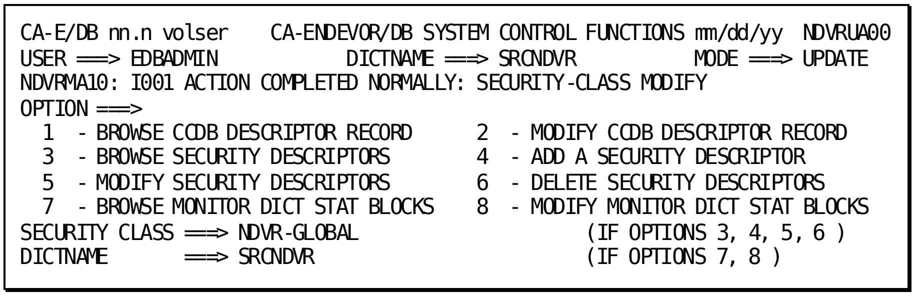
   The Security Class Detail screen displays as follows:



```
CA-E/DB nn.n volser           SECURITY CLASS DETAIL          mm/dd/yy  NDVRMA10
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
*************************  SECURITY CLASS INFORMATION  **********************
NAME    ===> NDVR-GLOBAL
COMMENT ===> UNIVERSAL ENDEVOR/DB AND DICTIONARY CAPABILITIES
MENU     1  2  3  4  5  6  7  8  9           MENU     1  2  3  4  5  6  7  8
CONTROL: Y  Y  Y  Y  Y  Y  Y  Y              SIGNOUT: Y  Y  Y
LOCK:    Y  Y  Y  Y  Y  Y  Y  Y  Y           AUTH:    Y  Y  Y  Y
CCID:    Y  Y  Y  Y  Y  Y  Y  Y  Y           ENTITY:  Y  Y  Y  Y  Y  Y
STATUS:  Y  Y  Y  Y  Y  Y  Y  Y              USER:    Y  Y  Y  Y  Y  Y  Y  Y
M-GRP:   Y  Y  Y  Y  Y  Y  Y  Y              DICT:    Y  Y  Y  Y  Y  Y
SIGNIN:  Y SO-CCID: Y SO-USER: Y NO-USER: Y NO-CCID: Y NO-AUTH: Y LIM-AUT: Y
NM-MODE: Y ARCHIVE: Y MIGRATE: Y DE-CCID: N   BATCH: Y
ENTITY: SCH DMC FIL TAS SUB USE DES REC SYS APO SET DIA APP ELE QFI PRC TAB FUN
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
ENTITY: MOD PHY CLA ATT MAP LOG LIN MSG LOA LR  PRO CCD DIC EUS CCI MGR STA SEC
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
```

3. Enter **N** to the right of the BATCH: option. Press ENTER.

The System Control Functions screen displays as follows:



```
CA-E/DB nn.n volser    CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS mm/dd/yy  NDVRUA00
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
NDVRMA10: I001 ACTION COMPLETED NORMALLY: SECURITY-CLASS MODIFY
OPTION ===>
  1  - BROWSE CODB DESCRIPTOR RECORD      2  - MODIFY CODB DESCRIPTOR RECORD
  3  - BROWSE SECURITY DESCRIPTORS        4  - ADD A SECURITY DESCRIPTOR
  5  - MODIFY SECURITY DESCRIPTORS        6  - DELETE SECURITY DESCRIPTORS
  7  - BROWSE MONITOR DICT STAT BLOCKS    8  - MODIFY MONITOR DICT STAT BLOCKS
SECURITY CLASS ===> NDVR-GLOBAL                      (IF OPTIONS 3, 4, 5, 6 )
DICTNAME       ===> SRCNDVR                          (IF OPTIONS 7, 8 )
```

Setting Up Global Dictionary Options

To set up the global dictionary options, you must modify the default settings which were automatically created when the CCDB was first opened. These global dictionary options can be set up through the CA Endevor/DB Online facility or the Batch facility.

To do so using the Batch facility, execute the following MODIFY DICTIONARY command in a Batch job:

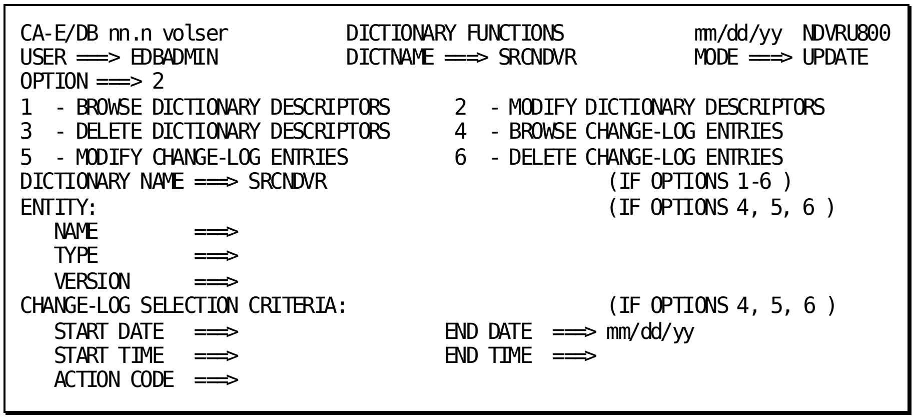
```
MODIFY DICTIONARY dictname
       SECURITY CLASS IS NDVR-GLOBAL
       DEFAULT SECURITY CLASS IS NDVR-DDA
       SYSTEM NAME IS system-name
       AUTO-US IS Y
       NO-SYNC IS Y
       NO-PASS IS Y
       MONITOR (SCH FIL TAS SUB USE DES REC SYS APO SET DIA
                APP ELE QFI PRC TAB FUN MOD PHY CLA ATT MAP
                LOA LIN MSG LOG LR PRO)
       AUTO-SO NONE.
```

Refer to the following description of the Online screen for more information on the DICTIONARY option settings.

To modify the global dictionary options using the Online facility:

1. Enter **NDVRMIS** at the Next Task Code prompt to sign on to CA Endevor/DB.
2. Enter **8** in the OPTION field on the Main Menu.

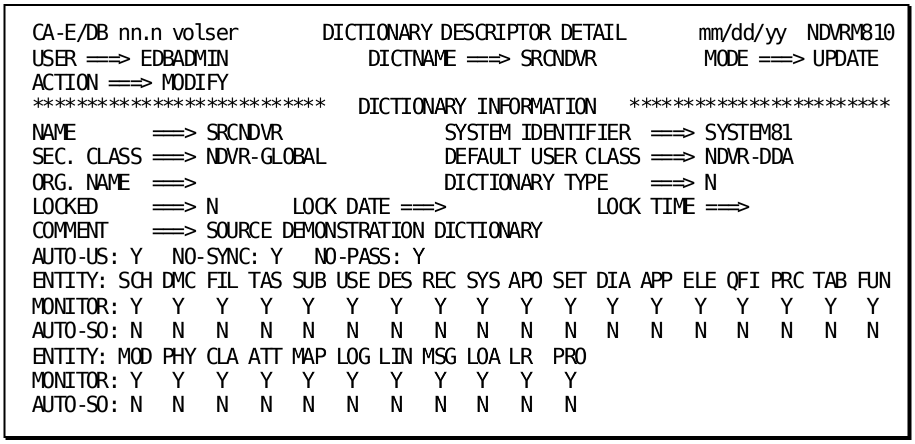
   The Dictionary Functions menu screen displays:



```
CA-E/DB nn.n volser          DICTIONARY FUNCTIONS           mm/dd/yy  NDVRU800
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 2
1  - BROWSE DICTIONARY DESCRIPTORS      2  - MODIFY DICTIONARY DESCRIPTORS
3  - DELETE DICTIONARY DESCRIPTORS      4  - BROWSE CHANGE-LOG ENTRIES
5  - MODIFY CHANGE-LOG ENTRIES          6  - DELETE CHANGE-LOG ENTRIES
DICTIONARY NAME ===> SRCNDVR                         (IF OPTIONS 1-6 )
ENTITY:                                              (IF OPTIONS 4, 5, 6 )
   NAME        ===>
   TYPE        ===>
   VERSION     ===>
CHANGE-LOG SELECTION CRITERIA:                       (IF OPTIONS 4, 5, 6 )
   START DATE  ===>                 END DATE  ===> mm/dd/yy
   START TIME  ===>                 END TIME  ===>
   ACTION CODE ===>
```

3. Enter **2** (MODIFY DICTIONARY DESCRIPTORS) after OPTION ===>.

   The following screen displays:



```
CA-E/DB nn.n volser       DICTIONARY DESCRIPTOR DETAIL      mm/dd/yy  NDVRM810
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
**************************   DICTIONARY INFORMATION   ***********************
NAME       ===> SRCNDVR              SYSTEM IDENTIFIER  ===> SYSTEM81
SEC. CLASS ===> NDVR-GLOBAL          DEFAULT USER CLASS ===> NDVR-DDA
ORG. NAME  ===>                      DICTIONARY TYPE    ===> N
LOCKED     ===> N       LOCK DATE ===>           LOCK TIME ===>
COMMENT    ===> SOURCE DEMONSTRATION DICTIONARY
AUTO-US: Y   NO-SYNC: Y   NO-PASS: Y
ENTITY: SCH DMC FIL TAS SUB USE DES REC SYS APO SET DIA APP ELE QFI PRC TAB FUN
MONITOR: Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
AUTO-SO: N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N
ENTITY: MOD PHY CLA ATT MAP LOG LIN MSG LOA LR  PRO
MONITOR: Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
AUTO-SO: N   N   N   N   N   N   N   N   N   N   N
```

This screen contains the global definition for the Dictionary displayed.

Fields are described below.

NAME

Dictionary for which the CCDB was set up.

Note: This name will change automatically if the DBNAME table entry for this dictionary is modified to a new or different name.

SYSTEM IDENTIFIER

Enter a 1-8 character value to be used to identify the system in which this dictionary resides. This identifier may represent the system's external or internal name, a node name, or a data sharing group name. The System Identifier is used with the name of the dictionary to uniquely identify the dictionary for migration oriented Change Log entries which contain identifying information relating to the destination and origin of entities that have migrated from one dictionary to the next. System Identifier should be unique across your CA IDMS environment regardless of CV, CPU, or data center.

SEC. CLASS

The Security Class associated with the Dictionary. Initially, the Dictionary is set up with NDVR-GLOBAL as a Security Class.

Note: It is recommended that this be left unaltered until a thorough understanding of the Security System is established.

The restrictions set up in the Dictionary Security Class (see Chapter 4, "Security Class Maintenance") apply to all users in the Dictionary.

To change the Dictionary Security Class, enter the new Security Class name to be used for the Dictionary.

DEFAULT USER CLASS

This is the Security Class that will be associated with users who are added using the Auto-User procedure. Initially, this is set to NDVR-DDA. The default Security Class can be changed by keying the new Security Class name desired.

ORIGINAL NAME

Not supported in this release. Leave blank.

DICTIONARY TYPE

Not supported in this release. Always **= N**.

LOCKED

Informational. Values are **Y** or **N**. Indicates if the Dictionary is locked.

LOCK DATE

Informational. Date the Dictionary was locked.

LOCK TIME

Informational. Time the Dictionary was locked.

AUTO-US

Values are **Y** or **N**:

- Y -- Users are added automatically by CA Endevor/DB when encountered the first time.
- N -- Users are not automatically added to the system.

NO-SYNC

Values are **Y** or **N**.

- Y -- When signing on, the CA Endevor/DB and CA IDMS/DC userids can be different.
- N -- When signing on, the CA Endevor/DB and CA IDMS/DC userids cannot be different.

NO-PASS

Values are Y or N.

- Y -- When signing on, the CA Endevor/DB password is optional.
- N -- When signing on, the CA Endevor/DB password is required.

ENTITY

The three-character entity name abbreviations used by the CA Endevor/DB and CA IDMS/DC system for IDD entity types. They act as column headings for the next two fields.

MONITOR

Values are **Y** or **N**.

- Y -- Monitor the modifications to entities of the type specified in the column heading (ENTITY:).
- N -- Do not monitor or create Change Log Entries for modifications to the entity type in the column heading. When monitoring is turned off for an entity type, none of the other CA Endevor/DB attributes have significance.

AUTO-SO

Values are **Y** or **N**.

- Y -- If the resultant Security Class specifies that Auto-Signout is in effect, entities of this type will be signed out automatically.
- N -- Entities of this type will not be signed out automatically.

Chapter 5: Security Class Maintenance

This section contains the following topics:

Establishing and Maintaining Security Classes (see page 56)

Establishing and Maintaining Security Classes

Security Classes are a central part of CA Endevor/DB security. Within the Security Class, restrictions are defined which apply to Dictionaries, CCIDs, and Users. Each one of these entities can be associated with a different Security Class. At execution time, the Security System combines all the Security Classes referenced and arrives at a resultant Security Class. If a permission is disallowed at any level (Dictionary, CCID, or User), the resultant Security Class disallows the action.

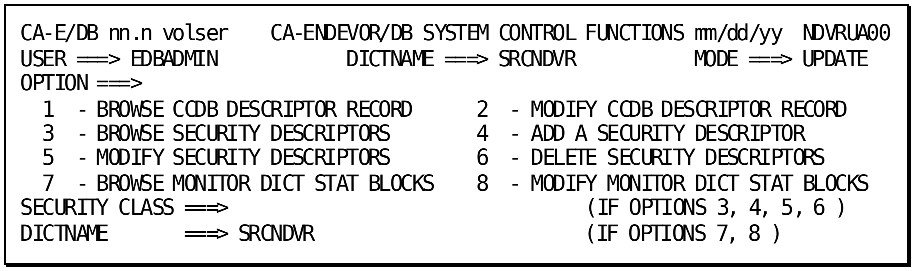
The Dictionary, CCID, and User definitions each contain a reference to a Security Class name. There is usually no more than five or six Security Classes in a CCDB. Many installations set up one for the security administrator (usually NDVR-GLOBAL), one for the Dictionary (usually NDVR-GLOBAL), one for the DBA, one for development leaders, and one for general application developers.

Security classes can be defined and maintained using either the Online front end or the Batch front end. The commands used in the Batch front end are ADD, MODIFY, and DELETE SECURITY CLASS. Refer to the *CA Endevor/DB for CA IDMS Batch Reference Guide* for further information on using them. The meanings of the various options for the ADD SECURITY CLASS or MODIFY SECURITY CLASS commands are discussed in the following description of the Online screens.

When using the Online front end, Security Classes are maintained under the Control Functions screen. To access this screen:

1. Enter **10** in the OPTION field on the Main Function menu.

   The System Control Functions screen displays as follows:



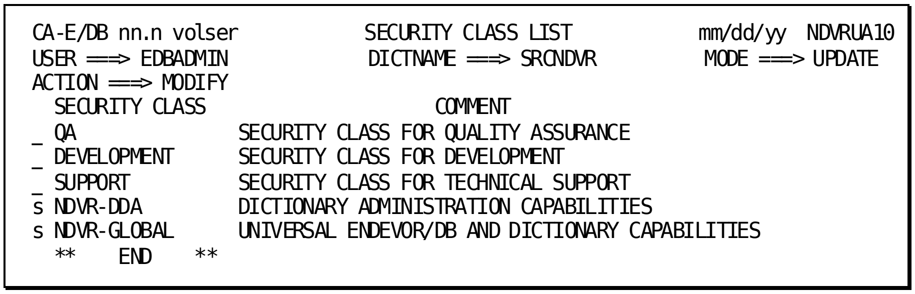
```
CA-E/DB nn.n volser    CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS mm/dd/yy  NDVRUA00
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===>
  1  - BROWSE CCDB DESCRIPTOR RECORD      2  - MODIFY CCDB DESCRIPTOR RECORD
  3  - BROWSE SECURITY DESCRIPTORS        4  - ADD A SECURITY DESCRIPTOR
  5  - MODIFY SECURITY DESCRIPTORS        6  - DELETE SECURITY DESCRIPTORS
  7  - BROWSE MONITOR DICT STAT BLOCKS    8  - MODIFY MONITOR DICT STAT BLOCKS
SECURITY CLASS ===>                               (IF OPTIONS 3, 4, 5, 6 )
DICTNAME       ===> SRCNDVR                       (IF OPTIONS 7, 8 )
```

   To add a new Security Class, enter **4** in the OPTION field.

   To modify an existing Security Class, enter **5** in the OPTION field.

   To delete a Security Class, enter **6** in the OPTION field.

   To go directly to the Security Class Detail screen (NDVRMA10), enter the name of the Security Class to be processed in the Security Class field. If you clear that field, you will first go to the Security Class List screen (NDVRUA10).



```
CA-E/DB nn.n volser          SECURITY CLASS LIST          mm/dd/yy  NDVRUA10
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR         MODE ===> UPDATE
ACTION ===> MODIFY
  SECURITY CLASS                   COMMENT
_ QA               SECURITY CLASS FOR QUALITY ASSURANCE
_ DEVELOPMENT      SECURITY CLASS FOR DEVELOPMENT
_ SUPPORT          SECURITY CLASS FOR TECHNICAL SUPPORT
s NDVR-DDA         DICTIONARY ADMINISTRATION CAPABILITIES
s NDVR-GLOBAL      UNIVERSAL ENDEVOR/DB AND DICTIONARY CAPABILITIES
  **    END    **
```

NDVRUA10 Field Descriptions

ACTION

Description of the current processing function: ADD, MODIFY, or DELETE.

Field	Description
(no title)	Place any non-blank character beside an entry and press Enter to display the Security Class Detail screen (NDVRMA10) for that particular security class.

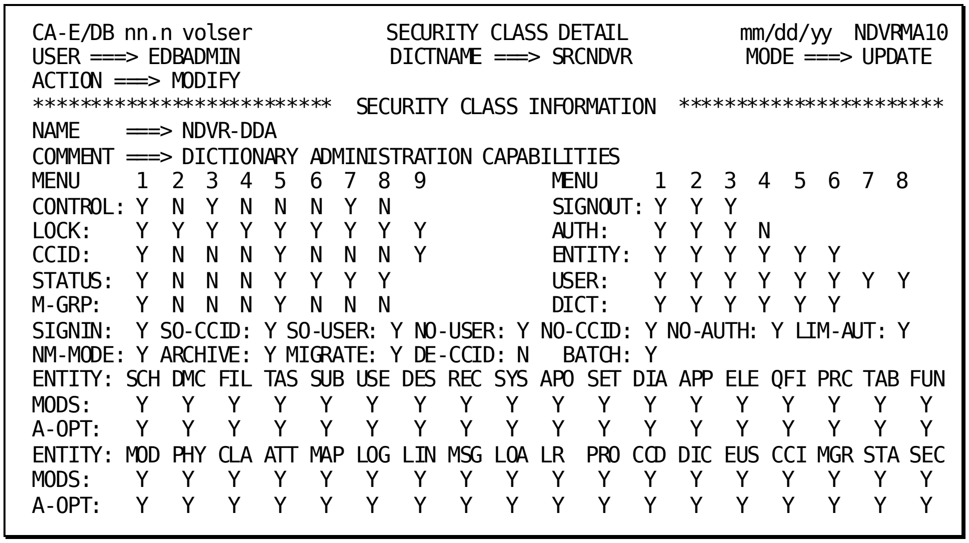
SECURITY CLASS

A list of the security classes that you are able to select.

COMMENT

A comment describing the security class.

NDVRMA10 Field Descriptions



```
CA-E/DB nn.n volser          SECURITY CLASS DETAIL          mm/dd/yy  NDVRMA10
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR           MODE ===> UPDATE
ACTION ===> MODIFY
*************************  SECURITY CLASS INFORMATION  **********************
NAME    ===> NDVR-DDA
COMMENT ===> DICTIONARY ADMINISTRATION CAPABILITIES
MENU     1  2  3  4  5  6  7  8  9           MENU     1  2  3  4  5  6  7  8
CONTROL: Y  N  Y  N  N  N  Y  N              SIGNOUT: Y  Y  Y
LOCK:    Y  Y  Y  Y  Y  Y  Y  Y  Y           AUTH:    Y  Y  Y  N
CCID:    Y  N  N  N  Y  N  N  N  Y           ENTITY:  Y  Y  Y  Y  Y  Y
STATUS:  Y  N  N  N  Y  Y  Y  Y              USER:    Y  Y  Y  Y  Y  Y  Y  Y
M-GRP:   Y  N  N  N  Y  N  N  N              DICT:    Y  Y  Y  Y  Y  Y
SIGNIN:  Y SO-CCID: Y SO-USER: Y NO-USER: Y NO-CCID: Y NO-AUTH: Y LIM-AUT: Y
NM-MODE: Y ARCHIVE: Y MIGRATE: Y DE-CCID: N   BATCH: Y
ENTITY: SCH DMC FIL TAS SUB USE DES REC SYS APO SET DIA APP ELE QFI PRC TAB FUN
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
ENTITY: MOD PHY CLA ATT MAP LOG LIN MSG LOA LR  PRO COD DIC EUS CCI MGR STA SEC
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
```

CA Endevor/DB discrete function switches are at the top of the screen, procedures are in the middle, and entity attributes are at the bottom. All fields are defined so that a value of **N** denotes a restriction and **Y** denotes a permission. Remember that an **N** causes the restriction to take effect regardless of other Security Classes that are merged to arrive at the result. In other words, restrictions cannot be overridden.

Fields are described below:

ACTION

Action selected on the previous menu.

NAME

The name of the Security Class.

COMMENT

Any comment may be entered.

MENU

The six rows directly underneath the COMMENT field on this screen are used to control the Online and Batch front end functions that will be available to a user logged on under this Security Class. There are ten subfunction menus in the Online front end, and so there are ten groups of menu flags on the screen. Each group is labeled with the name for the corresponding Online front end subfunction screen. For example:

```
MENU     1  2  3  4  5  6  7  8  9

CONTROL  Y  N  Y  N  N  N  Y  N
```

The eight Y/N flags to the right of "CONTROL: " are used to allow or disallow the use of the eight options on the System Control Functions (NDVRUA00) screen. Thus, in the example above, a user signed on under this security class would have the use of options 1, 3, and 7 on the NDVRUA00 screen. The other options would be denied if attempted, and would not appear on that screen.

These same flags control a user's ability to use Batch front end commands and command options. In the example above, the user would be able to use the ADD SECURITY CLASS, MODIFY SECURITY CLASS, and DELETE SECURITY CLASS commands in PUNCH mode, but not in PROCESS mode. PUNCH mode is the CA Endevor/DB Batch equivalent of Browse actions in the CA Endevor/DB Online front end.

The full breakdown of MENU flags and the Online and Batch functions that they control is fully described in Appendix B, "Online/Batch Control Flags."

SIGNIN

Option	Description
Y	A user signed on under this security class can sign entities in and out for other users.
N	A user signed on under this security class can sign entities in and out only for him/her self.

SO-CCID

SO-USER

These options control the behavior of the security monitor when it is performing automatic signout (DICTIONARY descriptor AUTO-SO = Y). The AUTO-SO flag has precedence. If AUTO-SO is set to Y, automatic signout will occur, regardless of the SO-CCID and SO-USER flag settings. If AUTO-SO = N, automatic signout will not occur. SO-CCID and SO-USER determine whether automatic signout signs an entity out to the userid or the CCID under which the change occurs. The combinations are as follows:

SO-CCID	SO-USER	Description
Y	N	Automatic signout to CCID
Y or N	Y	Automatic signout to user
N	N	Automatic signout to user

NO-CCID

Option	Description
Y	The Change Monitor will not require a CCID before modifying an entity.

Option	Description
N	The Change Monitor will require a CCID before modifying an entity. **Note:** If this is the Security Class for the Dictionary, make sure the security administrator is associated with a CCID before turning this field to **N**. Failure to do so may result in a universal inability to access the Dictionary.

NO-USER

Option	Description
Y	The Change Monitor will not require a USER before modifying an entity.
N	The Change Monitor will require a USER before modifying an entity. **Note:** If this is the Security Class for the Dictionary, make sure the security administrator USER has been added before turning this field to **N**.

NO-AUTH

LIM-AUTH

These are used in conjunction to control the preauthorization procedures to be applied as follows:

Field	Description
NO-AUTH=Y, LIM-AUTH=Y or N	Preauthorization is ignored for this user. Any entity may be modified regardless of authorization.
NO-AUTH=N, LIM-AUTH=Y	User can modify entities that have been preauthorized to that user and entities that have not been preauthorized to anybody else.
NO-AUTH=N, LIM-AUTH=N	User must be preauthorized for update to all entities.

NM-MODE

Option	Description
Y	User can use the NDVRDLVR Utility command, which runs in "no-monitor" mode.
N	User cannot use the NDVRDLVR Utility command in "no-monitor" mode.

ARCHIVE

Option	Description
Y	User can run the NDVRARCO utility.
N	User cannot run the NDVRARCO utility.

MIGRATE

Option	Description
Y	User can run the NDVRBOOK utility with OPTION=MIGRATE to create migrate in CLEs on the target system, and the user can run program NDVRDCF2 to create migrate out CLEs on the source system.
N	User cannot run with migration-level authority.

DE-CCID

Option	Description
Y	User will run in DERIVED CCID mode.
N	User will not run in DERIVED CCID mode.

BATCH

Option	Description
Y	User can run the NDVRMISB Batch Management Facility.
N	User cannot run the NDVRMISB Batch Management Facility.

ENTITY

The three-character entity abbreviations used by CA Endevor/DB to represent DICTIONARY and CCDB entity types. These act as column headings for the next two fields. Refer to Appendix B, "CA Endevor/DB Entity Types," in the *CA Endevor/DB for CA IDMS Batch Reference Guide* for more information on entity types.

MODS

Option	Description
Y	User can modify entities of that type.
N	Users cannot update entities of that type.

A-OPT

This option takes precedence over the NO-AUTH and LIM-AUTH flags. If A-OPT = Y for a particular entity type, you may modify all entities of that type, regardless of preauthorization. Use this field to tailor preauthorization to entity types.

Option	Description
Y	User can modify entities of that type without preauthorization.
N	Preauthorization is required for users to modify this entity type.

Chapter 6: Security Preauthorization

This section contains the following topics:

Introduction (see page 64)
Restricting Users Through Preauthorization (see page 66)
Protecting Critical Entities Through Preauthorization (see page 72)
Restricting Access to a CCID Through Preauthorization (see page 78)
Assigning Status Privileges Through Preauthorization (see page 81)
Preparing for Derived CCID Processing (see page 84)

Introduction

The next five areas of concern are all addressed by the use of preauthorizations. They are:

- **Dangerous Users.** These dictionary users are to be restricted to updating only certain entities in the dictionary. For example, trainees would fit into this category. The restriction is specified through the use of the NO-AUTH, LIM-AUTH, and A-OPT flags in the appropriate SECURITY CLASS records. Set the flags in the SECURITY-CLASS record named in the USER descriptor for each "dangerous user" to:

  ```
  LIM-AUTH = N
  NO-AUTH = N
  ```

  Set the A-OPT flags in the same SECURITY-CLASS record to N for all entity types that are to be protected. Then establish a PREAUTHORIZATION junction between each "dangerous user" and all of the entities that the user is to be allowed to change.

- **Sensitive Entities.** These entities are to be updated only by certain users. For example, a disbursement dialog would fit into this category. This restriction is also specified through the use of the NO-AUTH, LIM-AUTH, and A-OPT flags in the SECURITY-CLASS records. Set the flags in every SECURITY-CLASS record to:

  ```
  LIM-AUTH = Y
  NO-AUTH = N
  ```

  and set the A-OPT flags in every SECURITY-CLASS record to **N** for those entity types that are to be protected. Then establish a PREAUTHORIZATION junction between each sensitive entity and each user that is to be allowed to modify that entity.

  Note: The protection requires at least one PREAUTHORIZATION junction for each sensitive entity. If an entity participates in NO PREAUTHORIZATION junctions, it is assumed by the system not to be sensitive.

- **Derived CCID.** In some shops, it may be infeasible to require that all users sign on to CA Endevor/DB each time they switch from one CCID to another. For example, if a unique CCID is established for every change for every DIALOG, then programmers would be issuing CA Endevor/DB signons all day. To circumvent this problem, the CA Endevor/DB administrator can predefine the relationships between CCIDs and dictionary entities, and the programmers can run in "DERIVED CCID" mode. When doing so, they only signon to CA Endevor/DB to specify their userid - the CCID to which a given change is attributed will be determined by the presence of a PREAUTHORIZATION junction. This processing mode is also specified through the SECURITY-CLASS record. In the SECURITY-CLASS records named in each DERIVED CCID user descriptor record, set the DE-CCID flag to **Y**. Then establish a PREAUTHORIZATION junction between each entity to be changed and the CCID to which changes are to be attributed. In each of those PREAUTHORIZATION junctions, set the DE-CCID flag to **Y**.

- **Private CCID.** You may need to make CCIDs private for several reasons: if you have established security by CCID or if you manage "Sensitive Entities" by CCID. In these (and other) cases, you will need to control which users are allowed to signon or make changes under a CCID. The restriction is specified by setting the TYPE of each restricted CCID to PRIVATE. Then establish a PREAUTHORIZATION junction between each USER that is to have access to a given CCID and the following entity:

  ```
  ENTITY NAME = ccid-name
  TYPE = CCID
  VERSION = 1
  ```

- **Private Status.** In promotion processing, the NDVRDSEL program EXCLUDE command will exclude any entity associated with a given STATUS. The ability to associate entities with the STATUSes used in your shop's promotion processing is therefore important. To control that ability, set the TYPE of each STATUS used in promotion processing to PRIVATE. Then establish a PREAUTHORIZATION junction between each USER that is to have the ability and the following entity:

  ```
  ENTITY NAME = status-name
  TYPE = STATUS
  VERSION = 1
  ```

This chapter provides a step-by-step approach to assigning preauthorization for each of the objectives stated above.

You can do this through the Online facility or Batch facility. In Batch, you would use the ADD, MODIFY, and DELETE PREAUTHORIZATION commands. Refer to the *CA Endevor/DB for CA IDMS Batch Reference Guide* for more information on Batch. In Online, you would select option 2 from the Main Function Menu.

Restricting Users Through Preauthorization

When using preauthorization to restrict a user, the CCDB administrator defines preauthorization relationships between that user and the limited dictionary entities, which s/he is allowed to modify.

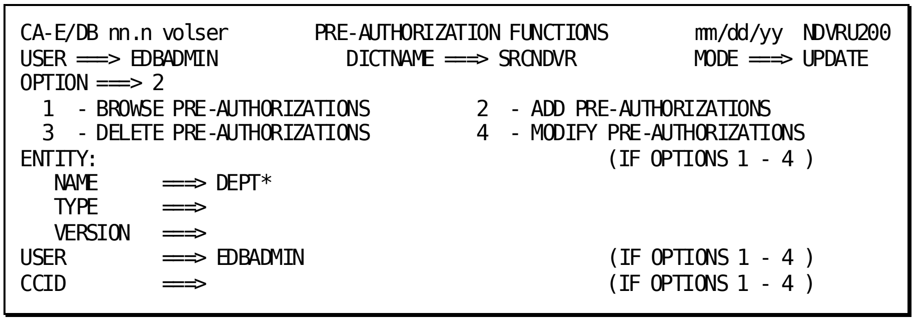
For example, you may want to restrict a programmer trainee (EDBADMIN) to modify only a limited set of training entities (beginning, in this example, with the characters DEPT). Once a list of preauthorized entities has been established for that user, the user is automatically denied the ability to modify any other dictionary entities.

To accomplish this, you can use the Online front end or Batch front end. In Batch, you would use the ADD PREAUTHORIZATION command. The Batch commands that equate to the next eight Online screens would be as follows:

```
ADD PREAUTHORIZATION ENTITY NAME = DEPT* TO USER EDBADMIN.
MOD SECURITY CLASS DEFAULT-SECURITY NO-AUTH = N LIM-AUTH = N A-OPT NONE.
```

To accomplish this through the Online front end, perform the following:

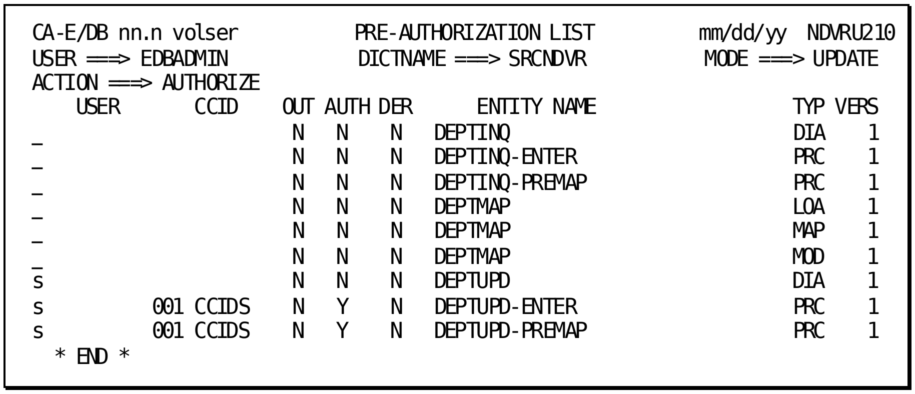
1. Enter option **2** on the Pre-authorization Functions menu (2-ADD PREAUTHORIZATIONS). Next, specify the entities which the user (EDBADMIN) will be able to modify (ENTITY NAME=DEPT*).



```
CA-E/DB nn.n volser       PRE-AUTHORIZATION FUNCTIONS       mm/dd/yy  NDVRU200
USER ===> EDBADMIN          DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 2
  1  - BROWSE PRE-AUTHORIZATIONS          2  - ADD PRE-AUTHORIZATIONS
  3  - DELETE PRE-AUTHORIZATIONS          4  - MODIFY PRE-AUTHORIZATIONS
ENTITY:                                             (IF OPTIONS 1 - 4 )
   NAME      ===> DEPT*
   TYPE      ===>
   VERSION   ===>
USER         ===> EDBADMIN                          (IF OPTIONS 1 - 4 )
CCID         ===>                                   (IF OPTIONS 1 - 4 )
```

2. Press ENTER.

   The system responds with a Pre-authorization List screen, which identifies all available entities as specified (DEPT). In the following example, all available programmer training entities (beginning with the characters DEPT) have been listed since the wildcard (*) was specified as part of the ENTITY name qualifier.



```
CA-E/DB nn.n volser          PRE-AUTHORIZATION LIST          mm/dd/yy  NDVRU210
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR           MODE ===> UPDATE
ACTION ===> AUTHORIZE
    USER       CCID     OUT AUTH DER      ENTITY NAME                 TYP VERS
_                        N    N    N   DEPTINQ                        DIA    1
_                        N    N    N   DEPTINQ-ENTER                  PRC    1
_                        N    N    N   DEPTINQ-PREMAP                 PRC    1
_                        N    N    N   DEPTMAP                        LOA    1
_                        N    N    N   DEPTMAP                        MAP    1
_                        N    N    N   DEPTMAP                        MOD    1
s                        N    N    N   DEPTUPD                        DIA    1
s          001 CCIDS     N    Y    N   DEPTUPD-ENTER                  PRC    1
s          001 CCIDS     N    Y    N   DEPTUPD-PREMAP                 PRC    1
  * END *
```

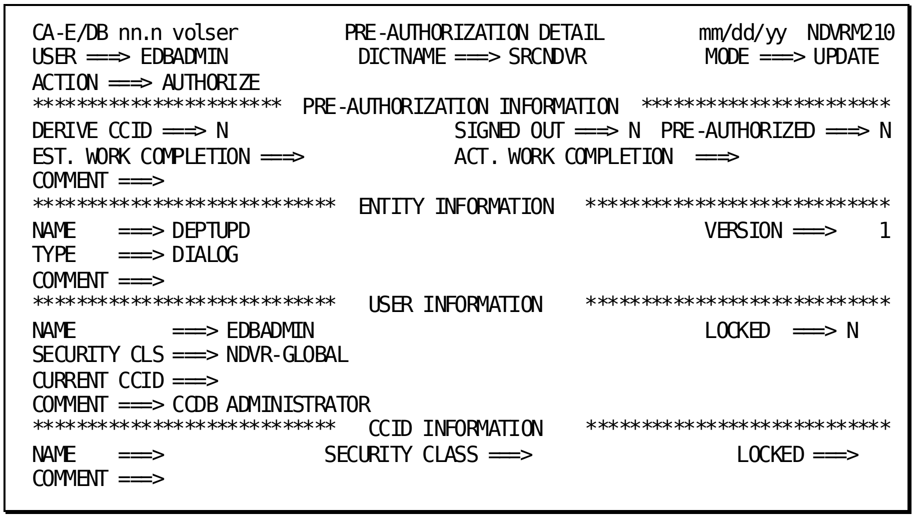
Where AUTH is **Y**, the entity is already preauthorized. Where DER is **Y**, one or more preauthorizations exist for the entity to a CCID with the DERIVE CCID option specified. Where OUT is **Y**, the entity is signed-out. The USER and CCID fields indicate the number of Users and CCIDs to which an entity is preauthorized. In the above example, the last listed entity (DEPTUPD-PREMAP) is preauthorized to one CCID (0001 CCID) with the DERIVE CCID option specified. For more information, use the Browse Preauthorization function for this entity.

Note: This screen lists all entities that have not been preauthorized to user EDBADMIN. User EDBADMIN, as specified on the Pre-authorization Functions screen, will reappear on the Pre-authorization Detail screen on the next page.

3. Using this screen, you further define the list of entities, which can be modified by this user. Select the entities that you wish to preauthorize to the user (EDBADMIN) by entering any non-blank character to the left of the desired entries. In our example, all entities beginning with DEPTUPD have been selected.

4. Press ENTER.

   The system responds with a Pre-authorization Detail screen for each selected entity. A sample detail screen is shown below.



```
CA-E/DB nn.n volser         PRE-AUTHORIZATION DETAIL         mm/dd/yy  NDVRM210
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR           MODE ===> UPDATE
ACTION ===> AUTHORIZE
*********************** PRE-AUTHORIZATION INFORMATION ***********************
DERIVE CCID ===> N                  SIGNED OUT ===> N  PRE-AUTHORIZED ===> N
EST. WORK COMPLETION ===>           ACT. WORK COMPLETION  ===>
COMMENT ===>
****************************  ENTITY INFORMATION  ****************************
NAME    ===> DEPTUPD                                       VERSION ===>    1
TYPE    ===> DIALOG
COMMENT ===>
****************************   USER INFORMATION   ****************************
NAME         ===> EDBADMIN                                 LOCKED  ===> N
SECURITY CLS ===> NDVR-GLOBAL
CURRENT CCID ===>
COMMENT ===> CCDB ADMINISTRATOR
****************************   CCID INFORMATION   ****************************
NAME    ===>              SECURITY CLASS ===>                 LOCKED ===>
COMMENT ===>
```

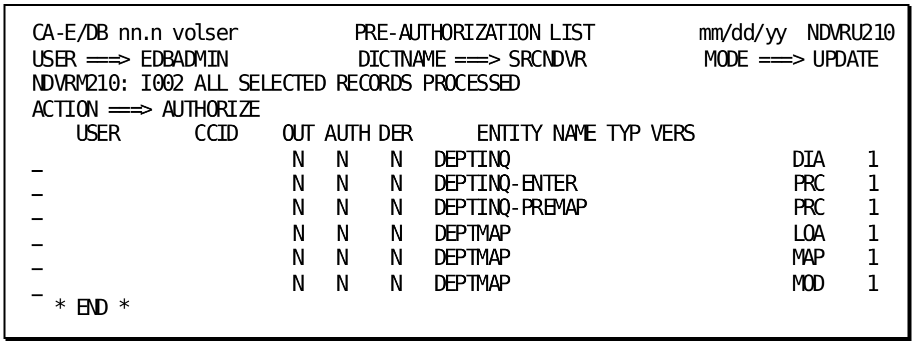
5. Within the Pre-authorization Information section of the screen, fill in the appropriate fields to document preauthorization.

   User information has already been filled in, based on earlier input from the Pre-authorization Functions screen. This information can be changed to preauthorize a different user, or it can be "spaced out" and replaced with CCID information to preauthorize a CCID.

   By pressing ENTER after each detail screen as it appears, you're building a list of the entities preauthorized to the restricted user (EDBADMIN).

   By pressing PF3, the system cancels your preauthorization request.

   When all selected entities (DEPTUPD) have been entered, the system responds with a final list of all "leftover" (not preauthorized) entities remaining from the previous list. This enables you to double-check the list for any entities you may have missed.



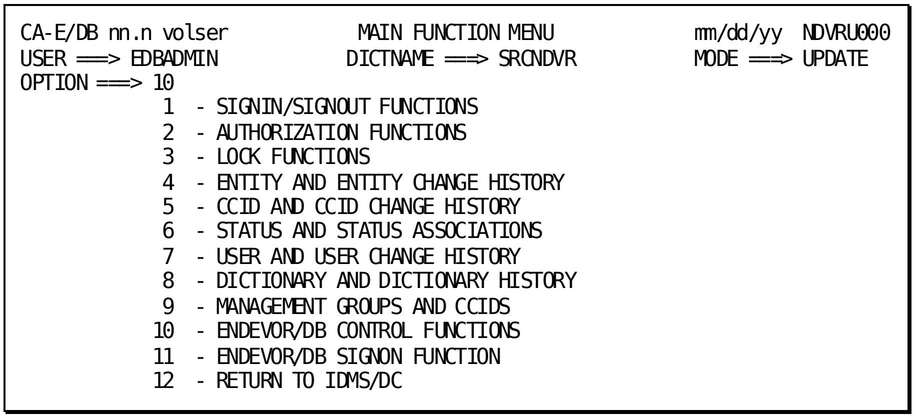
```
CA-E/DB nn.n volser          PRE-AUTHORIZATION LIST          mm/dd/yy  NDVRU210
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR           MODE ===> UPDATE
NDVRM210: I002 ALL SELECTED RECORDS PROCESSED
ACTION ===> AUTHORIZE
    USER       CCID     OUT AUTH DER      ENTITY NAME TYP VERS
_                        N   N    N   DEPTINQ                          DIA    1
_                        N   N    N   DEPTINQ-ENTER                    PRC    1
_                        N   N    N   DEPTINQ-PREMAP                   PRC    1
_                        N   N    N   DEPTMAP                          LOA    1
_                        N   N    N   DEPTMAP                          MAP    1
_                        N   N    N   DEPTMAP                          MOD    1
  * END *
```

6. Return to the Main Function Menu by pressing CLEAR or PF3.

   Note: To preauthorize the same entities to another user, follow the same procedure as above. Another method is to preauthorize entities to a CCID, and then preauthorize users to that CCID. Entities may be preauthorized to single or multiple CCIDs, single or multiple users, or a combination of CCIDs and users. When entities are preauthorized to both Users and CCIDs, this does not force the preauthorized user to use one of the preauthorized CCIDs.

Now that you've built the preauthorization list for the user (EDBADMIN), "alert" the CA Endevor/DB Security System to heed that list. To do this:

1. Select option **10** (CA-Endevor/DB CONTROL FUNCTIONS) from the Main Function Menu.

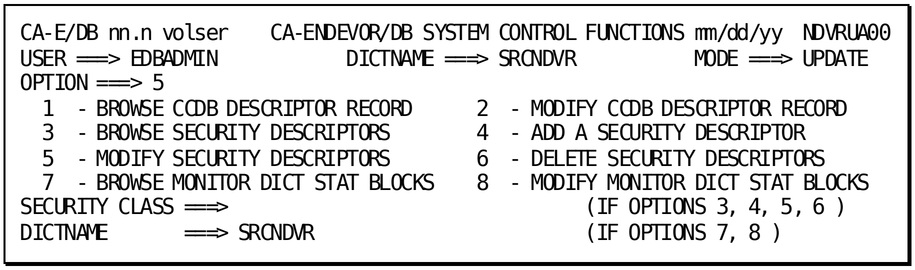


```
CA-E/DB nn.n volser           MAIN FUNCTION MENU              mm/dd/yy  NDVRU000
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR            MODE ===> UPDATE
OPTION ===> 10
              1  - SIGNIN/SIGNOUT FUNCTIONS
              2  - AUTHORIZATION FUNCTIONS
              3  - LOCK FUNCTIONS
              4  - ENTITY AND ENTITY CHANGE HISTORY
              5  - CCID AND CCID CHANGE HISTORY
              6  - STATUS AND STATUS ASSOCIATIONS
              7  - USER AND USER CHANGE HISTORY
              8  - DICTIONARY AND DICTIONARY HISTORY
              9  - MANAGEMENT GROUPS AND CCIDS
             10  - ENDEVOR/DB CONTROL FUNCTIONS
             11  - ENDEVOR/DB SIGNON FUNCTION
             12  - RETURN TO IDMS/DC
```

Press ENTER.

The system responds with the CA-Endevor/DB SYSTEM CONTROL FUNCTIONS screen.

2. Select option **5** (MODIFY SECURITY DESCRIPTORS).

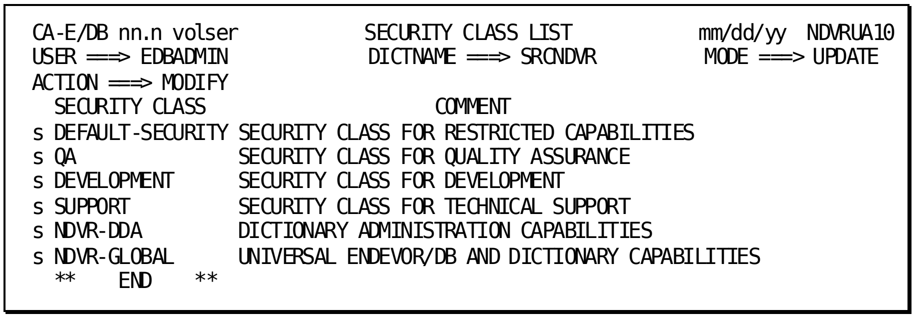


```
CA-E/DB nn.n volser    CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS mm/dd/yy  NDVRUA00
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR            MODE ===> UPDATE
OPTION ===> 5
  1  - BROWSE CCDB DESCRIPTOR RECORD      2  - MODIFY CCDB DESCRIPTOR RECORD
  3  - BROWSE SECURITY DESCRIPTORS        4  - ADD A SECURITY DESCRIPTOR
  5  - MODIFY SECURITY DESCRIPTORS        6  - DELETE SECURITY DESCRIPTORS
  7  - BROWSE MONITOR DICT STAT BLOCKS    8  - MODIFY MONITOR DICT STAT BLOCKS
SECURITY CLASS ===>                                 (IF OPTIONS 3, 4, 5, 6 )
DICTNAME       ===> SRCNDVR                         (IF OPTIONS 7, 8 )
```

Press ENTER.

The system then provides a list of all the Security Classes in the CCDB on the SECURITY CLASS LIST screen.

3. Select all items on the list by typing any non-blank character to the left of each Security Class entry. This lets you "zoom in" on each Security Class in order to set security flags as needed.



```
CA-E/DB nn.n volser           SECURITY CLASS LIST            mm/dd/yy  NDVRUA10
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
  SECURITY CLASS                          COMMENT
s DEFAULT-SECURITY SECURITY CLASS FOR RESTRICTED CAPABILITIES
s QA               SECURITY CLASS FOR QUALITY ASSURANCE
s DEVELOPMENT      SECURITY CLASS FOR DEVELOPMENT
s SUPPORT          SECURITY CLASS FOR TECHNICAL SUPPORT
s NDVR-DDA         DICTIONARY ADMINISTRATION CAPABILITIES
s NDVR-GLOBAL      UNIVERSAL ENDEVOR/DB AND DICTIONARY CAPABILITIES
  **    END    **
```

Press ENTER.

The system responds with a SECURITY CLASS DETAIL screen for each Security Class selected on the above list.

4. On the SECURITY CLASS DETAIL screens that apply to all other (non-restricted) users, set the Preauthorization flags on the Security Class screens as follows (No Preauthorization required):

   LIM-AUTH=Y
   NO-AUTH=Y

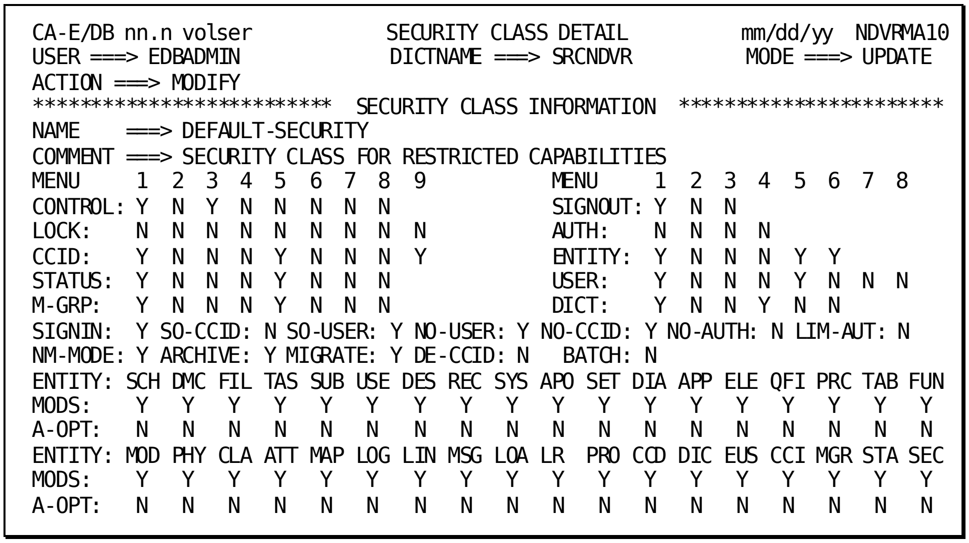
   Also, set all A-Opt flags to **Y**.

5. On the SECURITY CLASS DETAIL screen that applies to restricted user EDBADMIN (in our example, the Security Class is DEFAULT-SECURITY), set the Preauthorization flags as follows (Full Preauthorization):

   LIM-AUTH=N
   NO-AUTH=N

   Also, set all A-Opt flags to **N**.

Important! Do not set both LIM-AUTH and NO-AUTH to N for the dictionary Security Class NDVR-GLOBAL unless your intentions are to preauthorize all users to every entity before they update it.



```
CA-E/DB nn.n volser           SECURITY CLASS DETAIL         mm/dd/yy  NDVRMA10
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR         MODE ===> UPDATE
ACTION ===> MODIFY
*************************  SECURITY CLASS INFORMATION  ***********************
NAME    ===> DEFAULT-SECURITY
COMMENT ===> SECURITY CLASS FOR RESTRICTED CAPABILITIES
MENU     1  2  3  4  5  6  7  8  9           MENU     1  2  3  4  5  6  7  8
CONTROL: Y  N  Y  N  N  N  N  N              SIGNOUT: Y  N  N
LOCK:    N  N  N  N  N  N  N  N  N           AUTH:    N  N  N  N
CCID:    Y  N  N  N  Y  N  N  N  Y           ENTITY:  Y  N  N  N  Y  Y
STATUS:  Y  N  N  N  Y  N  N  N              USER:    Y  N  N  N  Y  N  N  N
M-GRP:   Y  N  N  N  Y  N  N  N              DICT:    Y  N  N  Y  N  N
SIGNIN:  Y SO-CCID: N SO-USER: Y NO-USER: Y NO-CCID: Y NO-AUTH: N LIM-AUT: N
NM-MODE: Y ARCHIVE: Y MIGRATE: Y DE-CCID: N   BATCH: N
ENTITY: SCH DMC FIL TAS SUB USE DES REC SYS APO SET DIA APP ELE QFI PRC TAB FUN
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N
ENTITY: MOD PHY CLA ATT MAP LOG LIN MSG LOA LR  PRO COD DIC EUS CCI MGR STA SEC
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N
```

Note: If there are specific entity types for which preauthorization rules are to be ignored, set those individual A-Opt flags to **Y**.

Now that the preauthorization list has been built, and the Security Class flags have been set, user EDBADMIN's access (and all other users with Security Class DEFAULT-SECURITY) is restricted to only those preauthorized entities. If user EDBADMIN attempts to modify an entity to which s/he is not preauthorized, the CA Endevor/DB Security System will prevent access and display an error message to that effect.

To remove preauthorization, select option **3** (DELETE PREAUTHORIZATION) on the Pre-authorization Functions screen.

Protecting Critical Entities Through Preauthorization

When using preauthorization to protect critical or sensitive entities, the CCDB administrator is restricting those entities from modification by the general user population. Typical examples would be company payroll and personnel programs that contain confidential information. In this case, users would be preauthorized to make modifications to those sensitive programs. Dictionary entities that were not deemed to be sensitive could be modified by any user.

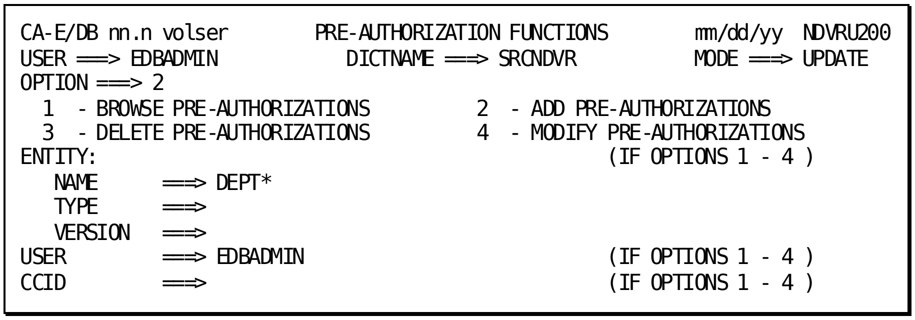
To accomplish this, the entity can be preauthorized to the user or CCID that will make modifications to the entity. The security classes for the general user population would be modified to disallow modifications to entities, which have been preauthorized to another user. You can do this by using either the Online front end or the Batch front end. In Batch, you would use the ADD PREAUTHORIZATION and MODIFY SECURITY CLASS commands. The Batch commands that equate to the next eight Online screens would be as follows:

```
ADD PREAUTHORIZATION ENTITY NAME = DEPT* TO USER EDBADMIN.
MOD SECURITY CLASS NDVR-DDA NO-AUTH = N LIM-AUTH = Y A-OPT NONE.
MOD SECURITY CLASS SUPPORT NO-AUTH = N LIM-AUTH = Y A-OPT NONE.
MOD SECURITY CLASS PROJECT-LEADER NO-AUTH = N LIM-AUTH = Y A-OPT NONE.
MOD SECURITY CLASS GMG-SECURITY NO-AUTH = N LIM-AUTH = Y A-OPT NONE.
```

The first command preauthorizes the user **EDBADMIN** to make modifications to all entities, which begin with DEPTUPD. The MODIFY SECURITY commands modify all the security classes for the general user population to disallow modifications to entities for which they have not been preauthorized.

To accomplish this through the Online front end, perform the following:

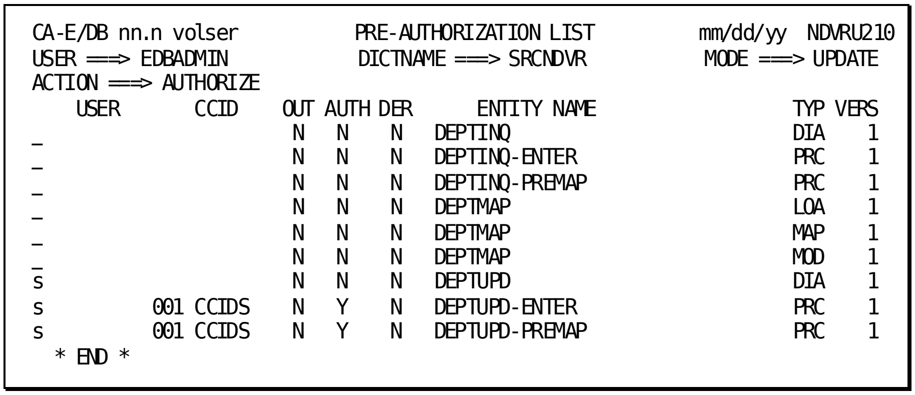
1. Select option **2** (ADD PREAUTHORIZATIONS) on the Pre-authorization Functions menu. Next, specify the entities which the user (**EDBADMIN**) will be able to modify (**ENTITY NAME=DEPT***).



```
CA-E/DB nn.n volser        PRE-AUTHORIZATION FUNCTIONS        mm/dd/yy  NDVRU200
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 2
  1  - BROWSE PRE-AUTHORIZATIONS          2  - ADD PRE-AUTHORIZATIONS
  3  - DELETE PRE-AUTHORIZATIONS          4  - MODIFY PRE-AUTHORIZATIONS
ENTITY:                                              (IF OPTIONS 1 - 4 )
   NAME      ===> DEPT*
   TYPE      ===>
   VERSION   ===>
USER         ===> EDBADMIN                           (IF OPTIONS 1 - 4 )
CCID         ===>                                    (IF OPTIONS 1 - 4 )
```

Press ENTER.

The system responds with a Pre-authorization List screen, which identifies all available entities as specified (DEPT). In the following example, the entities beginning with the characters DEPT have been listed since the wildcard (*) was specified as part of the ENTITY name qualifier.



```
CA-E/DB nn.n volser          PRE-AUTHORIZATION LIST         mm/dd/yy  NDVRU210
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR           MODE ===> UPDATE
ACTION ===> AUTHORIZE
    USER       CCID     OUT AUTH DER      ENTITY NAME                TYP VERS
_                        N   N    N   DEPTINQ                        DIA    1
_                        N   N    N   DEPTINQ-ENTER                  PRC    1
_                        N   N    N   DEPTINQ-PREMAP                 PRC    1
_                        N   N    N   DEPTMAP                        LOA    1
_                        N   N    N   DEPTMAP                        MAP    1
_                        N   N    N   DEPTMAP                        MOD    1
s                        N   N    N   DEPTUPD                        DIA    1
s          001 CCIDS     N   Y    N   DEPTUPD-ENTER                  PRC    1
s          001 CCIDS     N   Y    N   DEPTUPD-PREMAP                 PRC    1
  * END *
```

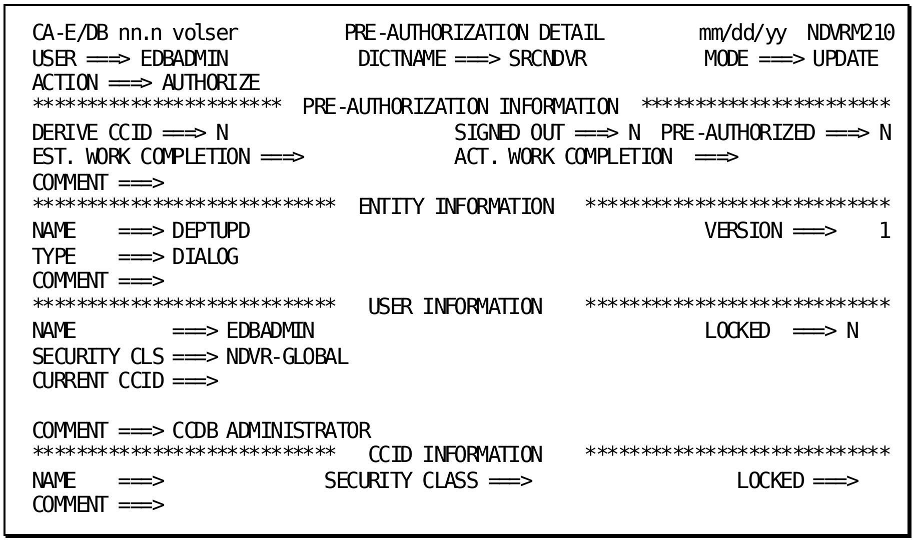
Where AUTH is **Y**, the entity is already preauthorized. Where DER is **Y**, one or more preauthorizations exist for the entity to a CCID with the DERIVE CCID option specified. Where OUT is **Y**, the entity is signed-out. The USER and CCID fields indicate the number of users and CCIDs to which an entity is preauthorized. In the above example, the last listed entity (**DEPTUPD-PREMAP**) is preauthorized to one CCID (**0001 CCID**) with the DERIVE CCID option specified. For more information, use the Browse Preauthorization function for this entity.

Note: This screen lists all entities that have not been preauthorized to User EDBADMIN. User EDBADMIN, as specified on the Pre-authorization Functions screen, will reappear on the Pre-authorization Detail screen on the next page.

2. To further define the list of entities which can be modified by this user, select the entities that you wish to preauthorize to the user (EDBADMIN) by entering any non-blank character to the left of the desired entries. In our example, all entities named DEPTUPD have been selected.

   Press ENTER.

   The system responds with a Pre-authorization Detail screen for each selected entity. A sample detail screen is shown below.



```
CA-E/DB nn.n volser          PRE-AUTHORIZATION DETAIL          mm/dd/yy  NDVRM210
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR            MODE ===> UPDATE
ACTION ===> AUTHORIZE
**********************  PRE-AUTHORIZATION INFORMATION  **********************
DERIVE CCID ===> N                         SIGNED OUT ===> N  PRE-AUTHORIZED ===> N
EST. WORK COMPLETION ===>                  ACT. WORK COMPLETION  ===>
COMMENT ===>
***************************  ENTITY INFORMATION   ***************************
NAME    ===> DEPTUPD                                           VERSION ===>    1
TYPE    ===> DIALOG
COMMENT ===>
***************************   USER INFORMATION    ***************************
NAME         ===> EDBADMIN                                     LOCKED  ===> N
SECURITY CLS ===> NDVR-GLOBAL
CURRENT CCID ===>

COMMENT ===> CCDB ADMINISTRATOR
***************************   CCID INFORMATION    ***************************
NAME    ===>              SECURITY CLASS ===>                     LOCKED ===>
COMMENT ===>
```

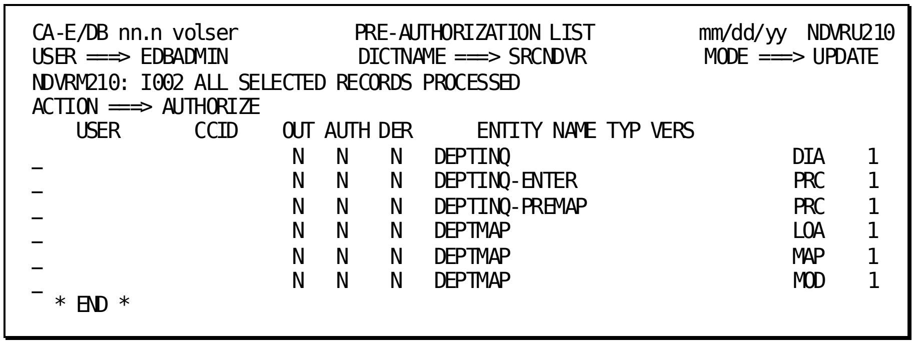
3. Within the Pre-authorization Information section of the screen, fill in the appropriate fields to document preauthorization.

   User information has already been filled in, based on earlier input from the Pre-authorization Functions screen. This information can be changed to preauthorize a different user, or it can be "spaced out" and replaced with CCID information to preauthorize a CCID.

   By pressing ENTER after each detail screen as it appears, you're building a list of the entities preauthorized to the restricted user (**EDBADMIN**).

   To cancel your preauthorization request, press PF3.

   When all selected entities (**DEPTUPD**) have been entered, the system responds with a final list of all "leftover" (not preauthorized) entities remaining from the previous list. This enables you to double-check the list for any entities you may have missed.



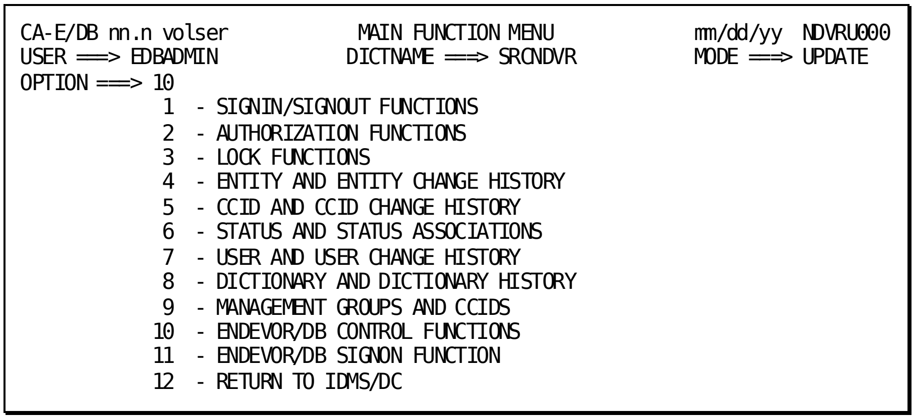
```
CA-E/DB nn.n volser           PRE-AUTHORIZATION LIST           mm/dd/yy  NDVRU210
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR            MODE ===> UPDATE
NDVRM210: I002 ALL SELECTED RECORDS PROCESSED
ACTION ===> AUTHORIZE
    USER       CCID    OUT AUTH DER     ENTITY NAME TYP VERS
_                       N    N    N   DEPTINQ                          DIA    1
_                       N    N    N   DEPTINQ-ENTER                    PRC    1
_                       N    N    N   DEPTINQ-PREMAP                   PRC    1
_                       N    N    N   DEPTMAP                          LOA    1
_                       N    N    N   DEPTMAP                          MAP    1
_                       N    N    N   DEPTMAP                          MOD    1
_ * END *
```

4. Return to the Main Function Menu by pressing CLEAR or PF3.

Note: To preauthorize the same entities to another user, follow the same procedure as above. Another method is to preauthorize entities to a CCID, and then preauthorize users to that CCID. Entities may be preauthorized to single or multiple CCIDs, single or multiple Users, or a combination of CCIDs and Users. When entities are preauthorized to both Users and CCIDs, this does not force the preauthorized user to use one of the preauthorized CCIDs.

Now that you've built the preauthorization list for the user (EDBADMIN), "alert" the CA Endevor/DB Security System to heed that list. To do this:

1. Select option **10** (ENDEVOR/DB CONTROL FUNCTIONS) from the Main Function Menu.

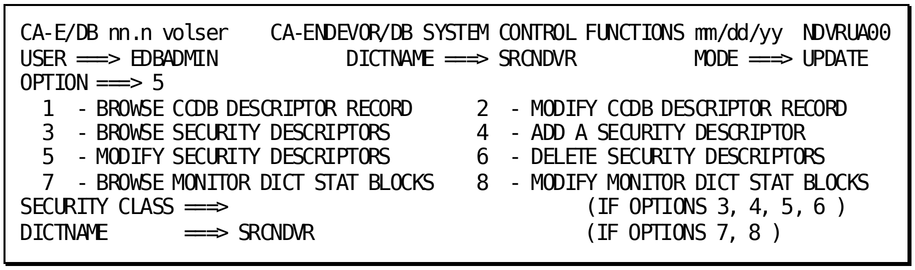


```
CA-E/DB nn.n volser            MAIN FUNCTION MENU            mm/dd/yy  NDVRU000
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 10
             1  - SIGNIN/SIGNOUT FUNCTIONS
             2  - AUTHORIZATION FUNCTIONS
             3  - LOCK FUNCTIONS
             4  - ENTITY AND ENTITY CHANGE HISTORY
             5  - CCID AND CCID CHANGE HISTORY
             6  - STATUS AND STATUS ASSOCIATIONS
             7  - USER AND USER CHANGE HISTORY
             8  - DICTIONARY AND DICTIONARY HISTORY
             9  - MANAGEMENT GROUPS AND CCIDS
            10  - ENDEVOR/DB CONTROL FUNCTIONS
            11  - ENDEVOR/DB SIGNON FUNCTION
            12  - RETURN TO IDMS/DC
```

Press ENTER.

The system responds with the CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS screen.

2. Select option **5** (MODIFY SECURITY DESCRIPTORS).

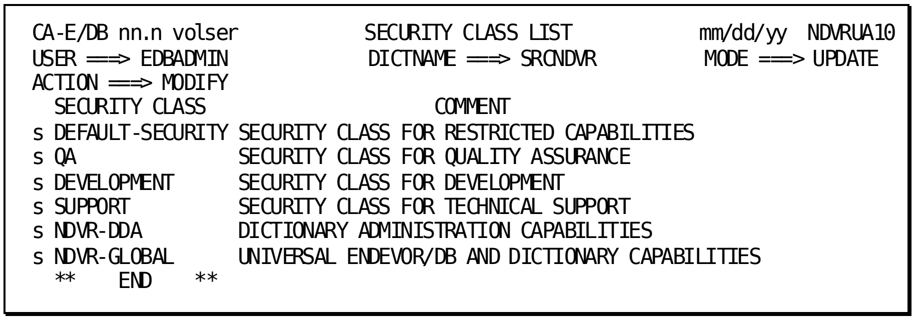


```
CA-E/DB nn.n volser    CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS mm/dd/yy  NDVRUA00
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 5
  1  - BROWSE CCDB DESCRIPTOR RECORD      2  - MODIFY CCDB DESCRIPTOR RECORD
  3  - BROWSE SECURITY DESCRIPTORS        4  - ADD A SECURITY DESCRIPTOR
  5  - MODIFY SECURITY DESCRIPTORS        6  - DELETE SECURITY DESCRIPTORS
  7  - BROWSE MONITOR DICT STAT BLOCKS    8  - MODIFY MONITOR DICT STAT BLOCKS
SECURITY CLASS ===>                                (IF OPTIONS 3, 4, 5, 6 )
DICTNAME       ===> SRCNDVR                        (IF OPTIONS 7, 8 )
```

Press ENTER.

The system then provides a list of all the Security Classes in the database on the SECURITY CLASS LIST screen.

3. Select all items on the list by typing any non-blank character to the left of each Security Class entry. This lets you "zoom in" on each Security Class in order to set security flags as needed.



```
CA-E/DB nn.n volser          SECURITY CLASS LIST          mm/dd/yy  NDVRUA10
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR         MODE ===> UPDATE
ACTION ===> MODIFY
  SECURITY CLASS                      COMMENT
s DEFAULT-SECURITY SECURITY CLASS FOR RESTRICTED CAPABILITIES
s QA               SECURITY CLASS FOR QUALITY ASSURANCE
s DEVELOPMENT      SECURITY CLASS FOR DEVELOPMENT
s SUPPORT          SECURITY CLASS FOR TECHNICAL SUPPORT
s NDVR-DDA         DICTIONARY ADMINISTRATION CAPABILITIES
s NDVR-GLOBAL      UNIVERSAL ENDEVOR/DB AND DICTIONARY CAPABILITIES
  **    END    **
```

Press ENTER.

The system responds with a SECURITY CLASS DETAIL screen for each Security Class selected on the above list.

4. On all of the SECURITY CLASS DETAIL screens that follow, set the Preauthorization flags as follows (Limited Preauthorization):

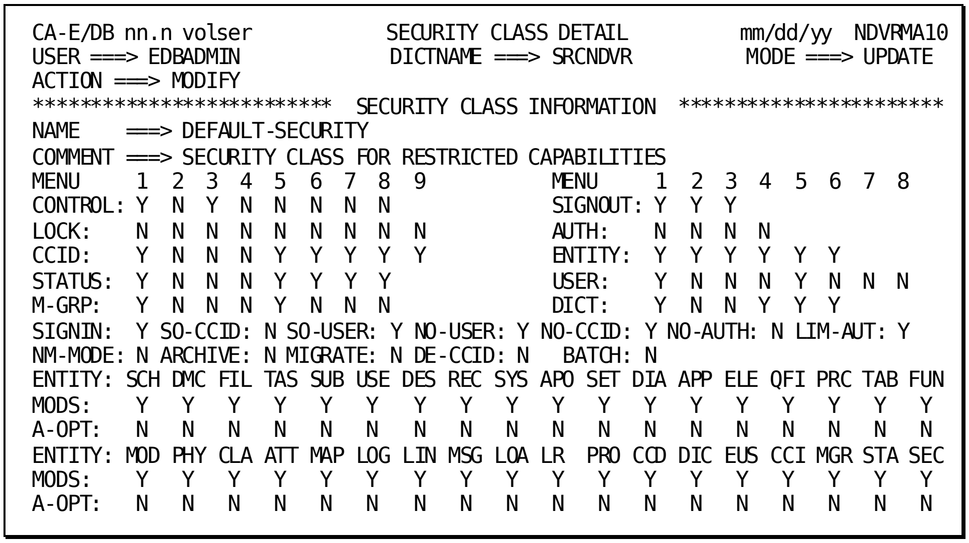
   LIM-AUTH=Y

   NO-AUTH=N

   Also, set all A-Opt flags to **N**.

   These screens will set the flags in all the security classes that you have selected.

Important! Do not set both LIM-AUTH and NO-AUTH to N for the dictionary Security Class NDVR-GLOBAL unless your intentions are to preauthorize all users to every entity before they update it.



```
CA-E/DB nn.n volser          SECURITY CLASS DETAIL         mm/dd/yy  NDVRMA10
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
**************************  SECURITY CLASS INFORMATION  ***********************
NAME    ===> DEFAULT-SECURITY
COMMENT ===> SECURITY CLASS FOR RESTRICTED CAPABILITIES
MENU     1  2  3  4  5  6  7  8  9           MENU     1  2  3  4  5  6  7  8
CONTROL: Y  N  Y  N  N  N  N  N              SIGNOUT: Y  Y  Y
LOCK:    N  N  N  N  N  N  N  N  N           AUTH:    N  N  N  N
CCID:    Y  N  N  N  Y  Y  Y  Y  Y           ENTITY:  Y  Y  Y  Y  Y  Y
STATUS:  Y  N  N  N  Y  Y  Y  Y              USER:    Y  N  N  N  Y  N  N  N
M-GRP:   Y  N  N  N  Y  N  N  N              DICT:    Y  N  N  Y  Y  Y
SIGNIN:  Y SO-CCID: N SO-USER: Y NO-USER: Y NO-CCID: Y NO-AUTH: N LIM-AUT: Y
NM-MODE: N ARCHIVE: N MIGRATE: N DE-CCID: N   BATCH: N
ENTITY: SCH DMC FIL TAS SUB USE DES REC SYS APO SET DIA APP ELE QFI PRC TAB FUN
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N
ENTITY: MOD PHY CLA ATT MAP LOG LIN MSG LOA LR  PRO COD DIC EUS CCI MGR STA SEC
MODS:    Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N
```

If there are specific entity types for which preauthorization rules are to be ignored, set those individual A-Opt flags to **Y**.

Now that the preauthorization list has been built, and the Security Class flags have been set, user EDBADMIN's access (and all other users with Security Class DEFAULT-SECURITY) is restricted to only those preauthorized entities. If user EDBADMIN attempts to modify an entity to which s/he is not preauthorized, the CA Endevor/DB Security System will prevent access and display an error message to that effect.

To remove preauthorization, select option **3** (DELETE PREAUTHORIZATION) on the Pre-authorization Functions screen.

Restricting Access to a CCID Through Preauthorization

The CA Endevor/DB Security System allows an administrator to restrict the users that are allowed to sign on or make changes under a CCID. This is necessary to insure security integrity in the following situations:

- Security management by CCID. If the security class restrictions are administered by CCID (instead of by user).
- If sensitive entities are preauthorized to CCIDs.

To control which users are allowed to SIGNON to a given CCID or to make changes under that CCID, you must mark the CCID as PRIVATE and then establish preauthorizations between each entitled user and the following entity:

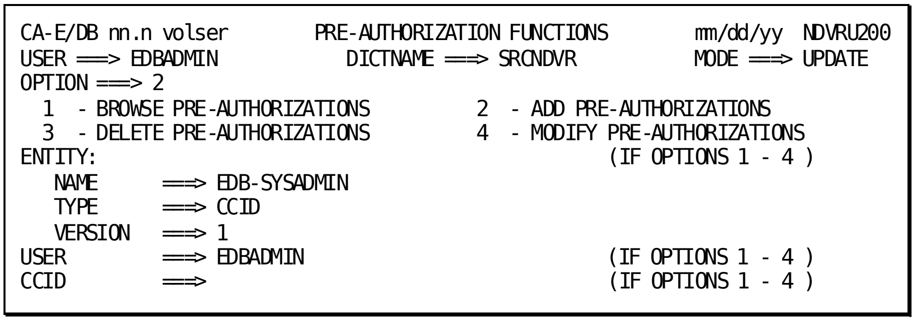
```
ENTITY NAME = ccid
VERSION = 1
TYPE = CCID
```

Both of these actions can be performed with either the Online front end or the Batch front end. For example, the Batch commands would be:

```
MOD CCID EDB-SYSADMIN TYPE PRIVATE.
ADD PREAUTHORIZATION ENTITY NAME EDB-SYSADMIN
TYPE CCID VERSION 1 TO USER EDBADMIN.
```

To accomplish this with the Online front end:

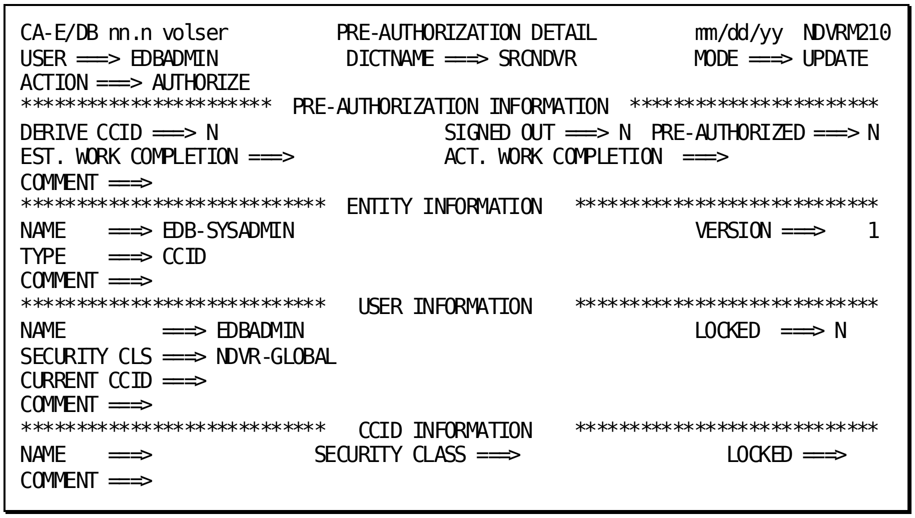
1. Select option **2** on the Pre-authorization Functions screen (ADD PREAUTHORIZATIONS). Specify an ENTITY NAME (in our example, EDB-SYSADMIN), type **CCID** in the ENTITY TYPE field, and type a **1** in the ENTITY VERSION field. In the USER field, enter the userid for the user (EDBADMIN in our example) you are preauthorizing.



```
CA-E/DB nn.n volser        PRE-AUTHORIZATION FUNCTIONS        mm/dd/yy  NDVRU200
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 2
  1  - BROWSE PRE-AUTHORIZATIONS           2  - ADD PRE-AUTHORIZATIONS
  3  - DELETE PRE-AUTHORIZATIONS           4  - MODIFY PRE-AUTHORIZATIONS
ENTITY:                                                 (IF OPTIONS 1 - 4 )
   NAME      ===> EDB-SYSADMIN
   TYPE      ===> CCID
   VERSION   ===> 1
USER         ===> EDBADMIN                              (IF OPTIONS 1 - 4 )
CCID         ===>                                       (IF OPTIONS 1 - 4 )
```

Press ENTER.

Since Full Preauthorization qualification information has been specified, the system bypasses the list screen and responds directly with a Pre-authorization Detail screen.

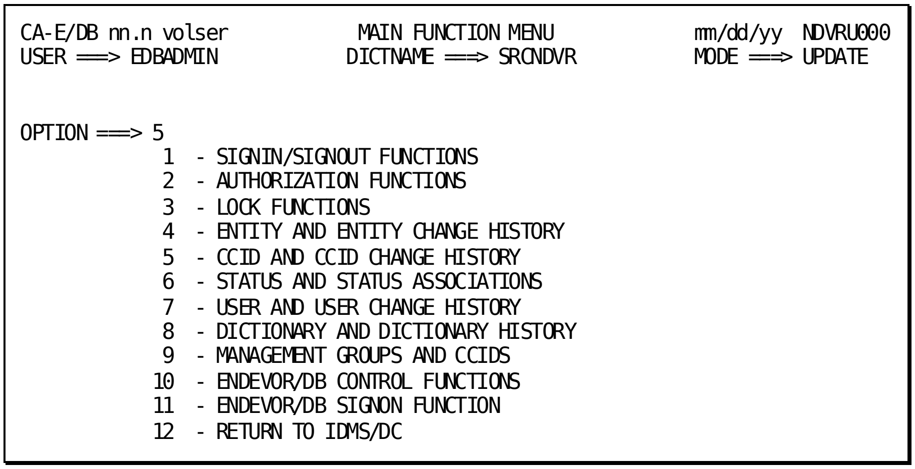


```
CA-E/DB nn.n volser          PRE-AUTHORIZATION DETAIL         mm/dd/yy  NDVRM210
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
ACTION ===> AUTHORIZE
*********************** PRE-AUTHORIZATION INFORMATION ***********************
DERIVE CCID ===> N                      SIGNED OUT ===> N  PRE-AUTHORIZED ===> N
EST. WORK COMPLETION ===>               ACT. WORK COMPLETION  ===>
COMMENT ===>
****************************  ENTITY INFORMATION   ****************************
NAME    ===> EDB-SYSADMIN                                     VERSION ===>    1
TYPE    ===> CCID
COMMENT ===>
****************************   USER INFORMATION   ****************************
NAME         ===> EDBADMIN                                    LOCKED  ===> N
SECURITY CLS ===> NDVR-GLOBAL
CURRENT CCID ===>
COMMENT ===>
****************************   CCID INFORMATION   ****************************
NAME    ===>                SECURITY CLASS ===>                  LOCKED ===>
COMMENT ===>
```

2. Press ENTER. User EDBADMIN is now preauthorized to use the CCID named EDB-SYSADMIN.

   Follow this same procedure for each user to whom you want to grant preauthorization for that CCID. The end result is a group of users that is now preauthorized to a specific CCID.

3. Return to the Main Function Menu and select option **5** (CCID AND CCID CHANGE HISTORY).



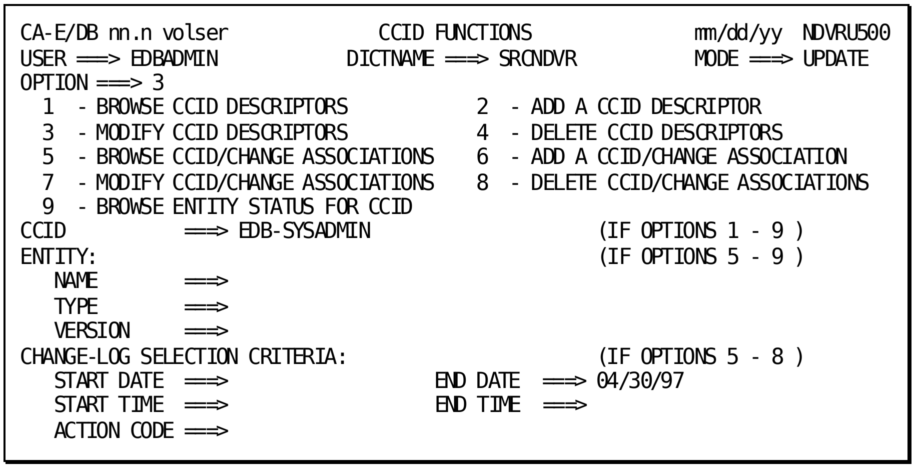
```
CA-E/DB nn.n volser            MAIN FUNCTION MENU             mm/dd/yy  NDVRU000
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE


OPTION ===> 5
             1  - SIGNIN/SIGNOUT FUNCTIONS
             2  - AUTHORIZATION FUNCTIONS
             3  - LOCK FUNCTIONS
             4  - ENTITY AND ENTITY CHANGE HISTORY
             5  - CCID AND CCID CHANGE HISTORY
             6  - STATUS AND STATUS ASSOCIATIONS
             7  - USER AND USER CHANGE HISTORY
             8  - DICTIONARY AND DICTIONARY HISTORY
             9  - MANAGEMENT GROUPS AND CCIDS
            10  - ENDEVOR/DB CONTROL FUNCTIONS
            11  - ENDEVOR/DB SIGNON FUNCTION
            12  - RETURN TO IDMS/DC
```

   Press ENTER.

   The system responds with the CCID FUNCTIONS screen.

4. Select option **3** (MODIFY CCID DESCRIPTORS). Enter the name of the CCID (EDB-SYSADMIN in our example).

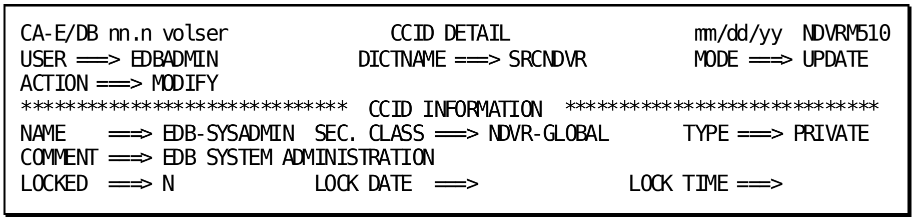


```
CA-E/DB nn.n volser              CCID FUNCTIONS              mm/dd/yy  NDVRU500
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 3
  1  - BROWSE CCID DESCRIPTORS           2  - ADD A CCID DESCRIPTOR
  3  - MODIFY CCID DESCRIPTORS           4  - DELETE CCID DESCRIPTORS
  5  - BROWSE CCID/CHANGE ASSOCIATIONS   6  - ADD A CCID/CHANGE ASSOCIATION
  7  - MODIFY CCID/CHANGE ASSOCIATIONS   8  - DELETE CCID/CHANGE ASSOCIATIONS
  9  - BROWSE ENTITY STATUS FOR CCID
CCID           ===> EDB-SYSADMIN                     (IF OPTIONS 1 - 9 )
ENTITY:                                              (IF OPTIONS 5 - 9 )
   NAME        ===>
   TYPE        ===>
   VERSION     ===>
CHANGE-LOG SELECTION CRITERIA:                       (IF OPTIONS 5 - 8 )
   START DATE  ===>                   END DATE  ===> 04/30/97
   START TIME  ===>                   END TIME  ===>
   ACTION CODE ===>
```

Press ENTER.

The system responds with a CCID DETAIL screen, which shows the selected CCID.

5. In order to restrict access to a CCID (in our case, EDB-SYSADMIN), change the CCID TYPE to PRIVATE.



```
CA-E/DB nn.n volser               CCID DETAIL                mm/dd/yy  NDVRM510
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR         MODE ===> UPDATE
ACTION ===> MODIFY
******************************  CCID INFORMATION  *****************************
NAME    ===> EDB-SYSADMIN  SEC. CLASS ===> NDVR-GLOBAL       TYPE ===> PRIVATE
COMMENT ===> EDB SYSTEM ADMINISTRATION
LOCKED  ===> N             LOCK DATE  ===>              LOCK TIME ===>
```

6. Press ENTER.

Important! Use of that CCID is now restricted to only those users who are specifically preauthorized.

To remove preauthorization, select option **3** (DELETE PREAUTHORIZATION) on the Pre-authorization Functions screen.

Assigning Status Privileges Through Preauthorization

The CA Endevor/DB Security System allows an administrator to restrict the users that are allowed to assign a status to an entity. This is necessary when controlling what entities are included in a migration using status(es).

To control which users are allowed to assign a status to an entity(ies), you must mark the status as PRIVATE and then establish preauthorizations between each entitled user and the following entity:

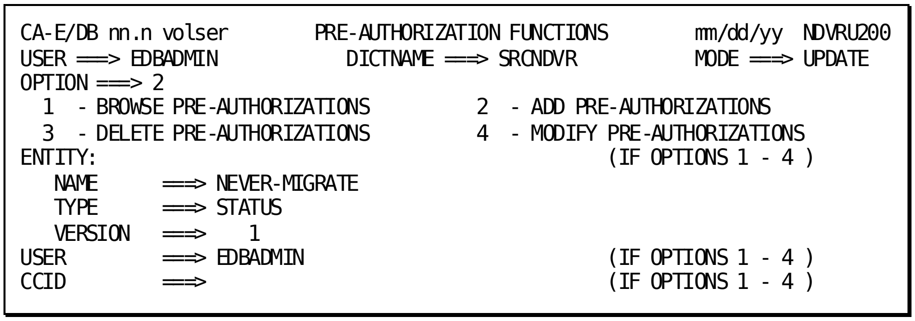
```
ENTITY NAME = status-name
VERSION = 1
TYPE = STATUS
```

Both of these actions can be performed with either the Online front end or the Batch front end. For example, the Batch commands would be:

```
MODIFY STATUS NEVER-MIGRATE TYPE PRIVATE.
ADD PREAUTHORIZATION ENTITY NAME IS NEVER-MIGRATE
TYPE IS STATUS VERSION IS 1 TO USER EDBADMIN.
```

To accomplish this with the Online front end:

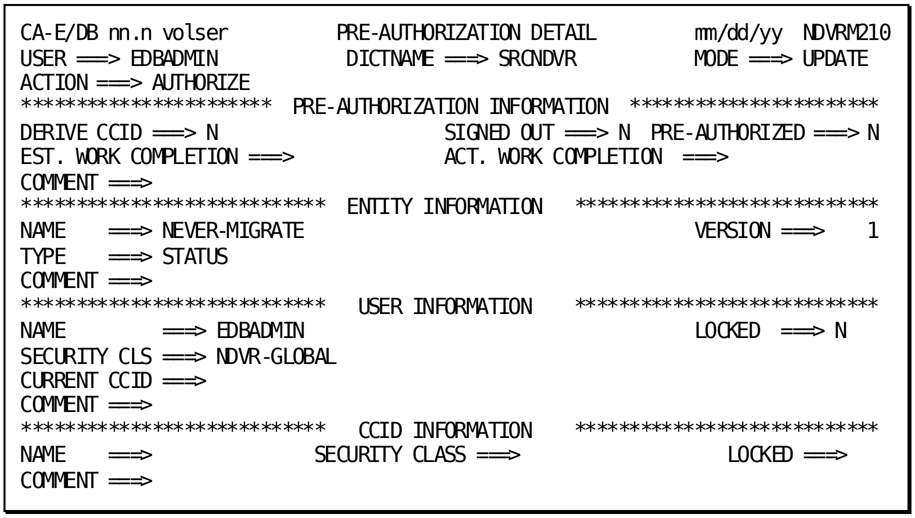
1. Select option **2** on the Pre-authorization Functions screen (ADD PREAUTHORIZATIONS). Specify an ENTITY NAME (in our example, NEVER-MIGRATE), type **STATUS** in the ENTITY TYPE field, and **1** in the ENTITY VERSION field. Then, specify the user to be allowed status privileges (in our case, EDBADMIN).



```
CA-E/DB nn.n volser        PRE-AUTHORIZATION FUNCTIONS        mm/dd/yy  NDVRU200
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 2
  1  - BROWSE PRE-AUTHORIZATIONS          2  - ADD PRE-AUTHORIZATIONS
  3  - DELETE PRE-AUTHORIZATIONS          4  - MODIFY PRE-AUTHORIZATIONS
ENTITY:                                             (IF OPTIONS 1 - 4 )
   NAME      ===> NEVER-MIGRATE
   TYPE      ===> STATUS
   VERSION   ===>    1
USER         ===> EDBADMIN                          (IF OPTIONS 1 - 4 )
CCID         ===>                                   (IF OPTIONS 1 - 4 )
```

Press ENTER.

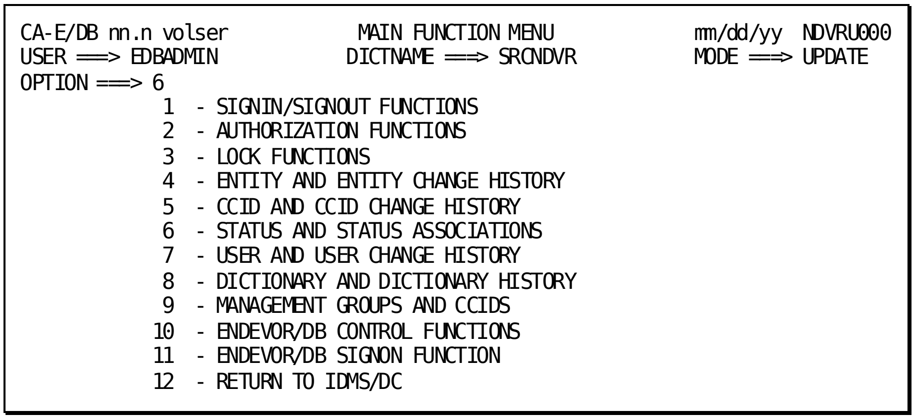
The system responds with a Pre-authorization Detail screen.



```
CA-E/DB nn.n volser          PRE-AUTHORIZATION DETAIL        mm/dd/yy  NDVRM210
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> AUTHORIZE
*********************** PRE-AUTHORIZATION INFORMATION ***********************
DERIVE CCID ===> N                     SIGNED OUT ===> N  PRE-AUTHORIZED ===> N
EST. WORK COMPLETION ===>              ACT. WORK COMPLETION  ===>
COMMENT ===>
****************************  ENTITY INFORMATION   ****************************
NAME     ===> NEVER-MIGRATE                                  VERSION ===>    1
TYPE     ===> STATUS
COMMENT ===>
****************************   USER INFORMATION    ****************************
NAME         ===> EDBADMIN                                   LOCKED  ===> N
SECURITY CLS ===> NDVR-GLOBAL
CURRENT CCID ===>
COMMENT ===>
****************************   CCID INFORMATION    ****************************
NAME     ===>               SECURITY CLASS ===>                   LOCKED ===>
COMMENT ===>
```

2. Press ENTER. The designated user (EDBADMIN) is now preauthorized to set or turn off the specified Status (NEVER-MIGRATE). Follow the above procedure for every user to whom you want to assign status setting privileges. The end result is a group of users that is able to set and remove the status for entities.

3. Return to the Main Function Menu and select option **6** (STATUS AND STATUS ASSOCIATIONS).

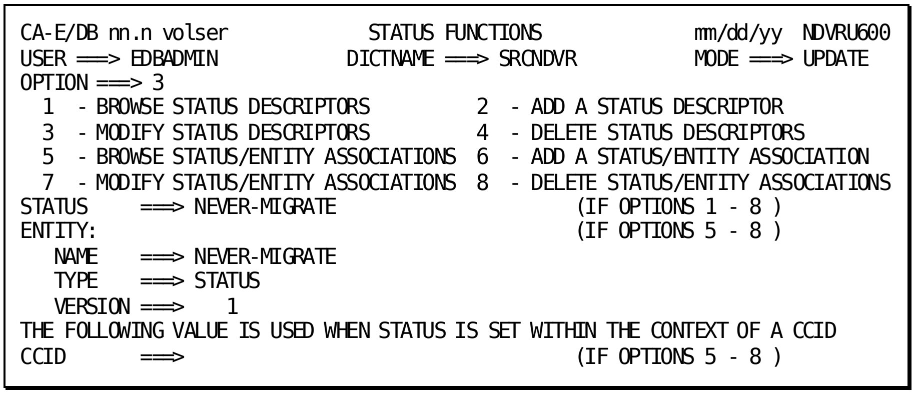


```
CA-E/DB nn.n volser            MAIN FUNCTION MENU            mm/dd/yy  NDVRU000
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 6
              1  - SIGNIN/SIGNOUT FUNCTIONS
              2  - AUTHORIZATION FUNCTIONS
              3  - LOCK FUNCTIONS
              4  - ENTITY AND ENTITY CHANGE HISTORY
              5  - CCID AND CCID CHANGE HISTORY
              6  - STATUS AND STATUS ASSOCIATIONS
              7  - USER AND USER CHANGE HISTORY
              8  - DICTIONARY AND DICTIONARY HISTORY
              9  - MANAGEMENT GROUPS AND CCIDS
             10  - ENDEVOR/DB CONTROL FUNCTIONS
             11  - ENDEVOR/DB SIGNON FUNCTION
             12  - RETURN TO IDMS/DC
```

4. Press ENTER.

   The system responds with the STATUS FUNCTIONS screen.

5. Select option **3** (MODIFY STATUS DESCRIPTORS) and, in the STATUS field, fill in the name of the STATUS to which status privileges will be applied (NEVER-MIGRATE).

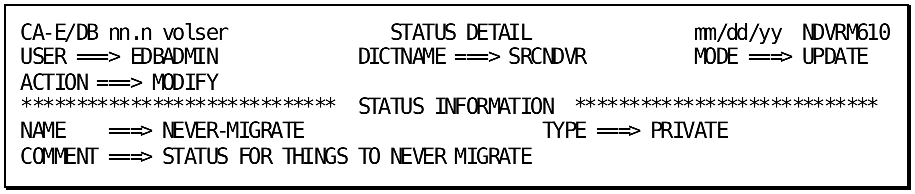


```
CA-E/DB nn.n volser             STATUS FUNCTIONS              mm/dd/yy  NDVRU600
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 3
  1  - BROWSE STATUS DESCRIPTORS         2  - ADD A STATUS DESCRIPTOR
  3  - MODIFY STATUS DESCRIPTORS         4  - DELETE STATUS DESCRIPTORS
  5  - BROWSE STATUS/ENTITY ASSOCIATIONS 6  - ADD A STATUS/ENTITY ASSOCIATION
  7  - MODIFY STATUS/ENTITY ASSOCIATIONS 8  - DELETE STATUS/ENTITY ASSOCIATIONS
STATUS     ===> NEVER-MIGRATE                      (IF OPTIONS 1 - 8 )
ENTITY:                                            (IF OPTIONS 5 - 8 )
   NAME    ===> NEVER-MIGRATE
   TYPE    ===> STATUS
   VERSION ===>    1
THE FOLLOWING VALUE IS USED WHEN STATUS IS SET WITHIN THE CONTEXT OF A CCID
CCID       ===>                                    (IF OPTIONS 5 - 8 )
```

6. Press ENTER.

   The system responds with a STATUS DETAIL screen.

7. Change the TYPE from PUBLIC to PRIVATE.



```
CA-E/DB nn.n volser               STATUS DETAIL               mm/dd/yy  NDVRM610
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
*****************************  STATUS INFORMATION  ****************************
NAME    ===> NEVER-MIGRATE                          TYPE ===> PRIVATE
COMMENT ===> STATUS FOR THINGS TO NEVER MIGRATE
```

   Press ENTER. The user (EDBADMIN) is now preauthorized to set or turn off NEVER-MIGRATE status for any entity.

To remove preauthorization, select option **3** (DELETE PREAUTHORIZATION) on the Pre-authorization Functions screen.

Preparing for Derived CCID Processing

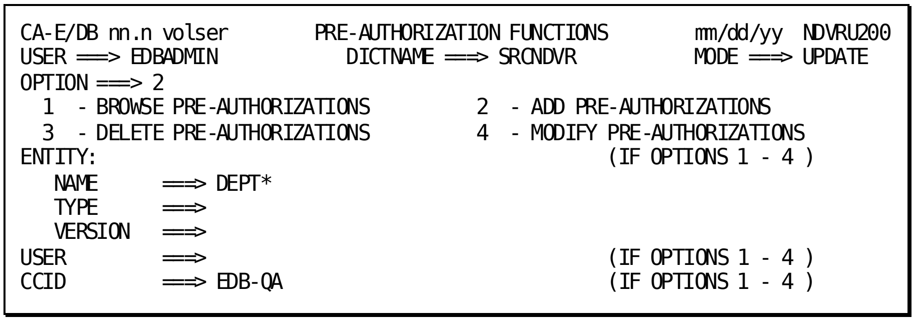
When using DERIVED-CCID processing, the CCID(s) associated with a change are determined when the change is made to an entity. The DERIVED CCID processing allows a user to associate changes to one or more CCIDs without the user having to signon to CA Endevor/DB with the CCID(s). To turn on DERIVED CCID processing, the dictionary's and user's security class must specify DE-CCID = Y. If they are not, DERIVED CCID processing is not active. In addition, entities are preauthorized to the derived CCIDs with the DE-CCID flag set to Y.

To accomplish this, you can either use the Online front end or the Batch front end. In Batch, you would use the ADD PREAUTHORIZATION and the MODIFY SECURITY CLASS commands. The Batch commands to set up CCID EDB-QA as a derived CCID for all entities whose name begins with "DEPT" and to assign derived CCID processing for all security classes would be as follows:

```
ADD PREAUTHORIZATION ENTITY NAME = DEPT*
TO CCID EDB-QA DERIVE CCID = Y.
MOD SECURITY CLASS = * DERIVE CCID = Y.
```

To accomplish this through the Online front end, perform the following:

1. Select option **2** on the Pre-authorization Functions menu (2-ADD PREAUTHORIZATIONS). Next, specify the entities to which the CCID EDB-QA is to be preauthorized.

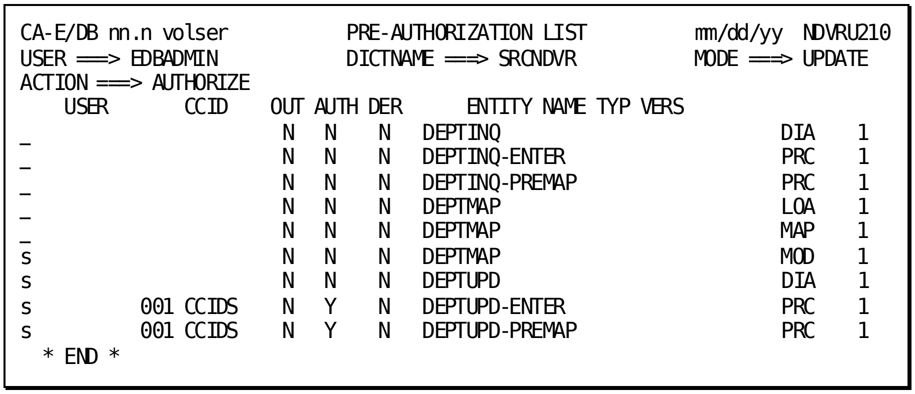


```
CA-E/DB nn.n volser       PRE-AUTHORIZATION FUNCTIONS       mm/dd/yy  NDVRU200
USER ===> EDBADMIN          DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 2
  1  - BROWSE PRE-AUTHORIZATIONS         2  - ADD PRE-AUTHORIZATIONS
  3  - DELETE PRE-AUTHORIZATIONS         4  - MODIFY PRE-AUTHORIZATIONS
ENTITY:                                          (IF OPTIONS 1 - 4 )
   NAME      ===> DEPT*
   TYPE      ===>
   VERSION   ===>
USER         ===>                                (IF OPTIONS 1 - 4 )
CCID         ===> EDB-QA                         (IF OPTIONS 1 - 4 )
```

   Press ENTER.

   The system responds with a Pre-authorization List screen, which identifies all available entities whose name begins with DEPT. In the following example, all entities (beginning with the characters DEPT) not already preauthorized to CCID EDB-QA have been listed (since the wildcard (*) was specified as part of the ENTITY name qualifier).

2. Using this screen, you further define the list of entities that are to be preauthorized to this CCID. Select the entities that you wish to preauthorize to the CCID (EDB-QA) by entering any non-blank character to the left of the desired entries. In our example, all entities whose name begins with "DEPT-" have been selected.



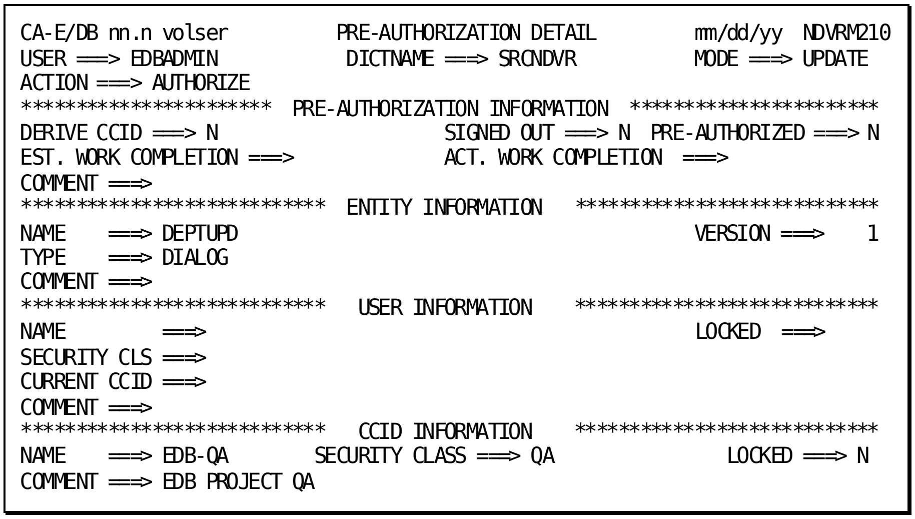
```
CA-E/DB nn.n volser          PRE-AUTHORIZATION LIST         mm/dd/yy  NDVRU210
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> AUTHORIZE
    USER       CCID    OUT AUTH DER      ENTITY NAME TYP VERS
_                       N   N    N   DEPTINQ                         DIA    1
_                       N   N    N   DEPTINQ-ENTER                   PRC    1
_                       N   N    N   DEPTINQ-PREMAP                  PRC    1
_                       N   N    N   DEPTMAP                         LOA    1
_                       N   N    N   DEPTMAP                         MAP    1
s                       N   N    N   DEPTMAP                         MOD    1
s                       N   N    N   DEPTUPD                         DIA    1
s          001 CCIDS    N   Y    N   DEPTUPD-ENTER                   PRC    1
s          001 CCIDS    N   Y    N   DEPTUPD-PREMAP                  PRC    1
  * END *
```

Where AUTH is **Y**, the entity is already preauthorized. Where DER is **Y**, DERIVE CCID processing is in effect for the preauthorization. Where OUT is **Y**, the entity is signed-out. The USER and CCID fields indicate the number of USERs and CCIDs to which an entity is preauthorized. In the above example, the last listed entity (DEPTUPD-PREMAP) is preauthorized to one CCID (0001 CCID). For more information, use the Browse Preauthorization function as applied to this entity.

Note: This screen lists all entities that have not already been preauthorized to CCID EDB-QA. CCID EDB-QA, as specified on the Pre-authorization Functions screen, will reappear on the Pre-authorization Detail screen on the next page.

3. Press ENTER.

   The system responds with a Pre-authorization Detail screen for each selected entity. A sample detail screen is shown below.

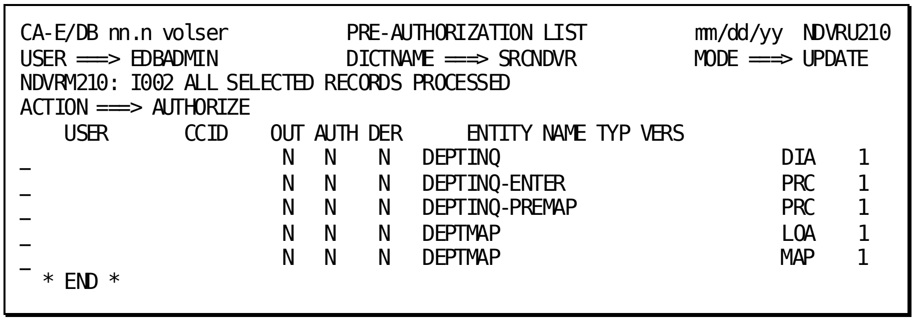


```
CA-E/DB nn.n volser         PRE-AUTHORIZATION DETAIL        mm/dd/yy  NDVRM210
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> AUTHORIZE
*********************** PRE-AUTHORIZATION INFORMATION ***********************
DERIVE CCID ===> N                    SIGNED OUT ===> N  PRE-AUTHORIZED ===> N
EST. WORK COMPLETION ===>             ACT. WORK COMPLETION  ===>
COMMENT ===>
****************************  ENTITY INFORMATION   ****************************
NAME    ===> DEPTUPD                                     VERSION ===>    1
TYPE    ===> DIALOG
COMMENT ===>
****************************   USER INFORMATION    ****************************
NAME         ===>                                        LOCKED  ===>
SECURITY CLS ===>
CURRENT CCID ===>
COMMENT ===>
****************************   CCID INFORMATION    ****************************
NAME    ===> EDB-QA       SECURITY CLASS ===> QA               LOCKED ===> N
COMMENT ===> EDB PROJECT QA
```

4. Within the Pre-authorization Information section of the screen, fill in the appropriate fields to document preauthorization:

- Enter a **Y** in the DERIVE CCID field to specify that this CCID is to be derived. The CCID information has already been filled in, based on earlier input from the Pre-authorization Functions screen. This information can be changed to preauthorize a different CCID.
- By pressing ENTER after each detail screen as it appears, you're building a list of the entities preauthorized to the CCID EDB-QA.
- By pressing PF3, the system will cancel your preauthorization request.

  When all selected entities whose name begins with DEPTUPD have been entered, the system responds with a final list of all "leftover" (not preauthorized) entities remaining from the previous list. This enables you to double-check the list for any entities you may have missed.



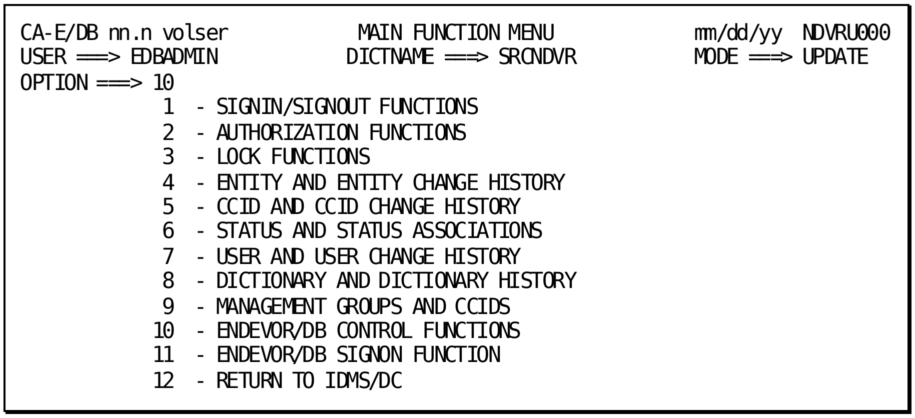
```
CA-E/DB nn.n volser          PRE-AUTHORIZATION LIST         mm/dd/yy  NDVRU210
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
NDVRM210: I002 ALL SELECTED RECORDS PROCESSED
ACTION ===> AUTHORIZE
    USER       CCID    OUT AUTH DER      ENTITY NAME TYP VERS
_                       N   N    N   DEPTINQ                          DIA    1
_                       N   N    N   DEPTINQ-ENTER                    PRC    1
_                       N   N    N   DEPTINQ-PREMAP                   PRC    1
_                       N   N    N   DEPTMAP                          LOA    1
_                       N   N    N   DEPTMAP                          MAP    1
  * END *
```

5. Return to the Main Function Menu by pressing CLEAR or PF3.

Note: To preauthorize the same entities to another CCID, follow the same procedure as above. Entities may be preauthorized to single or multiple CCIDs.

Now that you've built the preauthorization list for the CCID EDB-QA, you need to modify the security descriptors for the dictionary descriptor and the users who will be using DERIVED CCID processing. To do this:

1. Select option **10** (ENDEVOR/DB CONTROL FUNCTIONS) from the Main Function Menu.

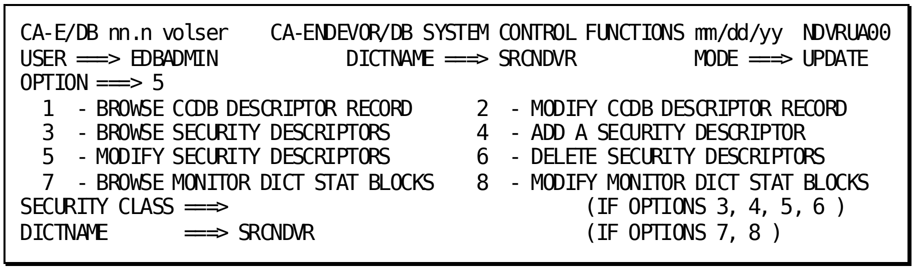


```
CA-E/DB nn.n volser           MAIN FUNCTION MENU            mm/dd/yy  NDVRU000
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 10
             1  - SIGNIN/SIGNOUT FUNCTIONS
             2  - AUTHORIZATION FUNCTIONS
             3  - LOCK FUNCTIONS
             4  - ENTITY AND ENTITY CHANGE HISTORY
             5  - CCID AND CCID CHANGE HISTORY
             6  - STATUS AND STATUS ASSOCIATIONS
             7  - USER AND USER CHANGE HISTORY
             8  - DICTIONARY AND DICTIONARY HISTORY
             9  - MANAGEMENT GROUPS AND CCIDS
            10  - ENDEVOR/DB CONTROL FUNCTIONS
            11  - ENDEVOR/DB SIGNON FUNCTION
            12  - RETURN TO IDMS/DC
```

2. Press ENTER.

   The system responds with the CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS screen.

3. Select option **5** (MODIFY SECURITY DESCRIPTORS).

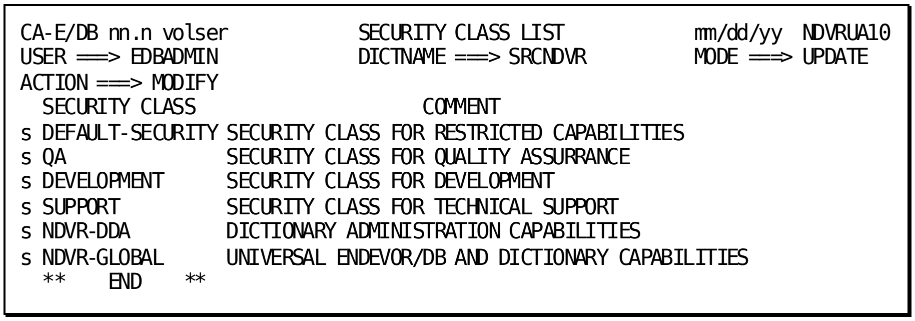


```
CA-E/DB nn.n volser    CA-ENDEVOR/DB SYSTEM CONTROL FUNCTIONS mm/dd/yy  NDVRUA00
USER ===> EDBADMIN           DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 5
  1  - BROWSE CODB DESCRIPTOR RECORD      2  - MODIFY CODB DESCRIPTOR RECORD
  3  - BROWSE SECURITY DESCRIPTORS        4  - ADD A SECURITY DESCRIPTOR
  5  - MODIFY SECURITY DESCRIPTORS        6  - DELETE SECURITY DESCRIPTORS
  7  - BROWSE MONITOR DICT STAT BLOCKS    8  - MODIFY MONITOR DICT STAT BLOCKS
SECURITY CLASS ===>                                 (IF OPTIONS 3, 4, 5, 6 )
DICTNAME       ===> SRCNDVR                         (IF OPTIONS 7, 8 )
```

4. Press ENTER.

   The system then provides a list of all the Security Classes in the database on the SECURITY CLASS LIST screen.

5. This action changes all security classes to use derived CCID processing. Select all items on the list by typing any non-blank character to the left of each Security Class entry. This lets you "zoom in" on each Security Class in order to set security flags as needed.

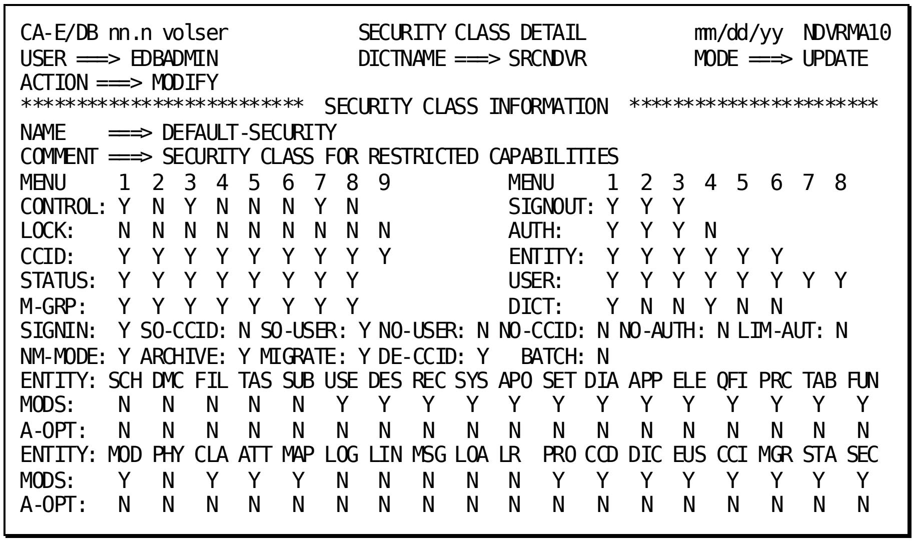


```
CA-E/DB nn.n volser            SECURITY CLASS LIST          mm/dd/yy  NDVRUA10
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR        MODE ===> UPDATE
ACTION ===> MODIFY
  SECURITY CLASS                     COMMENT
s DEFAULT-SECURITY SECURITY CLASS FOR RESTRICTED CAPABILITIES
s QA               SECURITY CLASS FOR QUALITY ASSURANCE
s DEVELOPMENT      SECURITY CLASS FOR DEVELOPMENT
s SUPPORT          SECURITY CLASS FOR TECHNICAL SUPPORT
s NDVR-DDA         DICTIONARY ADMINISTRATION CAPABILITIES
s NDVR-GLOBAL      UNIVERSAL ENDEVOR/DB AND DICTIONARY CAPABILITIES
  **    END    **
```

6. Press ENTER.

   The system responds with a SECURITY CLASS DETAIL screen for each Security Class selected on the above list.

7. On the Security Class Detail screen, enter a **Y** in the DE-CCID field. This will enable DERIVED CCID processing for users and the dictionary descriptors, which have these security classes.



```
CA-E/DB nn.n volser              SECURITY CLASS DETAIL          mm/dd/yy  NDVRMA10
USER ===> EDBADMIN               DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> MODIFY
*************************  SECURITY CLASS INFORMATION  **********************
NAME    ===> DEFAULT-SECURITY
COMMENT ===> SECURITY CLASS FOR RESTRICTED CAPABILITIES
MENU     1  2  3  4  5  6  7  8  9          MENU     1  2  3  4  5  6  7  8
CONTROL: Y  N  Y  N  N  N  Y  N             SIGNOUT: Y  Y  Y
LOCK:    N  N  N  N  N  N  N  N  N          AUTH:    Y  Y  Y  N
CCID:    Y  Y  Y  Y  Y  Y  Y  Y  Y          ENTITY:  Y  Y  Y  Y  Y  Y
STATUS:  Y  Y  Y  Y  Y  Y  Y  Y             USER:    Y  Y  Y  Y  Y  Y  Y  Y
M-GRP:   Y  Y  Y  Y  Y  Y  Y  Y             DICT:    Y  N  N  Y  N  N
SIGNIN:  Y SO-CCID: N SO-USER: Y NO-USER: N NO-CCID: N NO-AUTH: N LIM-AUT: N
NM-MODE: Y ARCHIVE: Y MIGRATE: Y DE-CCID: Y   BATCH: N
ENTITY: SCH DMC FIL TAS SUB USE DES REC SYS APO SET DIA APP ELE QFI PRC TAB FUN
MODS:    N   N   N   N   N   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N
ENTITY: MOD PHY CLA ATT MAP LOG LIN MSG LOA LR  PRO CCD DIC EUS CCI MGR STA SEC
MODS:    Y   N   Y   Y   Y   N   N   N   N   N   Y   Y   Y   Y   Y   Y   Y   Y
A-OPT:   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N   N
```

Note: If the security class for the dictionary descriptor (NDVR-GLOBAL) does not specify DERIVED CCID processing (DE-CCID = Y), DERIVED CCID processing will not be active even if a user's security class in that dictionary specified CCID processing.

By pressing ENTER after each detail screen as it appears, you are building a group of security classes which specify derived CCID processing. Press PF3 to cancel your MODIFY SECURITY CLASS request.

Chapter 7: Lock Security

This section contains the following topics:

Introduction (see page 90)
The Browse Option (see page 92)
The Lock Option (see page 94)
The Unlock Option (see page 96)

Introduction

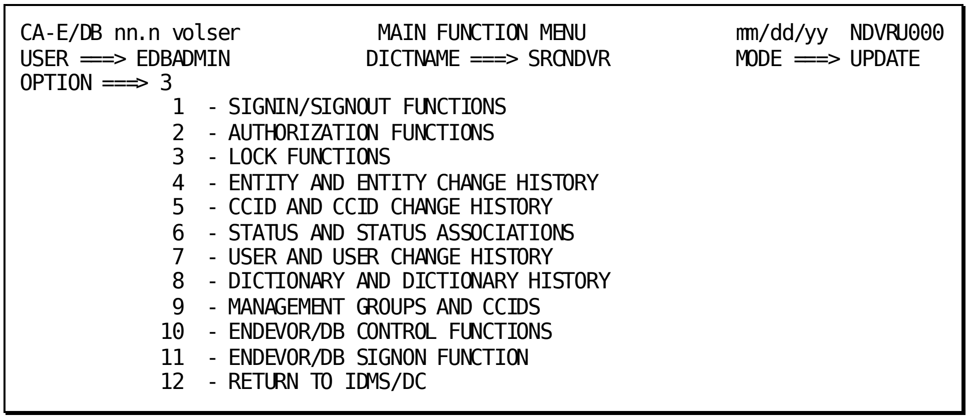
In addition to preauthorizing users and CCIDs, security measures can be taken one step further using a level of control called *lock*. The lock function is used to prevent use of an CA Endevor/DB userid or CCID, and/or to prevent a dictionary from being updated. Lock is a temporary condition; when you want to allow access again, you simply *unlock* the entity.

You can lock:

- An CA Endevor/DB User (userid) - which prevents signon and updates by that userid.
- A CCID - which prevents signon under that CCID and updates logged to that CCID.
- A Dictionary - which prevents any modifications from being done in the dictionary.

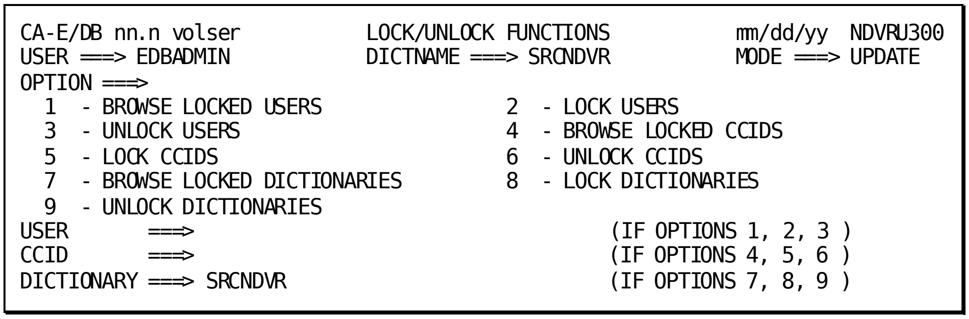
This chapter provides a step-by-step approach to locking and unlocking users, CCIDs, and the dictionary.

Lock processing begins when you select option **3** from the Main Function Menu:



```
CA-E/DB nn.n volser            MAIN FUNCTION MENU             mm/dd/yy  NDVRU000
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 3
             1  - SIGNIN/SIGNOUT FUNCTIONS
             2  - AUTHORIZATION FUNCTIONS
             3  - LOCK FUNCTIONS
             4  - ENTITY AND ENTITY CHANGE HISTORY
             5  - CCID AND CCID CHANGE HISTORY
             6  - STATUS AND STATUS ASSOCIATIONS
             7  - USER AND USER CHANGE HISTORY
             8  - DICTIONARY AND DICTIONARY HISTORY
             9  - MANAGEMENT GROUPS AND CCIDS
            10  - ENDEVOR/DB CONTROL FUNCTIONS
            11  - ENDEVOR/DB SIGNON FUNCTION
            12  - RETURN TO IDMS/DC
```

The system returns the Lock/Unlock Functions menu below:



```
CA-E/DB nn.n volser           LOCK/UNLOCK FUNCTIONS           mm/dd/yy  NDVRU300
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===>
  1  - BROWSE LOCKED USERS                2  - LOCK USERS
  3  - UNLOCK USERS                       4  - BROWSE LOCKED CCIDS
  5  - LOCK CCIDS                         6  - UNLOCK CCIDS
  7  - BROWSE LOCKED DICTIONARIES         8  - LOCK DICTIONARIES
  9  - UNLOCK DICTIONARIES
USER       ===>                                    (IF OPTIONS 1, 2, 3 )
CCID       ===>                                    (IF OPTIONS 4, 5, 6 )
DICTIONARY ===> SRCNDVR                            (IF OPTIONS 7, 8, 9 )
```

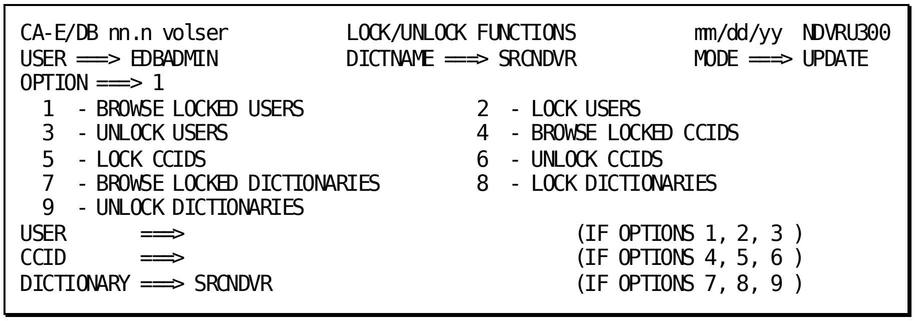
The remainder of this chapter discusses the three options and related procedures used in LOCK processing. Read the section(s) appropriate to your needs.

The Browse Option

Prior to locking or unlocking a particular user(s), you may want to determine who has already been locked. Use the browse option (**1**) to retrieve a list of these users.

Note: Because the procedures are the same for all three entities, the examples described and illustrated on the following pages pertain to only one entity - users. To browse, lock, or unlock a CCID or dictionary, you would simply select the appropriate option number and follow these same procedures.

1. Select option **1** on the Lock/Unlock Functions menu (1 - BROWSE LOCKED USERS).

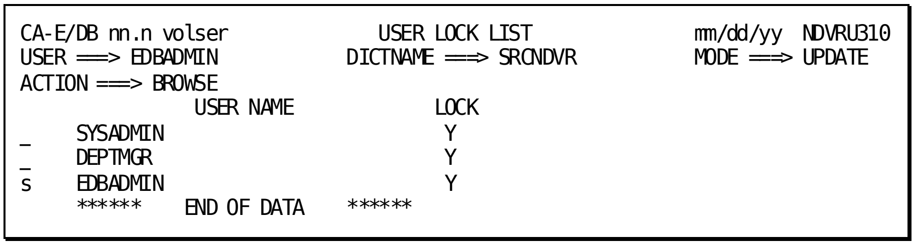


```
CA-E/DB nn.n volser           LOCK/UNLOCK FUNCTIONS          mm/dd/yy  NDVRU300
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 1
  1  - BROWSE LOCKED USERS                2  - LOCK USERS
  3  - UNLOCK USERS                       4  - BROWSE LOCKED CCIDS
  5  - LOCK CCIDS                         6  - UNLOCK CCIDS
  7  - BROWSE LOCKED DICTIONARIES         8  - LOCK DICTIONARIES
  9  - UNLOCK DICTIONARIES
USER       ===>                                   (IF OPTIONS 1, 2, 3 )
CCID       ===>                                   (IF OPTIONS 4, 5, 6 )
DICTIONARY ===> SRCNDVR                           (IF OPTIONS 7, 8, 9 )
```

2. Press ENTER.

   The User Lock List screen displays, which identifies all users previously locked. Once you have checked the list, you can either return to the Lock/Unlock Functions menu (by pressing PF3 or CLEAR) or you can select a particular userid and review it in more detail.

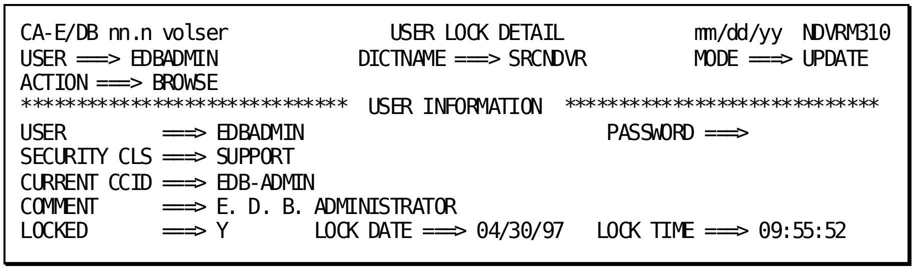
3. Select the userid you want to review by entering any non-blank character to the left of the desired entry. In this example, userid EDBADMIN has been selected.



```
CA-E/DB nn.n volser              USER LOCK LIST              mm/dd/yy  NDVRU310
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> BROWSE
                USER NAME           LOCK
_    SYSADMIN                        Y
_    DEPTMGR                         Y
s    EDBADMIN                        Y
     ******     END OF DATA    ******
```

4. Press ENTER.

   The User Lock Detail screen displays for userid EDBADMIN. **Y** in the LOCKED field indicates that this user is indeed locked; the date and time the userid was locked are also displayed.



```
CA-E/DB nn.n volser              USER LOCK DETAIL            mm/dd/yy  NDVRM310
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> BROWSE
******************************  USER INFORMATION  *****************************
USER         ===> EDBADMIN                                PASSWORD ===>
SECURITY CLS ===> SUPPORT
CURRENT CCID ===> EDB-ADMIN
COMMENT      ===> E. D. B. ADMINISTRATOR
LOCKED       ===> Y        LOCK DATE ===> 04/30/97   LOCK TIME ===> 09:55:52
```

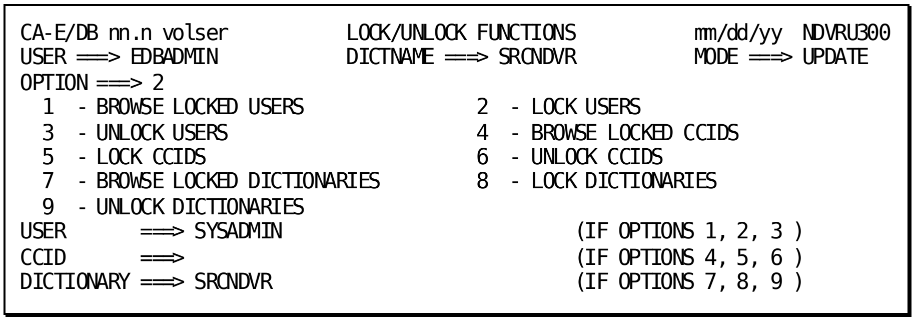
5. Press ENTER and then PF3 to return directly to the Lock/Unlock Functions menu.

If you selected more than one userid for review, the User Lock Detail screen for the next user appears. Continue pressing ENTER until all detail screens have been displayed; the last ENTER brings you back to the User Lock List. Press PF3 to return to the Lock/Unlock Functions screen.

The Lock Option

When you lock a particular user, you are preventing that userid from logging onto the CA Endevor/DB system, as well as preventing IDD updates by that user. This restriction remains in place until you unlock the userid.

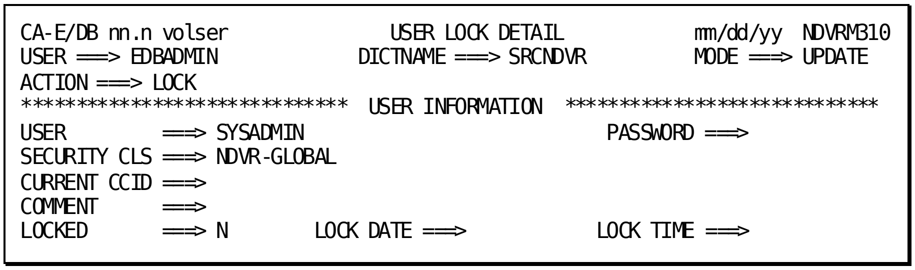
1. Select option **2** on the Lock/Unlock Functions menu (2 - LOCK USERS). In addition, enter the userid you want to lock; in this example, userid SYSADMIN is designated.



```
CA-E/DB nn.n volser           LOCK/UNLOCK FUNCTIONS           mm/dd/yy  NDVRU300
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR           MODE ===> UPDATE
OPTION ===> 2
  1  - BROWSE LOCKED USERS                2  - LOCK USERS
  3  - UNLOCK USERS                       4  - BROWSE LOCKED CCIDS
  5  - LOCK CCIDS                         6  - UNLOCK CCIDS
  7  - BROWSE LOCKED DICTIONARIES         8  - LOCK DICTIONARIES
  9  - UNLOCK DICTIONARIES
USER       ===> SYSADMIN                             (IF OPTIONS 1, 2, 3 )
CCID       ===>                                      (IF OPTIONS 4, 5, 6 )
DICTIONARY ===> SRCNDVR                              (IF OPTIONS 7, 8, 9 )
```

2. Press ENTER.

   The User Lock Detail screen displays for userid SYSADMIN.



```
CA-E/DB nn.n volser               USER LOCK DETAIL            mm/dd/yy  NDVRM310
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR          MODE ===> UPDATE
ACTION ===> LOCK
******************************  USER INFORMATION  *****************************
USER         ===> SYSADMIN                            PASSWORD ===>
SECURITY CLS ===> NDVR-GLOBAL
CURRENT CCID ===>
COMMENT      ===>
LOCKED       ===> N         LOCK DATE ===>            LOCK TIME ===>
```

3. To lock userid SYSADMIN, press ENTER. Then, press PF3 to return to the Lock/Unlock Functions menu.

Note the LOCKED field on the bottom line of the screen. When you first see the screen, the letter **N** appears in this field. Locking the userid automatically changes the entry to **Y**, which appears in the field when you next access this screen. In addition, userid SYSADMIN will be listed on the User Lock List the next time that screen appears.

An Alternate Procedure

If for some reason you did not indicate a specific user on the Lock/Unlock Functions menu, the User Lock List appears when you press ENTER. This list contains all CA Endevor/DB users who are *not* already locked. You can now select the userid(s) you want to lock by entering any non-blank character next to the desired entry(ies). Press ENTER; when the User Lock Detail screen appears for the user, you can perform any of the following activities:

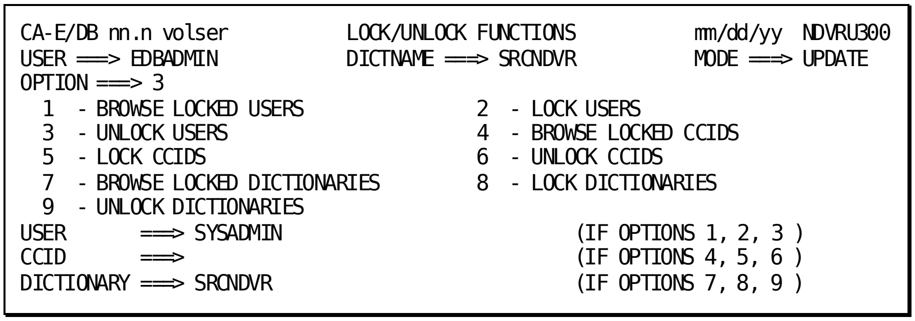
- **LOCK this user.** Simply press ENTER; if you selected more than one userid, the User Lock Detail screen for the next userid displays.
- **NOT lock this user.** Simply clear the ACTION field and press ENTER. Again, if you indicated more than one userid to be locked, the next User Lock Detail screen displays.
- Return directly to the User Lock List. Press PF3.

Continue locking or not locking until all detail screens have been displayed. The last ENTER brings you back to the User Lock List. Press PF3 to return to the Lock/Unlock Functions menu.

The Unlock Option

Unlocking a userid allows users to signon under that userid once again.

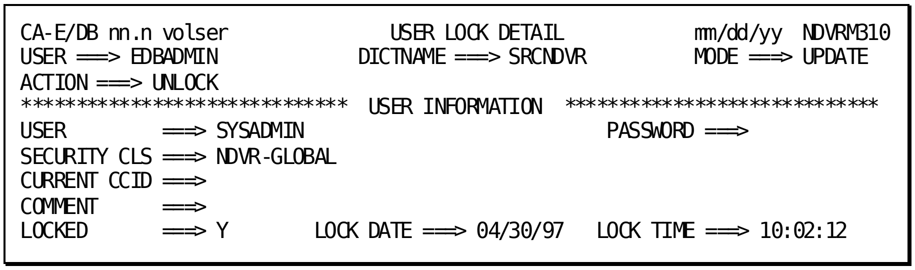
1. Select option **3** on the Lock/Unlock Functions menu (3-UNLOCK USERS) and enter the userid you want to unlock. In this example, userid SYSADMIN will be unlocked.



```
CA-E/DB nn.n volser           LOCK/UNLOCK FUNCTIONS          mm/dd/yy  NDVRU300
USER ===> EDBADMIN            DICTNAME ===> SRCNDVR          MODE ===> UPDATE
OPTION ===> 3
  1  - BROWSE LOCKED USERS                  2  - LOCK USERS
  3  - UNLOCK USERS                         4  - BROWSE LOCKED CCIDS
  5  - LOCK CCIDS                           6  - UNLOCK CCIDS
  7  - BROWSE LOCKED DICTIONARIES           8  - LOCK DICTIONARIES
  9  - UNLOCK DICTIONARIES
USER       ===> SYSADMIN                            (IF OPTIONS 1, 2, 3 )
CCID       ===>                                     (IF OPTIONS 4, 5, 6 )
DICTIONARY ===> SRCNDVR                             (IF OPTIONS 7, 8, 9 )
```

2. Press ENTER.

   The system again responds with the User Lock Detail screen for userid SYSADMIN. Now, however, the ACTION field states unlock rather than lock.



```
CA-E/DB nn.n volser              USER LOCK DETAIL            mm/dd/yy  NDVRM310
USER ===> EDBADMIN             DICTNAME ===> SRCNDVR         MODE ===> UPDATE
ACTION ===> UNLOCK
******************************  USER INFORMATION  *****************************
USER          ===> SYSADMIN                          PASSWORD ===>
SECURITY CLS  ===> NDVR-GLOBAL
CURRENT CCID  ===>
COMMENT       ===>
LOCKED        ===> Y       LOCK DATE ===> 04/30/97   LOCK TIME ===> 10:02:12
```

3. To unlock userid SYSADMIN, press ENTER. Then press PF3 to return to the Lock/Unlock Functions menu.

On this display, the entry in the LOCKED field is **Y**. As with the LOCK option, the entry automatically changes when you press ENTER - in this case, to **N**. And, userid SYSADMIN will no longer be on the User Lock List screen.

An Alternate Procedure

If you did not indicate a specific userid on the Lock/Unlock Functions menu, the User Lock List appears when you press ENTER. This list consists of all CA Endevor/DB users currently in a locked condition. Select the userid(s) you want to unlock by entering any character next to the desired entry(ies). Press ENTER; when the USER Lock Detail screen appears, you can perform any of the following activities:

- **UNLOCK this user.** Press ENTER; if you selected more than one userid, the User Lock Detail screen for the next userid is returned.
- **NOT unlock this userid.** Simply clear the ACTION field and press ENTER. Again, if you indicated more than one userid, the next User Lock Detail screen displays.
- Return directly to the User Lock List by pressing PF3.

Continue locking or unlocking until all detail screens have been displayed. The last ENTER brings you back to the User Lock List. Press PF3 to return to the Lock/Unlock Functions menu.

CCIDs and Dictionaries

As mentioned above, the procedures for browsing, locking, and unlocking CCIDs and dictionaries are the same as those for users. Select the appropriate options for these entities, as listed below:

- To **BROWSE LOCKED CCIDS** - select option **4**.
- To **LOCK CCIDS** - select option **5**.
- To **UNLOCK CCIDS** - select option **6**.
- To **BROWSE LOCKED DICTIONARIES** - select option **7**.
- To **LOCK DICTIONARIES** - select option **8**.
- To **UNLOCK DICTIONARIES** - select option **9**.

Chapter 8: Archiving and Compressing the CCDB

This section contains the following topics:

Overview (see page 100)

Overview

CA Endevor/DB's archive and compress facility, NDVRARCO, allows the CCDB administrator to eliminate obsolete information from the CCDB, to optimize disk space, to transfer essential data onto tape or disk for future reference, and to maintain essential information in special Configuration Change Log entries within CCDB. The archive and compress facility accomplishes this by performing the following tasks:

- **Removing Uncommitted Change Log Entries from the CCDB.**

  If an updating program (such as IDD) runs a job which is abended or interrupted, that incomplete job is marked as "uncommitted" in the CCDB database. CA Endevor/DB ignores uncommitted CLEs for change control purposes, and disposes of them when the ARCHIVE/COMPRESS program is run.

- **Compressing Data in the CCDB.**

  The goal of compression is to eliminate "noise" records in the CCDB that add little value to the audit trail or change control process. During compression, contiguous strings of CLEs, which relate to the same user and CCID entity are summarized into a single compressed CLE with a net action code (depending on the sequence of activity). When the Change Log History for dictionaries, CCIDs, users or entities is displayed, compressed CLEs appear in their original time relative positions. In order to do compress processing, the user must enter the COMPRESS command and specify a compress age.

- **Archiving Data from the CCDB to a Sequential File.**

  Archive processing enables the CCDB administrator to transfer data from the CCDB into a sequential file (tape or disk). Typically, these records contain obsolete change information, which is no longer needed on a regular basis, yet warrants being preserved for future reference. Such would be the case, for example, when a migration is completed and the associated change information is no longer needed in the online database for future migrations, regression detection, or audit trail purposes.

  Archiving that information would free up space in the CCDB while maintaining a "pre-migration" copy of that change log information on tape for historical purposes. In order to invoke archive processing, the user must specify the ARCHIVE command and specify the name of the CCID, USER, or MANAGEMENT-GROUP to be archived.

- **Modifying Confirmation Log Entries**

  This function allows the CCDB administrator to modify the dictionary name and/or system identifier information contained in Confirmation Change Log entries written to the CCDB during the promotion, or migration, process.

- **Converting Secondary Commit Groups**

  When Derived CCID processing is used, secondary commit groups are sometimes created to associate Change Log Entries (CLEs) to CCIDs. The ARCHIVE/COMPRESS program converts them to ordinary commits.

Note: Because secondary commit records contain a dbkey as data, the ARCHIVE/COMPRESS program must be run prior to running any CA IDMS utility (such as UNLOAD/RELOAD) which will change dbkeys for existing CCDB NDVRCOMT records. The ARCHIVE/COMPRESS program will eliminate the stored dbkey values.

Installations commonly apply both compression and archive to the same CCDB, using these facilities for two basic purposes:

- For routine cleanup/maintenance, where uncommitted jobs are automatically deleted and "noise" information is systematically compressed.
- For archiving the change log history used to drive a migration process. The same USER/CCID/MANAGEMENT-GROUP used for the NDVRDSEL SELECT commands would generally be used for the ARCHIVE commands.

The use of CA Endevor/DB to control the promotion or migration process depends completely on the contents of the CCDB. The use of NDVRARCO's ARCHIVE processing removes Change Log records from the CCDB; the use of NDVRARCO's ALTER CONFIRMATION processing modifies the dictionary identification information contained in Confirmation Change Log records in the CCDB.

There are three major guidelines to be followed when using NDVRARCO's ARCHIVE processing.

- **Multiple Migration Targets.**

  If you intend to migrate dictionary entities to more than one target, you should never use NDVRARCO to archive the source dictionary development change history until the migration is complete to all targets. Do not archive a CCID used to trigger the selection of entities until it has been received by all target systems.

- **Multiple Migration Sources.**

  If you make changes to dictionary entities at two or more source dictionaries, you should never use NDVRARCO to archive change history until all affected dictionaries are synchronized. For example, let's say that development is done at dictionary A, QA at dictionary B, and production at dictionary C. If a migration from dictionary A to dictionary B is followed by a QA-related change at B, then the history of change at B cannot be archived until migrated to, or reproduced at, both A and C. Use the Post Migration Activity Report (NDVRPT15) to identify QA and production fixes.

- **Vendor-Supplied Source.**

  If you make changes to vendor-supplied dictionary entities, you should never use NDVRARCO to archive the history of those changes. The audit trail of these changes will always be needed to upgrade to new maintenance levels and releases of the vendor product. Regular and exclusive use of compression in these cases will keep the growth of the CCDB at moderate and predictable levels.

NDVRARCO's ALTER CONFIRMATION processing requires some thought before its use. Since selection of entities for promotion is based on "the last time the entity was promoted to the target dictionary" and the target dictionary is identified by the Dictionary Name and System Identifier in the Confirmation Change Log records in the CCDB, accurate dictionary identification information is crucial. If a "hooked," or monitored, dictionary is moved from one system to another, or the system it resides in is renamed, or if the segment name of the dictionary is changed (causing a change in the Database Name Table DBName entry for the monitored dictionary), this information needs to be updated in the Confirmation Change Log entities in each applicable CCDB. The following guidelines should be followed:

- **Source Dictionary Identification Changes**

  If the dictionary name and/or system identifier of a source dictionary is changed, after updating the source CCDB's Dictionary Descriptor to reflect the change, ALTER CONFIRMATION commands should run against each target CCDB into which entities from the source dictionary have been promoted to reflect the new source dictionary identification information. This information is contained in "Migrate In" (Action Code "V") Confirmation Change Log records in the target CCDB.

- **Target Dictionary Identification Changes**

  If the dictionary name and/or system identifier of a target dictionary is changed, after updating the target CCDB's Dictionary Descriptor to reflect the change, ALTER CONFIRMATION commands should be run against each source CCDB from which entities have been promoted to reflect the new target dictionary identification information. This information is contained in "Migrate Out" (Action Code "C") Confirmation Change Log records in the source CCDB..eul

NDVRARCO Command Language

NDVRARCO is driven via three separate commands: SIGNON, COMPRESS, and ARCHIVE.

SIGNON

The syntax for SIGNON is as follows:

```
►►──── SIGnon ──┬────────────────────────────────┬──────────────────►
                ├─ DBNAme ───┬─── is dictname ─┘
                └─ DICtName ─┘

►─┬──────────────────────┬─┬─────────────────────────┬─────────────►
  └─ USEr name is user-name ─┘ └─ PASsword is password ─┘

►─────────┬──────────────────────────────────┬──────── . ──────►◄
          └─ CCId name is ─┬── ccid ───────────┤
                           │     ┌─── , ───┐    │
                           └─ ( ─▼─ ccid ──┴─ ) ┘
```

The SIGNON command identifies the user responsible for the archive/compress processing and optional password and CCID list. If no CCID list is specified, the default CCIDs for the user are assigned from the CCDB.

Note: If the user runs NDVRARCO but doesn't specify COMPRESS, ARCHIVE or ALTER CONFIRMATION, the utility will clean up uncommitted work only.

COMPRESS

In order to perform compress processing, the user must explicitly instruct NDVRARCO to do so. The syntax for COMPRESS is as follows:

```
►►──── COMpress ─────────────────────────────────────────────►

 ►──┬────────────────────────────────────────────────┬──── - ───►◄
    └ TO ───┬─ DATE is mm/dd/yy ─┬───────────────────┬┤
            │                    └ TIME is hh:mm:ss ─┘│
            └─ AGE is age ────────────────────────────┘
```

- The TO DATE value is used to specify the month, day, and year prior to which the compress processing is to be performed. This is followed by an optional TIME value, which defaults to 23:59:59 if not specified.
- The TO AGE value is used to specify the number of days prior to which compression is to be performed.

If neither TO DATE nor TO AGE is specified, the system defaults to an age of 1 (day). NDVRARCO will not touch any Change Log Entries in the database that are less than 24 hours old.

Note: You are limited to one COMPRESS command per NDVRARCO run. If you specify more than one COMPRESS command, only the last applies.

There is a specific set of rules that CA Endevor/DB applies during compress processing:

- **For A (Add), D (Delete), or M (Modify) actions** -- A series of consecutive Adds that have the same entity description by the same USER/CCID will compress to a single Add; the same holds true for consecutive series of Modifies or Deletes. An Add followed by a series of Modifies will compress to an Add. A series of Modifies followed by a Delete will compress to a Delete. Finally, when Adds and Deletes alternate, the net result will be a Delete if the last action was a Delete, and a Modify if the last action was an Add. For A/M/D action compression, the resultant database record is also modified to show the count of the original change log record, plus the date/time of the oldest compressed record in the series.
- **For C (migrate out) and V (migrate in) actions** -- These actions are involved in migration as records are migrated out (**C**) of the source dictionary and migrated into (**V**) the target dictionary. When compress processing is performed, the most recent **C** and **V** record for each entity, for each source/target dictionary are preserved. Thus, the level of the last migration from or to, any dictionary is always preserved.

- Note that since the last **C** and **V** actions relative to each source or target are critical to future migration, NDVRARCO considers these records to be inviolate and does not remove them from the database, even if they meet an ARCHIVE command criteria.
- **For I (Signin) and O (Signout) actions** -- the most recent **I** (signin) and (**O**) signout records are preserved for each entity during compression.

ARCHIVE

In order to perform archive processing, the user must explicitly instruct NDVRARCO to do so. The syntax for ARCHIVE is as follows:

```
►►──── ARChive ────────────────────────────────────────────────────►

►─────┬─────────────────────────────────────────────────────────┬──►
      └─ TO ──────┬─ DATE is mm/dd/yy ───┬─────────────────────┬─┤
                  │                      └─ TIME is hh:mm:ss ──┘ │
                  │                                              │
                  └─ AGE is age ─────────────────────────────────┘

►───┬─ USEr ──────────────────┬──┬─ is name ─┬─────────── . ────►◄
    ├─ CCId ──────────────────┤  └─ ALL ─────┘
    └─ MANagement-group ──────┘
```

- The TO DATE value is used to specify the month, day, and year prior to which archive processing is to begin. This is followed by an optional TIME value, which defaults to 23:59:59 if not specified.
- The TO AGE value is used to specify the number of days prior to which archive processing is to be performed.

The USER/CCID/MANAGEMENT-GROUP clause specifies the name of the group to be archived.

- When specifying a management group, the user can either key in the word MANAGEMENT-GROUP in its entirety or use the MGR abbreviation.
- Quotes are used only if the name contains embedded special characters such as commas or blanks. It is important to note that when archiving change history that hasn't been booked to any user or CCID, it is specified as ' ' (quote-blank-quote), blank meaning no user or no CCID.
- When you specify USER, CCID, or MANAGEMENT GROUP IS ALL, all Change Log Entries qualifying under the TO DATE/AGE range will be archived.

If neither TO DATE nor TO AGE is specified, the system defaults to an age of 1 (day). NDVRARCO will not touch any Change Log Entry in the database that is less than 24 hours old.

You can specify up to 43 ARCHIVE commands per NDVRARCO run.

ALTER CONFIRMATION

In order to perform Confirmation Change Log record modification, the user must explicitly instruct NDVRARCO to do so. The syntax for ALTER CONFIRMATION is as follows:

```
►►─┬─ ALTer ──┬── CONfirmation ─┬─ change log ─┬─┬─entries ─┬──────────────────►
   └─ MODify ─┘                 └─ change-log ─┘ └─ entrys ─┘

 ►─┬─FROm ──┬─┬─ DICtname ─┬─ is dictname ── SYStem name is system ──────────►
   └─ FOR ──┘ └─ DBName ───┘

 ►─ TO ─┬─ DICtname ─┬─ is dictname ── SYStem name is system . ──────────────►◄
        └─ DBName ───┘
```

- The FROM DICTNAME value is used to specify the dictname, or dbname, and system identifier contained in a Confirmation Change Log record that you wish to alter.
- The TO DICTNAME value is used to specify the dictname, or dbname, and system identifier that you want to be placed in the Confirmation Change Log record for each record that matches the value specified in the FROM DICTNAME parameter..eul

  Those Confirmation Change Log records matching the dictname/dbname and system identifier specified in the FROM DICTNAME clause will be modified to reflect the dictname/dbname and system identifier specified in the TO DICTNAME clause. Statistics identifying the number of Confirmation Change Log records modified for each ALTER CONFIRMATION command will be reported at the end of the job.

  You can specify up to 100 ALTER CONFIRMATION commands per NDVRARCO run.

Running NDVRARCO

One NDVRARCO execution is required for each CCDB to be processed. These jobs are generally run during periods of low CV activity, such as immediately after startup or before shutdown. However, they may be efficiently run at any point during the day. Upon completion, a Change Log Entry that reflects the NDVRARCO run is associated with the Dictionary record in the CCDB with an action code of P. This record contains CLE purge statistics.

Archived CLEs are placed in the SYS020 file. These records can be used as input into the CA Endevor/DB reporting input module (See the chapter on Reporting in the *CA Endevor/DB for CA IDMS User Guide*.). It is suggested that the SYS020 file be set up as a generation data group to allow easy access to detailed historical information.

NDVRARCO Output

NDVRARCO output provides the user with four types of information: a standard input command listing, followed by compiled input commands, running information, and summary statistics.

As a matter of course, NDVRARCO echoes the user's input commands at the beginning of the output listing. Following the initial input command listing, NDVRARCO provides a series of informational messages that apply specifically to compiled input.

```
volser                                    CA, INC.                          DATE
TIME      PAGE
RELEASE nn.n                       C A - E N D E V O R / D B               mm/dd/yy
10:14:22  00001
                                                       CCDB ARCHIVE/COMPRESS UTILITY

   SIGNON DBNAME SRCNDVR USER EDBADMIN.
   COMPRESS              TO DATE mm/dd/yy.
   ARCHIVE  USER EDBADMIN TO DATE mm/dd/yy.
   ALTER CONFIRMATION CHANGE LOG ENTRYS
       FROM DBNAME TGTDICT SYSTEM SYSTEM81
         TO DBNAME TGTNDVR SYSTEM SYSTEM81.


NDVRARCO: I002 COMPRESS PROCESSING WILL BE PERFORMED ON CCDB CHANGE-LOG ENTRIES
CREATED BEFORE DATE mm/dd/yy TIME 23:59:59
NDVRARCO: I003 CHANGE-LOG ENTRIES FOR EDBADMIN                     PRIOR TO DATE
mm/dd/yy TIME 23:59:59 WILL BE ARCHIVED
NDVRARCO: I004 ABORTED UPDATE SESSIONS OCCURRING BEFORE DATE mm/dd/yy TIME 10:14:22
WILL BE REMOVED FROM THE DATABASE


NDVRARCO: I020 CLE NUMBER      100 DATE mm/dd/yy TIME 06:31:22 FOR ELE DATE-2
BEING PROCESSED

NDVRARCO: I005 NUMBER OF ABORTED UPDATE SESSIONS REMOVED FROM
DATABASE ...............:       2

NDVRARCO: I006 NUMBER OF CHANGE-LOG RECORDS REMOVED FROM DATABASE BY
COMPRESSION .....:       3

NDVRARCO: I007 ARCHIVE PROCESSING FOR USER EDBADMIN
               NUMBER OF CHANGE-LOG RECORDS REMOVED FROM
DATABASE ....................:      123
               NUMBER OF RECORDS WRITTEN TO ARCHIVE
FILE .............................:      461

NDVRARCO: I008 NUMBER OF CONFIRMATION CHANGE-LOG ENTRIES ALTERED
               FROM DBNAME TGTDICT  SYSTEM SYSTEM81 TO DBNAME TGTNDVR  SYSTEM
SYSTEM81:      150
```

- If a COMPRESS command was specified, NDVRARCO informs the user that compress processing will be performed, along with the date and time prior to which everything will be compressed.
- If ARCHIVE commands were specified, NDVRARCO provides a message for each archive that is to be performed, along with the name of each program to be archived and a PRIOR TO date and time.

- If ALTER CONFIRMATION commands were specified, NDVRARCO provides a message for each command indicating the number of Confirmation Change Log records that were altered.

The final message in this listing block refers to the aborted updates, which were removed from the database as NDVRARCO performed its routine cleanup of uncommitted work.

Note: If the user specified a MANAGEMENT-GROUP name, NDVRARCO provides the names of associated CCIDs in the compiled command listing, not the management group.

Following the compiled input listing, NDVRARCO provides run-related information for job monitoring purposes. As indicated in the bolded area below, the first listings in this block indicate aborted update sessions. These are the incomplete jobs that are rolled out by the updating program (for example, IDD). One of these messages appear for each aborted session. The final information in this block serves as a "counter" for the passing of each 100 CLEs. These listings indicate the date/time stamp in that particular CLE, along with that CLE's associated entity name. This is NDVRARCO's way of letting administrators observe execution progress.

The final block of information provided in NDVRARCO output is the summary statistics listing.

- The first message in this block reflects the number of aborted update sessions removed from the database. This single message occurs with every NDVRARCO run.
- The second message reflects the number of change-log records removed from the database by compression. This single message occurs only if compress processing was requested.
- The third type of message is archive-related and will consequently appear only if archive processing was requested. Each archive request produces a list of summary statistics indicating the number of change-log records removed from the database, and the number of records written to an archive file.
- The fourth type of message will appear only if ALTER CONFIRMATION processing was requested. Each ALTER CONFIRMATION request produces summary statistics indicating the number of Confirmation Change Log records altered in the CCDB for the request.

Sample JCL and Syntax

Use the following JCL to run NDVRARCO. It is contained in member SAMPARCO on the installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//********************************************************************
//*
//*  JOB:      SAMPARCO
//*
//*  PURPOSE:  ARCHIVE, COMPRESS AND PURGE OLD CHANGE LOG ENTRIES.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  ARCHCOMP  RUNS PROGRAM NDVRARCO.  USERID MUST BE AUTHORIZED.
//*
//********************************************************************
//*
//ARCHCOMP EXEC PGM=NDVRARCO,REGION=1000K
//*
//*   OUTPUT ARCHIVE FILE: COMPATIBLE WITH CULPRIT REPORTING.
//*   EXAMPLE ASSUMES YOU WILL USE GENERATION DATA GROUPS.
//*
//SYS020   DD DSN=user.xxxxccdb.archgdg (+1),
//         DISP=(,CATLG),UNIT=tape,
//         DCB=(user.gdgmodel,BLKSIZE=14400,LRECL=288,RECFM=FB)
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
   COMPRESS TO AGE nn.
/*
```

Chapter 9: Promotion Support Facilities

This section contains the following topics:

Overview (see page 110)
Selection for Migration (see page 111)
Target System Impact Analysis (see page 112)
Entity Migration (see page 113)
Target System Audit Trail Creation (see page 114)
Source System Audit Trail Creation (see page 115)
Programs and Security for Migration (see page 115)
System Identification (see page 116)
NDVRDSEL Selection and Verification (see page 117)
Source System Validation and Integrity Checking Rules (see page 117)
NDVRDSEL Command Syntax (see page 122)
NDVRDSEL Outputs (see page 133)
NDVRDCOR Correlation (see page 145)
NDVRDLVR Definition Delivery (see page 159)
NDVRBOOK in Migration Mode (see page 175)
NDVRBOOK Outputs (see page 177)
Importing Entities Exported by NDVRDLVR (see page 178)
NDVRDCF1 Target Confirmation (see page 190)
NDVRDCF1 Outputs (see page 192)
NDVRDCF2 Source Confirmation (see page 197)

Overview

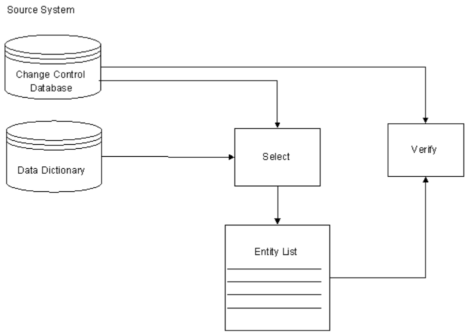
In a typical promotion, entities are copied from a source data dictionary to a target data dictionary. CA Endevor/DB Facilities perform the following functions:

- Selection of entities to migrate based upon input selection criteria, IDD relationships, and Change Log information.
- Integrity checking the source system prior to migration for complete development activity (for example, dialogs generated when a subordinate process or map is changed, records updated when subordinate elements are changed, maps generated when work records are modified, subschemas recompiled when schemas are changed, etc.). A complete description of integrity checks is contained later in this chapter.
- Impact analysis prior to migration on the target dictionary by examining the IDD relationships and the CCDB history of changes on that system. During impact analysis, migrating entities and related entities in the target system are examined for update activity since they last migrated from the source system. Any update usually represents an inconsistency between the source and target systems.
- Migration of changed entities from the source to the target system using the CA Endevor/DB native mode migrator.
- Automatic Signout of migrating entities during impact analysis to prevent update until the migration process is completed.
- Building a standard IDD Class/Attribute structure in the source dictionary as an interface to other vendors' migration facilities at an installation, if desired.
- Audit trail creation on the source and target systems reflecting the origin and destination of migrated entities.

The Promotion Support architecture, in conjunction with the Dynamic Change Monitor and the CCDB, gives CA Endevor/DB the unique capability to assure accurate promotions while eliminating a majority of the time-consuming tasks normally associated with migration. CA Endevor/DB facilities can be used to perform all migration tasks or to interface with an existing migrator in use at an installation.

Important! CA Endevor/DB Promotion Support does not currently migrate CLASS/ATTRIBUTE or USER definitions. If you have entities with ATTRIBUTES or any of the ATTRIBUTE-related characteristics (USER-DEFINED-COMMENTS, USER-DEFINED-ENTITIES, simple ATTRIBUTES), then you must ensure that the CLASSES and ATTRIBUTES are defined at the target dictionary before running the target-dictionary portions of promotion. For instance, if a source-dictionary entity is defined with MYCLASS=MYATTRIBUTE, then that characteristic will be migrated. If MYCLASS and MYATTRIBUTE are not already defined at the target, then do so manually before running NDVRBOOK (OPTION=MIGRATE).

Selection for Migration

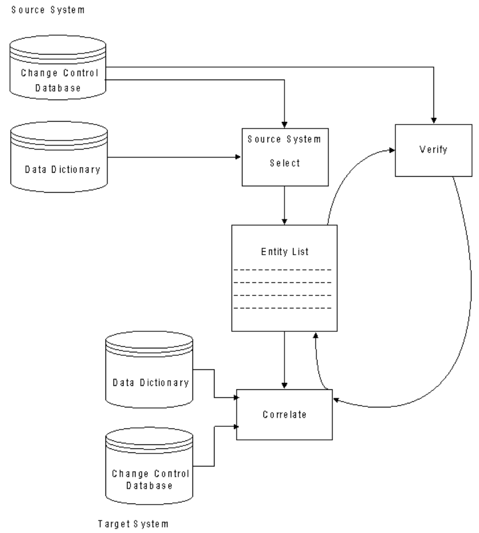


The promotion process begins by executing the **SELECTION/VERIFICATION PROCESSOR** (program NDVRDSEL). Entities are selected to be migrated from the information contained in the CCDB Change Log, input selection criteria, and the IDD. As a result, only those entities, which have been actually modified in the source system since the last migration to the target system, are initially eligible. Criteria, which are used to select entities for promotion, include the target system identifier, CCIDs, users, status, date and time ranges, management group, or a combination thereof.

Using the entities selected from the CCDB as a starting point, the data dictionary is interrogated and relationships expanded to determine if any closely related entities were modified since their last migration to the target system. Closely related entities are migrated if they have been modified.

Upon selection, a machine-readable and user-editable candidate entity list and control file is created. This list is then used as input to other promotion support utilities. Entities in the candidate list are also optionally signed-out at selection time by the Verification Processor. This assures that no unintended changes will be made to the entities selected until the promotion process is completed.

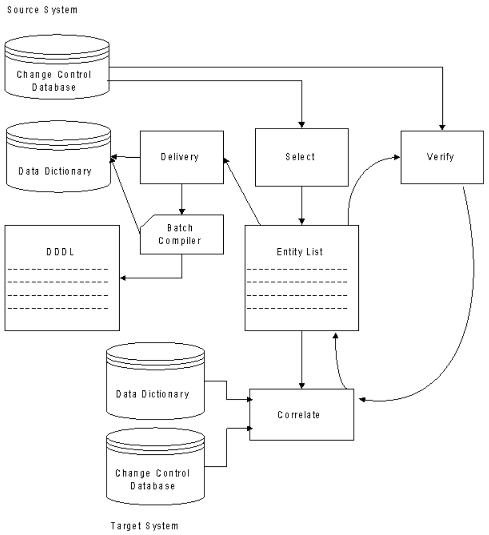
Target System Impact Analysis



Following successful selection and verification of the candidate entity list on the source system, the **CORRELATION PROCESSOR** (program NDVRDCOR) performs a comprehensive impact analysis on the target system. As input, the Correlation Processor uses a sequential file containing a list of element names and control information produced by NDVRDSEL. Figure 8.2 illustrates the Correlation/Verification cycle.

Impact analysis is performed independently of the actual entity migration. Each entity in the candidate list is checked against the CCDB and the target IDD to ensure that no update activity has occurred to the entities migrating (or to closely related entities) since those entities were last promoted from the source system. In this manner, reversion of applied fixes or parallel development conflicts are captured prior to receiving unexpected results. Any discrepancies can be identified and repaired prior to migration. The process of executing Verification and Correlation may be safely and quickly iterated in the quality assurance phase of promotion.

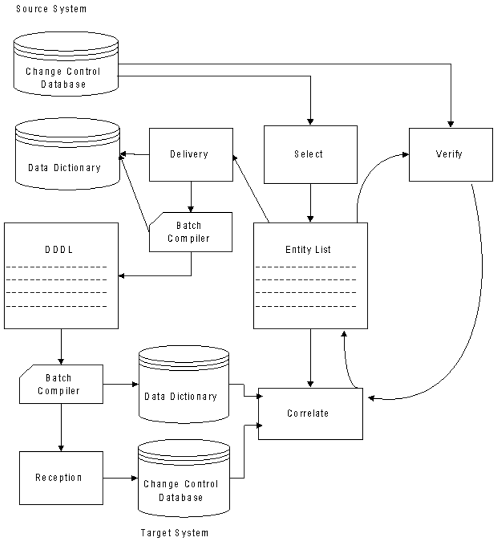
Entity Migration



After quality assurance, the finalized entity list is used to migrate either source statements or executable modules (load module only migration) from the source system by the **DELIVERY PROCESSOR**. Optionally, a Class/Attribute structure can be built to serve as a mechanism for tagging those entities, which have been marked for promotion for use by another migration package.

When using another vendor's migration package, migrate using the Class/Attribute path after the Delivery Processor creates it from the selection list. Figure 8.3 represents the Delivery process. Detailed information on the exact outputs produced is contained later in this chapter.

Target System Audit Trail Creation



At this point in the process, all entities committed to promotion are updated in the target system via standard compilers running stand-alone or indirectly through a migrator. During migration, the Dynamic Change Monitor on the target system is run in a special migration mode to reflect that the data dictionary modifications are the result of migration. This is accomplished by passing a special command to the Change Monitor through program NDVRBOOK in a procedure described later in this section. Resultant migration Change Log Entries (Migrate-in CLEs) on the target system (CLE action code = V) are stamped with a "footprint" containing the exact date and time received, the source system identification, and the time the entity was selected on the source system. Figure 8.4 reflects this process. The Migrate-in CLEs can be created regardless of the migration procedure used at an installation.

Source System Audit Trail Creation

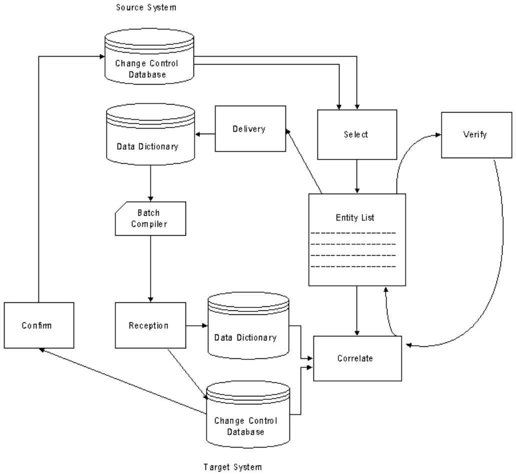


Figure 8.5 - NDVRDCF1 and NDVRDCF2 - Promotion Support Cycle Completion.

After a successful migration is committed and tested out on the target system, a confirmation file is extracted from the target system by program NDVRDCF1 and sent back to the source system via program NDVRDCF2. Migration Change Log Entries are created in the source system CCDB (CLE action code = C), reflecting the exact time the entries were received on the target system and the target system identification. At this point, a complete audit trail of the migration exists on the source and target systems.

Migration Change Log Entries are used by future Correlation and Verification executions as part of the on-going quality assurance/maintenance cycle. As an added feature, the Change Log Entries created by the Reception Processor are used for comprehensive migration activity reports. The Reception Processor is independent of the quality assurance processors and can be run stand-alone or in conjunction with any migration procedure or program.

Programs and Security for Migration

The logical processes depicted in Figure 8.5 are implemented with the following utility programs:

Process	**Program Name**	**Run on System**
Selection	NDVRDSEL	Source
Validation (Source)	NDVRDSEL	Source
Impact Analysis (Target)	NDVRDCOR	Target
Exportation	NDVRDLVR	Source

Process	Program Name	Run on System
Importation w/Audit Trail	NDVRBOOK	Target
Source Audit Trail (extract)	NDVRDCF1	Target
Source Audit Trail (update)	NDVRDCF2	Source

Any user executing the CA Endevor/DB promotion support programs will require the following procedures enabled in the Security Class (or use NDVR-GLOBAL):

```
NM-MODE = Y
MIGRATE = Y
```

For instructions on modifying Security Class parameters and a full explanation of these options, See Chapter 4, "Security Class Maintenance."

System Identification

CA Endevor/DB creates audit trails and cross reference records to reflect migration activity in the CCDBs of the target and source systems. Each dictionary involved in migration as a SOURCE or TARGET is identified by SYSTEM NAME and a DBNAME in the dictionary descriptor record contained in the CCDB. The SYSTEM NAME is used to provide unique system identification when the source and target dictionaries share the same DICTNAME. This often happens when the dictionaries involved reside on separate CVs.

Set up SYSTEM NAMEs using the DICTIONARY FUNCTIONS online submenu. See Chapter 1 in this document for full instructions on establishing a SYSTEM NAME.

When more than one DBNAME is used to point to the same physical data dictionary within a CV, CA Endevor/DB uses the DBNAME supplied in promotion support input command files for migration activity checking.

Note: A consistent DBNAME should be used for each physical dictionary for all promotion support activity. Failure to use a consistent name causes the selection and impact analysis routines to produce excessive warnings and selections. It is recommended that the base name be used.

NDVRDSEL Selection and Verification

The function of NDVRDSEL is to select and verify the entities to be migrated from the source to the target system. NDVRDSEL reads the Sign-on and input command syntax from the NDVRIPT file and creates a sequential NDVRENO (Entity Out) file. The NDVRENO file contains control information, which identifies the source and target system and a list of entity statements. This file is in display format and is suitable for editing in the event that subsequent NDVRDSEL or NDVRDCOR runs identify changes to be made to the entity list. Make these changes with any standard source code editor.

Source System Validation and Integrity Checking Rules

During the validation process, all modified entities, which satisfy the selection criteria, are initially selected based on CCDB information. The IDD is then optionally interrogated to determine if any related entities have been modified since last migration to the specified target system.

Entities, which are examined in this process, fall into four general classes:

- Entities with CCDB change activity according to the selection criteria. These entities are migrated to the target system.
- Entities related to changed entities, which are unconditionally migrated with the changed entity.
- Entities related to changed entities which are migrated only if modified in the source system since its last migration to the target, even though the modification occurred outside of the CCDB selection criteria (another Management Group, CCID, userid, time range, or Status).
- Related entities, which should have been modified in the source system based on the modification of a subordinate entity, but were not. For example, if a map was modified but its related Dialog was not regenerated, that dialog would fall into this category. These entities are listed on an exception report for investigation.

Three different strategies can be employed to select IDD entities related to those that were logged in the CCDB. These strategies are specified as part of the input command file to program NDVRDSEL.

STRATEGY 1 - CHANGE RELATIONSHIPS

The EXPAND IDD CHANGE RELATIONSHIPS selection strategy is used when:

- All promoting development activity has taken place under CA Endevor/DB.
- Only changed entities are to be promoted.

It operates under the following assumptions:

- All development in the source dictionary has taken place under CA Endevor/DB.
- Only the changes undertaken since the Change Monitor was installed are to be promoted.
- The target dictionary contains the complete application, part of which will be replaced by the promotion process.

STRATEGY 2 - HIERARCHY RELATIONSHIPS

The EXPAND IDD HIERARCHY RELATIONSHIPS selection strategy is used when:

- All promoting development activity has *not* taken place under CA Endevor/DB.
- All related entities are to be promoted regardless of change activity.
- The application is not currently present in the target dictionary.

It is intended to operate under the following conditions:

- CA Endevor/DB was installed or interrupted in the middle of a development cycle.
- Major entities have change activity against them in the CCDB, but modified subordinate entities may not have had any change activity.

STRATEGY 3 - MINIMUM RELATIONSHIPS

The EXPAND IDD MINIMUM RELATIONSHIPS selection strategy is used when:

- All promoting development activity has taken place under CA Endevor/DB.
- Only changed entities are to be promoted.
- The expansion processing is to be limited. For example, if the NDVRDSEL selection criteria chooses a DIALOG which is used in several APPLICATIONs, then the EXPAND IDD MINIMUM RELATIONSHIPS will only inspect entities "lower" in the application definition, such as MAPs and PROCESSes, and will not include the APPLICATIONs because they are "higher" in the hierarchy.

It is intended to operate under the following condition:

- Only changes undertaken since the Change Monitor was installed are to be promoted.

Strategy Comparison

The following table identifies, by entity type, the selection of entities related to the promoting entity depending on the type of EXPAND IDD RELATIONSHIPS clause specified to NDVRDSEL (see syntax below).

It is important to note that the Promoting Entity is selected based on CCDB information (Change Log Entries and any selection criteria specified in the NDVRDSEL syntax), but during EXPAND IDD processing, related entities are selected based on their relationship to the promoting entity in the IDD.

Entities related to a selected entity, which should have been modified, but were not, may be listed on the EXCEPTION LISTING. For example, an APPLICATION selected for promotion is related to a RECORD, which is not selected, but the date last updated of the RECORD is more recent than the date last updated of the APPLICATION.

Promoting	**Related**	**EXPAND IDD RELATIONSHIPS**		
Entity Type	**Entity Type**	**CHANGES**	**HIERARCHY**	**MINIMUM**
APPLICATION	LOAD MODULE	Always	Always	Always
	RECORD	Modified	Always	Modified
DIALOG	LOAD MODULE	Always	Always	Always
	MAP	Modified	Always	Modified
	PROCESS	Modified	Always	Modified
	RECORD	Modified	Always	Modified
	SUBSCHEMA	Modified	Never	Never
ELEMENT	ELEMENT	Modified	Always	Modified
	RECORD	Modified	Never	Never
FILE	FILE	Modified	Always	Modified
MAP	DIALOG	Modified	Always	Modified
	LOAD MODULE	Always	Always	Always
	MODULE	Modified	Always	Modified
	RECORD	Modified	Always	Modified
	TABLE	Modified	Always	Modified
MODULE	MAP	Modified	Always	Modified
	MODULE	Modified	Always	Modified
	PROGRAM	Always	Never	Never

PROCESS	DIALOG	Modified	Never	Never
	PROCESS	Modified	Always	Modified
PROGRAM	MAP	Modified	Always	Modified
	MODULE	Modified	Always	Modified
	RECORD	Modified	Always	Modified
	SUBSCHEMA	Modified	Never	Never
QFILE	QFILE	Modified	Always	Modified
RECORD	APPLICATION	Modified	Never	Never
	DIALOG	Modified	Never	Never
	ELEMENT	Modified	Always	Modified
	MAP	Modified	Never	Never
	PROGRAM	Modified	Never	Never
	SCHEMA	Modified	Never	Never
	SUBSCHEMA	Modified	Never	Never
SCHEMA	RECORD	Modified	Always	Modified
	SUBSCHEMA	Modified	Always	Modified
SET	SCHEMA	Modified	Never	Never
SUBSCHEMA	DIALOG	Modified	Never	Never
	LOAD MODULE	Always	Always	Always
	PROGRAM	Modified	Never	Never
	RECORD	Modified	Always	Modified
	SCHEMA	Modified	Never	Never
TABLE	LOAD MODULE	Always	Always	Always
	MAP	Modified	Always	Modified

Promoting Entity Type	**Related Entity Type**	**DATE/TIME EXCEPTION LISTED**
APPLICATION	LOAD MODULE	APPL > LOAD MODULE
	RECORD	RECORD > APPLICATION
DIALOG	LOAD MODULE	
	MAP	MAP > DIALOG
	PROCESS	PROCESS > DIALOG

	RECORD	RECORD > DIALOG
	SUBSCHEMA	SUBSCHEMA > DIALOG
ELEMENT	ELEMENT	
	RECORD	ELEMENT > Record
FILE	FILE	
MAP	DIALOG	MAP > DIALOG
	LOAD MODULE	MAP > LOAD MODULE
	MODULE	MODULE > MAP
	RECORD	RECORD > MAP
	TABLE	TABLE > MAP
MODULE	MAP	MODULE > MAP
	MODULE	
	PROGRAM	MODULE > PROGRAM
PROCESS	DIALOG	PROCESS > DIALOG
	PROCESS	
PROGRAM	MAP	MAP > PROGRAM
	MODULE	MODULE > PROGRAM
	RECORD	RECORD > PROGRAM
	SUBSCHEMA	
QFILE	QFILE	
RECORD	APPLICATION	RECORD > APPLICATION
	DIALOG	RECORD > DIALOG
	ELEMENT	ELEMENT > RECORD
	MAP	RECORD > MAP
	PROGRAM	RECORD > PROGRAM
	SCHEMA	RECORD > SCHEMA
	SUBSCHEMA	RECORD > SUBSCHEMA
SCHEMA	RECORD	RECORD > SCHEMA
	SUBSCHEMA	SCHEMA > SUBSCHEMA
SET	SCHEMA	SET > SCHEMA
SUBSCHEMA	DIALOG	SUBSCHEMA > DIALOG

	LOAD MODULE	SSC > LOAD MODULE
	PROGRAM	SUBSCHEMA > PROGRAM
	RECORD	RECORD > SUBSCHEMA
	SCHEMA	SCHEMA > SUBSCHEMA
TABLE	LOAD MODULE	TABLE > LOAD MODULE
	MAP	TABLE > MAP

Generally for new development projects there is little difference between the three strategies, since all entities have been added and are selected in any case.

When maintenance promotions are undertaken, Strategy 1 will usually yield a much smaller and more efficient promotion list since only the changes will be promoted.

When maintenance promotions are undertaken in the situation where multiple maintenance teams were working on overlapping sets of entities, Strategy 3 may prevent the work of all the maintenance teams from being gathered together, and allow independent promotion. Note, however, that this may lead to inconsistencies in the target dictionary. In the case where the work of two teams is co-dependent, you must promote them together.

NDVRDSEL Command Syntax

The following command syntax, specified in the NDVRIPT file, is accepted by NDVRDSEL:

```
►►──── SIGnon ──┬─────────────────────────────────┬──────────────────►
                ├ DBNAme ────────┬─ is dictname ──┘
                └ DICtName ──────┘

 ►──┬──────────────────────┬──┬──────────────────────────┬──────────►
    └ USEr name is user-id ┘  └ PASsword is password ────┘

 ►──────────────────────────────────────────────────────── . ──────►◄
        └ CCId name is ──┬──────────── ccid ───┤
                         │       ┌─── , ───┐   │
                         └ ( ─▼── ccid ──┴── ) ┘


►►──── TARget ──┬SYStem is target-system-name ─┬──────────────────────►
                └ NODename is target-node-name ┘

 ►─────┬────────────────────────────────┬─────────────────────────►◄
       ├ DBNAme ────────┬─ is dictname ─┘
       └ DICtName ──────┘


►►─────┬───────────────────────────────────────────┬──────────────►◄
       └ MODe is ──┬── EXEcute ◄──────┬── . ───────┘
                   ├── TRIal ─────────┤
                   └── BACkoff ───────┘
```

```
►►─────┬──────────────────────────────────────────┬──────────────────────►◄
       └─ INPut is ──┬─ DATabase ◄─┬─ . ─┘
                     └─ FILe ──────┘
```

```
►►─────┬────────────────────────────────────────────────────────┬──────►◄
       └─ SIGnout to ──┬─ USEr ─┬─ name is signout name ── . ─┘
                       └─ CCId ─┘
```

```
►►─┬──────────────────────────────────────────────────────────────┬─►◄
   └─ INClude ─┬───────────────────────────────────────────────┬─ . ─┘
               ├─ ALL ◄────────────────────────────────────────┤
               │   ┌──────────────────────────────────────┐    │
               ├─▼─ FROm date is mm/dd/yy ────────────────┼────┘
               ├─── THRu date is mm/dd/yy ────────────────┤
               ├─── where STATUS name is status ──────────┤
               ├─── USEr name is user-id ─────────────────┤
               ├─── CCId name ccid ───────────────────────┤
               └─┬─ MANagement-group ─┬─ name is management-group ─┘
                 └─ MGRp ─────────────┘
```

```
►►─┬───────────────────────────────────────────────────────────┬─►◄
   │           ┌────────────────────────────────────┐          │
   └─ EXClude ─▼─┬─ where STAtus name is status ─┬──┴──── . ───┘
                 └─ WIThin CCId name is ccid ────┘
```

```
►►─────┬─────────────────────────────────────────────────────┬──►◄
       └─ EXPand IDD ─┬──────────────┬─ relationships ── . ─┘
                      ├─ CHAnge ◄────┤
                      ├─ HIErarchy ──┤
                      └─ MINimum ────┘
```

```
►►─────┬──────────────────────────────────────────────────┬───►◄
       └─ WARn where ─┬──────────────────────┬────── . ───┘
                      ├─ CCId is MULtiple ───┤
                      ├─ CCId is NULl ───────┤
                      ├─ USEr is MULtiple ───┤
                      └─ USEr is NULl ───────┘
```

SIGNON

The SIGNON command identifies the user responsible for the migration and optional password and CCID list. If no CCID list is specified, the default CCIDs for the user are assigned from the CCDB.

TARGET

The TARGET command identifies the target system and base dictionary name to be migrated to. This identifier is used to drive the verification process. All activity against an entity since it last migrated will be used for integrity checking for WARN conditions and for INCLUDE conditions (See below).

Note: The target system name and dictname specified in this statement must match the values in the Dictionary record in the CCDB for the target dictionary. If an erroneous target dictionary and system name are given, NDVRDSEL will select many more entities than are necessary to achieve source and target synchronization. This is because the software bases its selection on change activity and last migration date.

The last migration date is determined from the Migrate out CLEs created by NDVRDCF2 when the migration is confirmed on the source system. The Migrate out CLEs contain the date of migration and the target system name and dictname. Since there will be no Migrate out CLEs on the source system for a non-existent target, giving the wrong target name will erroneously trigger the selection of all entities modified on the source system.

MODE

The Verification and Selection program can be run in three modes. They are:

Mode	Description
TRIAL	This mode produces the NDVRENO file but does not perform the bulk sign-out of entities, even if specified in the input command syntax. All other edits are performed. This mode can be used by individual project leaders or development teams independently of the person responsible for migration, to check the integrity of work performed on the target and source dictionaries without affecting the state of the CCDB. **Note:** Users executing NDVRDSEL in TRIAL mode do not require security authorization.

Mode	Description
EXECUTE	This mode performs all edits and selection and will sign-out the entities upon selection if SIGNOUT is specified in the input command file. **Note:** Any user operating in this mode must be authorized for MIGRATE = Y in his/her Security Class.
BACKOFF	This mode signs-in all elements that were signed-out during a NDVRDSEL run. **Note:** Any user operating in this mode must be authorized for MIGRATE = Y in his/her Security Class.

INCLUDE

Entities may be selected for migration based on CCID, user, Status, Date, or Management Group (MGRP). MGRP, CCID, and user are mutually exclusive. Only one of these conditions should be specified in a single INCLUDE statement, and may be combined with Date and Status conditions.Conditions within an INCLUDE statement are logically ANDed with other conditions within that statement. Each INCLUDE statement is logically ORed with other INCLUDE statements. Specify one INCLUDE for each set of modifications to be migrated.

To perform this function, NDVRDSEL reads Change Log Entries after the last Migrate-out CLE (action code = **C**) to the target system. If no Migrate-out CLE exists, it assumes the last migration to the target took place at the beginning of the recorded history for that entity.

When MGRP is specified, all IDD work performed under the CCIDs in that Management Group is selected.

When STATUS is given as the only selector within an INCLUDE statement, or when STATUS is given in combination with USER, only the base status (status set without a CCID context in the CCDB) is examined.

When STATUS is given as a selector in combination with MGRP or CCID, the base status or the status within the context of the included CCIDs is considered.

When ALL is specified, all updated entities since the last migration to the target are included. If the last activity against an entity is a migrate out (CLE action = **C**) to the target dictionary, it will not be included. All other entities in the CCDB are included.

EXCLUDE

Multiple EXCLUDE statements may be specified. Excluded from migration are those items which have been selected by an INCLUDE or through IDD expansion, but have a particular Status. This mechanism is employed as a way of excluding individual entities, even though all other criteria would have resulted in selection. For example, it can be used to accommodate last minute project decisions to migrate only part of the work performed under a CCID, or to exclude untested work.

Note: The IDD selection logic will not expand through (or validity edit) an entity that has been excluded. To prevent wholesale selection when a global record has changed in a compatible manner, EXCLUDE the global record from migration.

When the WITHIN clause is specified, the status under the context of the CCID specified is examined. When no WITHIN clause is present, only the base status is considered (status set without a CCID context in the CCDB).

Note: This is intentionally made more restrictive than the INCLUDE STATUS clause which will select a base or CCID status when specified.

SIGNOUT

All entities selected for migration will be signed out. Existing Signouts are overridden by NDVRDSEL. It is therefore possible to allow individual programmers the ability to Signout entities via Auto-Sign or explicit Signout to preserve the integrity of entities during development. When selected for migration, the user responsible for migration gains control of the entity regardless of prior signout status.

When the migration is completed, the signout is restored to the developer. Signout prevents modification by individuals other than the person responsible for the migration once an entity is selected. All entities will be signed out to the user or the CCID specified in the command.

Signouts remain in effect until the entities are received on the target system (through NDVRDCF2) or until MODE=BACKOFF is executed. After migration, Signouts are automatically signed back in.

EXPAND

NDVRDSEL determines the entities to be migrated through two passes:

- Pass 1 reads the CCDB and selects changed entities, according to specified selection criteria, which have been modified since their last migration to the target system. Alternatively, Pass 1 reads the input Entity List File (NDVRENI) and selects all entities named in the file.
- Pass 2 examines the IDD and optionally selects and validates entities related to those, which have changed.

When the EXPAND option is not in effect (default setting), the CCDB (or input Entity List File) is the sole source for entities which satisfy the selection criteria. No Pass 2 is performed. No consistency validation on the source dictionary is performed. In this case, the selection list will consist only of the entities modified in the source system without regard to affected entities in the source IDD.

When the EXPAND IDD RELATIONSHIPS clause is in effect, the Pass 2 selection and verification process will consistency-edit the IDD to determine if any potentially dangerous conditions exist in the source dictionary (e.g., Element changes with no corresponding Record modification). Entities, which violate validation conditions, are reported in the NDVRDSEL Exception Report. See the "Source System Validation and Integrity Checking Rules" section in this manual for a complete description of the validation and selection rules.

Note: If the CA Endevor/DB migrator is being used, always specify the EXPAND clause.

When EXPAND is in effect, NDVRDSEL will place additional entities (beyond those contained in the CCDB) into the NDVRENO file. The strategy used to select additional entities will depend upon the EXPAND option. CHANGE is the default strategy when the EXPAND clause is specified.

Option	Meaning
CHANGE	CHANGE examines all relevant IDD relationships during Pass 2 in the dictionary according to the relationships described earlier in this chapter under Strategy 1. It will then select for migration all dictionary entities related to the entities logged to the CCDB if they have changed since they last migrated to the target system and dictionary. Any new item selected will start a new selection path. Selection paths stop when an entity is reached along a path, which has not been modified in the source system. **Note:** The object of this technique is to migrate only the minimum set of entities required to bring the source and target into synchronization.
HIERARCHY	HIERARCHY examines only hierarchical IDD relationships during Pass 2 in the dictionary according to the relationships described earlier in this chapter under Strategy 2. It will then select for migration all dictionary entities that are subordinate to any one already chosen. Any new item selected for migration will later be used to search for other entities. **Note:** When HIERARCHY is specified, related entity types are unconditionally migrated regardless of change activity. Also note that the object of this technique is to migrate complete application systems, especially in situations where CA Endevor/DB is being used to migrate an application system for the first time.
MINIMUM	MINIMUM examines only hierarchical IDD relationships, and then select only those subordinate entities that have changed since they last migrated to the target system and dictionary. Any new item selected for migration will later be used to search for other entities. **Note:** The object of this technique is to allow the separate migration of application systems that share components. It should be used with great caution, because such application systems may be so thoroughly inter-dependent that they cannot be migrated independently.

WARN

All entities selected from the CCDB for migration can be optionally edited to produce warnings for each of the following exception conditions. Warnings appear on the NDVRDSEL Exception Report.

Warning	Description
CCID IS MULTIPLE	A modification under more than one CCID has occurred to this entity since it last migrated to the target system. To perform this function, NDVRDSEL reads Change Log Entries after the last Migrate-out CLE (action code = C) to the target system. If no Migrate-out CLE exists, it assumes the beginning of the recorded history for that entity. By examining the detail change history associated with entities flagged with this warning, it is possible to identify the users involved for follow-up questioning, if necessary. Multiple updates can be prevented at modification time by the use of the CA Endevor/DB Signout facility.
CCID IS NULL	A modification with no CCID has occurred against this entity since it last migrated to the target system. This warning will flag unclassified work. This condition can be prevented at modification time through the use of the NO-CCID Security Class Option on the dictionary Security Class.
USER IS MULTIPLE	More than one user has modified this entity since it last migrated to the target system. To perform this function, NDVRDSEL reads Change Log Entries after the last Migrate-out CLE (action code = C) to the target system. If no Migrate-out CLE exists, it assumes the beginning of the recorded history for that entity. This edit is intended as an aid to insure that multiple users were aware of and tested each other's updates. By examining the detail change history associated with entities flagged with this warning, it is possible to identify the users involved for follow-up questioning, if necessary. Multiple updates can be prevented at modification time by the use of the CA Endevor/DB Signout facility.

Warning	Description
USER IS NULL	A modification with no userid has occurred against this entity since it last migrated to the target system. This warning will flag unclassified work after the fact. This condition can be prevented at modification time through the use of the NO-USER Security Class Option on the dictionary Security Class.

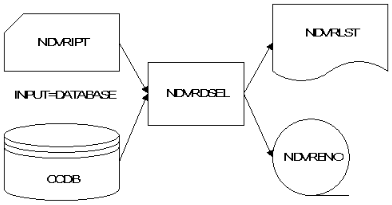
INPUT

Two primary input sources can be used for entity editing:

- INPUT=DATABASE
- INPUT=FILE

DATABASE: The CCDB is used with any INCLUDE/EXCLUDE statements to produce the NDVRENO file. The NDVRENO file contains a user-editable entity list and control information. From this point forward, the NDVRENO data set is used as input to other promotion support programs. DATABASE is used for the initial run of NDVRDSEL when change history is used to select entities for migration. After externally editing the entity list in the NDVRENO file (if necessary), subsequent runs for integrity edits would be done with INPUT=FILE and an NDVRENI file.

Figure 8.6 depicts a run with INPUT=DATABASE.



FILE: A previously created NDVRENO file can be read in through the NDVRENI DD statement. When this occurs, all entities in the list are re-edited for WARN conditions, selection criteria, and validation rules. A new NDVRENO file is always produced reflecting the most recent execution time. Entities manually added to the list are signed out if SIGNOUT is specified in the syntax. INPUT=FILE is used when iterating the Verification and Correlation process to obtain a "safe" or "improved" entity list based on validation edits and impact analysis.

Another use of INPUT=FILE is when a known entity list is migrating. Manually coding ENT statements eliminates the overhead of scanning the CCDB (Pass 1) for all change activity. In this case, the advantages of cross entity validation and selection (Pass 2) is still obtained even though the CCDB was not used for initial list creation.

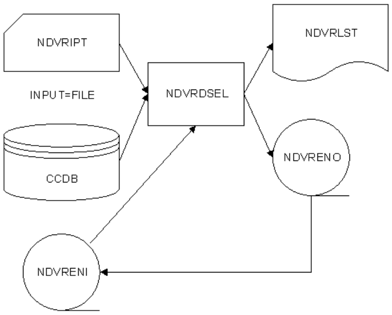
Note: When doing this, make sure that a LIST FOLLOWS statement immediately precedes your ENT statement.

INPUT=FILE can also be used in BACKOFF processing. If you have run NDVRDSEL in EXECUTE mode and had it perform SIGNOUT processing, the most expedient way to undo the SIGNOUT processing is to submit a job that specifies MODE=BACKOFF and INPUT=FILE, and use the previous job's NDVRENO file as NDVRENI.

When INPUT=FILE is specified, the following additional edits are performed:

- A warning is produced when no change history for an entity exists in the CCDB.
- A warning is produced when an entity in the NDVRENI file would have been EXCLUDEd or failed to be INCLUDEd based on optionally supplied INCLUDE/ EXCLUDE commands. If no commands are supplied in conjunction with NDVRENI, there will be no warnings of this type.

Figure 8.7 depicts a run with INPUT=FILE. The NDVRENI statement is required when INPUT=FILE is coded.



NDVRDSEL Sample JCL

Use the following JCL to run NDVRDSEL. It is contained in member SAMPDSEL on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//********************************************************************
//*
//*  JOB:      SAMPDSEL
//*
//*  PURPOSE:  SELECT IDD ENTITIES FOR MIGRATION.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  SELECT    GENERATE ENTITY LIST TO DRIVE THE REST OF MIGRATION
//*            OPTIONALLY, RE-EDIT PRIOR MODIFIED/RECYCLED LIST.
//*
//********************************************************************
//*
//SELECT   EXEC PGM=NDVRDSEL,REGION=1000K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//*
//*  THE NDVRENI FILE IS ONLY USED IF INPUT=FILE.
//*  OMIT OR DUMMY OUT IF INPUT=DATABASE.
//*
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseni
//*
//*  THE NDVRENO FILE IS PROCESSED BY ALL MIGRATION JOBS THAT FOLLOW.
//*
//NDVRENO  DD DSN=user.ndvrdsel.dseno,DISP=(,CATLG,DELETE),
//          UNIT=disk,VOL=SER=volser,SPACE=(TRK,(5,5),RLSE),
//          DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//NDVRLST  DD SYSOUT=*
//NDVRDTL  DD SYSOUT=*
//NDVRUTL  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
   TARGET SYSTEM ='cvsysid' DICTNAME ='userdict'.
   MODE = EXECUTE.
   INPUT IS DATABASE.
   EXPAND IDD RELATIONSHIPS.
   SIGNOUT TO USER userid.
   INCLUDE USER = userid.
   EXCLUDE WHERE STATUS = status.
   WARN WHERE CCID MULTIPLE.
   WARN WHERE USER MULTIPLE WHERE USER NULL.
/*
```

NDVRDSEL Outputs

NDVRDSEL produces three report files and one output file:

- A control report (ddname NDVRLST). This report echoes the user-specified syntax, and itemizes all entities that have had CCDB-related warnings or exceptions issued against them.
- A detail report (ddname NDVRDTL). This report itemizes each entity selected or excluded from the NDVRENO file, the reason for selection or exclusion, and any warning or exceptions that were generated.
- A utility report (NDVRUTL). This report lists the input Entity List file (NDVRENI). If IDD expansion is performed, it will also contain a Validation Exception listing.
- A sequential output file (ddname NDVRENO). This data set is the file, which controls all subsequent steps in the promotion process.

NDVRDSEL Output File (ddname NDVRENO)

The NDVRENO file contains 80 character records in display format. It is the hub of the CA Endevor/DB Promotion Support System and is used in all subsequent promotion support facilities for control, detail, and backoff information. *Italic* items are generated internally by NDVRDSEL and placed in the output file. Other items are passed into the output file from the input specifications. The NDVRENO file contains the following generated syntax:

```
SOURCE  SYSTEM [NAME] [IS | =] source system name
       {DBNAME | DICTNAME} [IS | =] dictname   | ' '
       VERIFY DATE = mm/dd/yy  TIME = hh:mm:ss
       .

TARGET SYSTEM [NAME] [IS | =] target system name
       [{DBNAME | DICTNAME} [IS | =] dictname].

[MODE  [IS | =] {TRIAL | EXECUTE | BACKOFF} .]

[INPUT [IS | =] {FILE | DATABASE.]

[SIGNOUT       [TO] {USER | CCID} [NAME] [IS | =] signout name .]

[INCLUDE
       [FROM [DATE] [IS | =] mm/dd/yy ]
       [THRU [DATE] [IS | =] mm/dd/yy ]
       [ALL]
       [{MGRP | CCID | USER} [NAME] [IS | =] select name
       |'']
       [WHERE STATUS [NAME] [IS | =] status value] ].

[EXCLUDE       [WHERE] STATUS [NAME] [IS | =] status value
               [WITHIN CCID [NAME] [IS | =] status value ] ].

[EXPAND        IDD {CHANGE} | HIERARCHY}[RELATIONSHIPS].]

[WARN  [WHERE]
       [CCID [IS | =] MULTIPLE]
       [CCID [IS | =] NULL]
       [USER [IS | =] MULTIPLE]
       [USER [IS | =] NULL] .]

LIST FOLLOWS .

 ENT type  entity name  vvvv.
 ENT type  entity name  vvvv.
       .
       .
       .
```

One entity or ENT statement is created for each entity INCLUDEd. If that entity was also EXCLUDEd, the statement would be commented out with an "*" in column 1.

Note: The comment causes the Correlation Processor (NDVRDCOR) and the Delivery Processor (NDVRDLVR) to ignore the statement. If you want to include any excluded entity, simply remove the leading "*". To manually include an entity, edit the file and add an ENT statement according to the free form syntax above.

When running the NDVRENO file back into NDVRDSEL as NDVRENI (with INPUT=FILE), the generated syntax preceding LIST FOLLOWS is ignored. The ENT statements are processed against the selection criteria and the CCDB. New ENT statements may be added or old ones deleted as required, through standard editors. Selection criteria are always taken from the NDVRIPT file and placed in the output file regardless of the INPUT option. The most recently generated syntax is therefore echoed by subsequent migration utilities for informational purposes.

If you construct an NDVRENI file manually, be sure to start with a LIST FOLLOWS command. The ENT statements are formatted as follows:

Columns	Contents
1	Comment Indicator (blank or *)
2-4	ENT literal
5	blank
6-21	Entity Type
22	blank
23	Single Quote (')
24-63	Full Entity Name (segmented as required with spaces)
64	Single Quote (')
65	blank
66-69	Entity Version Number (nnnn)
70	Period (.)
71-72	blanks
73-80	Sequence Number of statement within NDVRENO file.

NDVRDSEL Control Report (ddname NDVRLST)

Program NDVRDSEL produces a four-part NDVRLST control report:

- An input command listing.
- A compiled command listing.
- An entity list exception report.
- An End-of-Job statistics summary.

A description of each part and a detailed explanation follow.

NDVRDSEL Input Command Listing

The Input Command Listing simply reflects the record images the user specified in the NDVRIPT file.

```
 volser                                              CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                                C A - E N D E V O R / D B       mm/dd/yy
08:40:07  00001
 NDVRDSEL CONTROL REPORT                          MIGRATION SELECT/VERIFY PROCESSOR
INPUT COMMAND LISTING
    SIGNON DBNAME SRCNDVR
           USER EDB-SYSTEM-ADMINISTRATOR
           CCID EDB-SYSADMIN.
    TARGET SYSTEM SYSTEM81 DBNAME TGTNDVR.
    MODE = TRIAL. INPUT IS DATABASE.
    SIGNOUT TO CCID EDB-SYSADMIN.
    INCLUDE WHERE STATUS IS MIGRATE-TEST.
    INCLUDE FROM  DATE mm/dd/yy.
    EXCLUDE WHERE STATUS IS NEVER-MIGRATE.
    EXPAND IDD HIERARCHY RELATIONSHIPS.
```

NDVRDSEL Compiled Command Listing

The Compiled Command Listing displays the input command file as seen by the parser and command interpreter within NDVRDSEL. When the program encounters a Signon command, it echoes the CCIDs under which the user is executing in the source CCDB. If SIGNOUT is in effect, CLEs created to reflect the signout (type = O) will be cataloged under the CCID(s) listed.

It is recommended that a unique CCID be created and used for each migration. In this way, all the entities signed out as a result of the Promotion Support System are easily identified by displaying the Change Log Entries by CCID through the CA Endevor/DB Online facility.

All INCLUDE and EXCLUDE statements are assigned rule numbers that are used in the Detail and Utility reports. Rule numbers appear above each INCLUDE and EXCLUDE in the report. When an INCLUDE MGRP statement is encountered, a display of all the CCID names included in that Management Group will accompany the statement listing.

```
 volser                                             CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                             C A - E N D E V O R / D B       mm/dd/yy
08:40:08  00002
 NDVRDSEL CONTROL REPORT    **** TRIAL ****    MIGRATION SELECT/VERIFY PROCESSOR
COMPILED COMMAND LISTING
  SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                        00000001
      VERIFY DATE = mm/dd/yy TIME = 08:40:08                            00000002
      USER = 'EDB-SYSTEM-ADMINISTRATOR       '                          00000003
      CCID =('EDB-SYSADMIN','            ','            ','            ',00000004
             '           ','            ','            ','            ',00000005
             '           ','            ','            ','            ')00000006
  .                                                                     00000007
  TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                        00000008
  .                                                                     00000009
  MODE = TRIAL                                                          00000010
  .                                                                     00000011
  INPUT = DATABASE                                                      00000012
  .                                                                     00000013
  SIGNOUT TO CCID = 'EDB-SYSADMIN'                                      00000014
  .                                                                     00000015
  EXPAND IDD HIERARCHY RELATIONSHIPS                                    00000016
  .                                                                     00000017
 *********** INCLUDE RULE NUMBER 0001                                   00000018
  INCLUDE  ALL                                                          00000019
      WHERE STATUS = 'MIGRATE-TEST     '                                00000020
  .                                                                     00000021
 *********** INCLUDE RULE NUMBER 0002                                   00000022
  INCLUDE  ALL                                                          00000023
      FROM DATE = mm/dd/yy                                              00000024
  .                                                                     00000025
 *********** EXCLUDE RULE NUMBER 0001                                   00000026
  EXCLUDE WHERE STATUS = 'NEVER-MIGRATE    '                            00000027
  .                                                                     00000028
  LIST FOLLOWS .                                                        00000029
```

NDVRDSEL Entity List Exception Listing

The Entity List Exception Listing contains a tabular list of migrating entities which violated WARN CCDB conditions or were specifically EXCLUDEd from the migration.

All entities INCLUDEd in a migration receive an ENT statement in the NDVRENO file (even if it is later EXCLUDEd). Exception conditions flagged in the exception listing report display the ENT command as it appears in the NDVRENO file with a summary of the error conditions to the right. Entities which were EXCLUDEd have an "*" in front of the ENT statement. The "*" causes the entity to be ignored by subsequent programs in the promotion process. If the user decides to INCLUDE a specific entity that had been previously EXCLUDEd, he/she merely removes the '*' in the NDVRENO file using a standard source editor.

```
 volser                                               CA, INC.               DATE
TIME     PAGE
 RELEASE nn.n                               C A - E N D E V O R / D B        mm/dd/yy
08:40:35  00003
 NDVRDSEL CONTROL REPORT     **** TRIAL ****     MIGRATION SELECT/VERIFY PROCESSOR
ENTITY LIST EXCEPTION LISTING

SEQUENCE  INCL EXCL FOUND FOUND CHANGE MULT NULL MULT NULL
      ENTITY TYPE       ENTITY NAME                               VERS     NUMBER
RULE RULE  IDD  CCDB   COUNT CCID CCID USER USER
 *ENT RECORD            'EMPL-RECORD-1                          ' 0001.  00000232
IDDX 0001              000000
```

Report Fields

Column headings in this report are used in other NDVRDSEL outputs. They are described below:

Field	Description
Entity Type	Type of the entity INCLUDEd.
Entity Name	Name of the entity INCLUDEd.
Vers	Version Number of the entity INCLUDEd.
Sequence Number	Sequence number in the statement in the NDVRENO file. This will assist the user in editing the file if it becomes necessary.

Field	Description
INCL Rule	The first rule number that caused this entity to be INCLUDEd in the migration. A rule number of "IDDX" indicates an item in the report that originated from the IDD expansion processing. Items with an INCL rule of IDDX would not have been selected under any of the user-supplied selection criteria. If the Change Count is not zero on these items, they are related to migrating entities but include changes outside of the supplied selection criteria.
EXCL Rule	The first rule number that caused this entity to be EXCLUDEd from the migration. **Note:** EXCLUDEs always supersede INCLUDEs. If an EXCLUDE rule applies to the entity, its corresponding ENT statement will be commented out with an "*" in column 1.
Found IDD	N = Entity occurred on the NDVRENI file or in the CCDB but does not exist in the IDD. These entities generate E-level errors when an attempt is made to migrate them. **Note:** This report column is meaningful only if EXPAND is in effect.
Found CCDB	N = Entity occurred on the NDVRENI file or was found in IDD but does not exist in the CCDB. This is an informational exception. According to the CCDB, this entity has not been modified.
Change Count	The number of times this entity has been modified since it last migrated to the target system.
Mult CCID	Y = A modification has been made to this entity under more than one CCID since it last migrated to the target.
Null CCID	Y = A modification has been made to this entity with no CCID since it last migrated to the target.
Mult User	Y = A modification has been made to this entity under more than one userid since it last migrated to the target.
Null User	Y = A modification has been made to this entity with no userid since it last migrated to the target.

NDVRDSEL End-of-Job Statistics

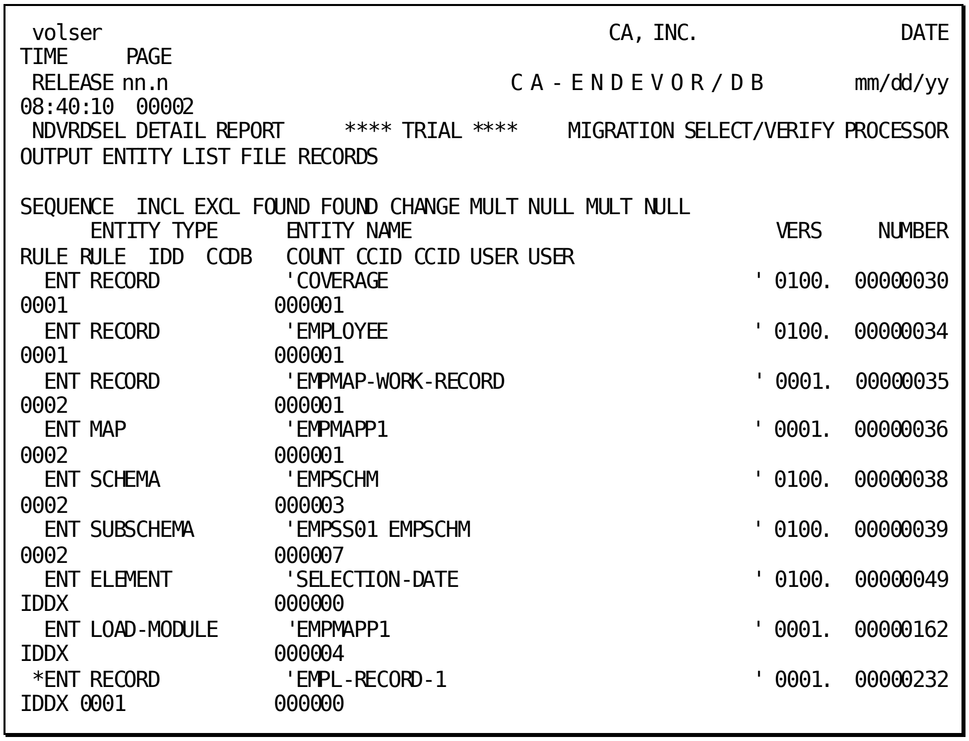
The End-of-Job Statistics report concludes each of the report files produced by NDVRDSEL. Contained within it are informational statistics relating to the work that was performed during execution.

```
 volser                                           CA, INC.              DATE
TIME     PAGE
 RELEASE nn.n                                 C A - E N D E V O R / D B       mm/dd/yy
08:40:41  00004
 NDVRDSEL CONTROL REPORT    **** TRIAL ****     MIGRATION SELECT/VERIFY PROCESSOR
END OF JOB STATISTICS
 NDVRDSEL: I001 SELECT/VERIFY ENTITY TOTALS
                                             **  MATCHED  **   ** NOT FOUND **   TOTAL
                 INPUT    INPUT     IDD     INCLUDE EXCLUDE   SOURCE  SOURCE   SELECT
 ENTITY TYPE   NDVRENI   CCDB    EXPAND   RULE(S) RULE(S)    CCDB     IDD    NDVRENO
 APPLICATION         0       2        0         0       0        0       0         0
 DESTINATION         0       3        0         0       0        0       0         0
 DIALOG              0       2        0         0       0        0       0         0
 ELEMENT             0     276      213         0       0        0       0       213
 FILE                0       4        0         0       0        0       0         0
 LINE                0      12        0         0       0        0       0         0
 LOAD MODULE         0      40        2         1       0        0       0         3
 MAP                 0      18        0         2       0        0       0         2
 MESSAGE             0       1        0         0       0        0       0         0
 MODULE              0      36        0         0       0        0       0         0
 PROCESS             0       1        0         0       0        0       0         0
 PROGRAM             0      19        0         0       0        0       0         0
 RECORD              0      32        8        12       4        0       0        16
 SCHEMA              0       6        0         2       0        0       0         2
 SUBSCHEMA           0       4        0         2       0        0       0         2
 SYSTEM              0       1        0         0       0        0       0         0
 TABLE               0       4        0         0       0        0       0         0
 TASK                0      11        0         0       0        0       0         0
 USER                0       5        0         0       0        0       0         0
 OTHER               0      47        0         0       0        0       0         0
 INVALID             0

 ___________ _______ _______ _______  _______ _______  _______ _______  _______
 TOTAL               0     524      223        19       4        0       0       238
 NDVRDSEL: I002 ENTITIES MATCHING INCLUDE RULE NUMBER 0001 ............         5
                ENTITIES MATCHING INCLUDE RULE NUMBER 0002 ............        14
 NDVRDSEL: I003 ENTITIES MATCHING EXCLUDE RULE NUMBER 0001 ............         4
 NDVRDSEL: I004 ENTITIES WITH NO CHG LOG ENTRIES SINCE LAST MIGRATION ..       631
 NDVRDSEL: I005 ENTITIES MODIFIED WHEN NO CCID WAS KNOWN ..............         0
                ENTITIES MODIFIED BY MULTIPLE CCIDS....................         0
                ENTITIES MODIFIED WHEN NO USER WAS KNOWN ..............         0
                ENTITIES MODIFIED BY MULTIPLE USERS....................         0
```

NDVRDSEL Detail Report (ddname NDVRDTL)

The Detail Report contains a listing of all the ENT statements written to the NDVRENO file on the left-hand side, and a summary of rules and statistics on the right-hand side. Use this report as reference when editing the NDVRENO file (if necessary). A copy of the End-of-Job statistics is printed after the detail report for reference.



```
 volser                                             CA, INC.              DATE
TIME     PAGE
 RELEASE nn.n                               C A - E N D E V O R / D B       mm/dd/yy
08:40:10  00002
 NDVRDSEL DETAIL REPORT     **** TRIAL ****    MIGRATION SELECT/VERIFY PROCESSOR
OUTPUT ENTITY LIST FILE RECORDS

SEQUENCE  INCL EXCL FOUND FOUND CHANGE MULT NULL MULT NULL
      ENTITY TYPE       ENTITY NAME                              VERS     NUMBER
RULE RULE  IDD  CDDB    COUNT CCID CCID USER USER
  ENT RECORD            'COVERAGE                              ' 0100.  00000030
0001                   000001
  ENT RECORD            'EMPLOYEE                              ' 0100.  00000034
0001                   000001
  ENT RECORD            'EMPMAP-WORK-RECORD                    ' 0001.  00000035
0002                   000001
  ENT MAP               'EMPMAPP1                              ' 0001.  00000036
0002                   000001
  ENT SCHEMA            'EMPSCHM                               ' 0100.  00000038
0002                   000003
  ENT SUBSCHEMA         'EMPSS01 EMPSCHM                       ' 0100.  00000039
0002                   000007
  ENT ELEMENT           'SELECTION-DATE                        ' 0100.  00000049
IDDX                   000000
  ENT LOAD-MODULE       'EMPMAPP1                              ' 0001.  00000162
IDDX                   000004
 *ENT RECORD            'EMPL-RECORD-1                         ' 0001.  00000232
IDDX 0001              000000
```

NDVRDSEL Utility Report (ddname NDVRUTL)

The Utility report itemizes all closely related entities, which were modified improperly (out of sequence). Entities in this list represent potential problem areas that require further investigation. The major expert validation rules used to derive this report are graphically depicted in the "Source System Validation and Integrity Checking Rules" section in this chapter.

```
 volser                                              CA, INC.            DATE
TIME     PAGE
 RELEASE nn.n                                   C A - E N D E V O R / D B      mm/dd/yy
08:40:26  00001
 NDVRDSEL UTILITY REPORT     **** TRIAL ****     MIGRATION SELECT/VERIFY PROCESSOR
VALIDATION EXCEPTION LISTINGE
 ******* VALIDATION EXCEPTION ENTITY *******   LAST CHANGED ON       *************
RELATED ENTITY **************    LAST CHANGED ON
 TYP NAME                    VERS   DATE    TIME      TYP NAME                  VERS
DATE     TIME
 REC  COVERAGE                         0100  mm/dd/yy 08:29:59      MAP  COVERMAP
0001  mm/dd/yy 14:45:03
 REC  CUSTOMER                         0001  mm/dd/yy 08:31:06      PRO  PRANDEM1
0001  mm/dd/yy
 REC  EMPLOYEE                         0100  mm/dd/yy 08:31:23      MAP  PREAUTHM
0001  mm/dd/yy 07:50:02
 REC  EMPMAP-WORK-RECORD                 0001  mm/dd/yy 08:35:09      MAP  EMPMAP
0001  mm/dd/yy 13:08:16
 REC  EMPMAP-WORK-RECORD               0001  mm/dd/yy 08:35:09      MAP  EMPMAPP1
0001  mm/dd/yy 14:06:34
 REC  EMPMAP-WORK-RECORD               0001  mm/dd/yy 08:35:09      MAP  EMPMAPP1
0001  mm/dd/yy 14:06:34
 SCH  EMPSCHM                           0100  mm/dd/yy 08:40:42      SUB  EMPSS01
EMPSCHM                    0100  mm/dd/yy 08:37:27
 SCH  EMPSCHM                           0100  mm/dd/yy 08:40:42      SUB  EMPSS01
EMPSCHM                    0100  mm/dd/yy 08:37:27
```

Each VALIDATION EXCEPTION ENTITY and its RELATED ENTITY is displayed with the last date and time updated (if available). Last update dates are extracted from the dictionary record as opposed to the CCDB to allow for cases where no CCDB record exists, and to provide meaningful validation reports for new installations. In some cases, the last update time is not available in the dictionary record. When no time is available, only the date is used for purposes of validation. When two related entities are updated on the same date, and no update time is available from the dictionary, CA Endevor/DB assumes that the order of update was correct. In all cases, the entity in the left-hand column is the most recently updated. The related entity that was updated in improper sequence is in the right-hand column.

This Entity Type	Is in the Right Column of This Report Because . . .

This Entity Type	Is in the Right Column of This Report Because . . .
Record	An Element within this Record has changed and is being migrated as part of another Record. The Element has not been replaced in this Record on the source system. If applicable, modify the Record and rerun NDVRDSEL. If the Record is not modified in the source system, it will not be rebuilt on the target system and will remain unchanged.
Dialog	A Record, Map, Process, or Subschema used in this Dialog has been modified but the Dialog has not been modified on the source system. Regenerate the Dialog on the source system, test the changes, and rerun NDVRDSEL. **Important!** If a Map is involved (in the left column), failure to regenerate this dialog causes an CA IDMS/DC date mismatch on the target system when this dialog is executed. If a Record or Process is involved, the changes will be migrated to the target but no generation of the Dialog will occur.
Map	A Record contained in this Map has been changed but the Map has not been regenerated on the source system. **Important!** If this condition is left unchecked, the Record included in this Map will not successfully import into the target system if this Map exists on the target system. Regenerate the Map on the source system, test out the changes, and rerun NDVRDSEL.
Subschema	Either a Record within the Subschema, or the Schema containing this Subschema, has changed since the Subschema was last generated. **Important!** If this condition is left unchecked, the Record included in this Subschema will not successfully import into the target system if this Subschema exists on the target system. Regenerate the Subschema on the source system, test out the changes, and rerun NDVRDSEL.
Schema	A Set or Record that appears in this Schema has been changed since the Schema was last validated. **Important!** If this condition is left unchecked, the Record included in this Schema will not successfully import into the target system if this Schema exists on the target system. Validate the Schema, regenerate all Subschema on the source system, test the changes, and rerun NDVRDSEL.

This Entity Type	Is in the Right Column of This Report Because . . .
Program	A Map or Record used by this program has changed and is migrating, but the program has not been regenerated to reflect the change. **Important!** Failure to regenerate this program causes an CA IDMS/DC date mismatch on the target system when this program is executed. Regenerate the program, test the changes, and rerun NDVRDSEL.
Load Module	A Dialog, Subschema, Map, Application, or Table was updated, but no Load Module was generated to reflect the update. **Important!** If a SOURCE FORM migration is taking place, failure to generate a Load Module will result in exportation and regeneration of untested components. If an EXECUTABLE FORM migration is taking place, out-of-date Load Modules (no corresponding source code in the dictionary) will be exported. Regenerate the component, test the changes, and rerun NDVRDSEL.

NDVRDCOR Correlation

The Correlation processor reads the entity list file produced by NDVRDSEL (NDVRENO) as ddname NDVRENI for entity names and control information. The CCDB and IDD on the target system is examined for modifications made to the entities in the list after they were last migrated into the target system dictionary from the source system dictionary.

Any modifications made to the entities on the list are reported as potential candidates for problems since corresponding changes may not have been made in the source system. The user is also warned when updates are made without a user or CCID, or when multiple user or CCID updates have been made to an entity on the target since last migration from the source dictionary. A warning is issued to an entity that has been migrated in (CLE Action = V) from a dictionary other than the source dictionary since its last migration from the source dictionary.

Note: If entities are routinely renamed when they are migrated to QA or Production, or if their version number is set to a value other than the source system, make sure to change those values in the ENT statements contained in the NDVRENI file before running the Correlation Processor (NDVRDCOR).

NDVRDCOR can be instructed to ignore a warning for an entity if its Status has been set to a particular value. Using this mechanism, it is possible to suppress warnings in those cases where the user has prior knowledge as to its state on the sending system. For example, this technique can be used to mark entities for which all updates made to the Production or QA system were also made on the source system.

Note: Since NDVRDCOR is a read-only process, no special security is required to execute it.

The Correlation Processor can be run in conjunction with NDVRDSEL executed in TRIAL mode by unauthorized application developers to qualify entities for migration before involving the DA or DBA. This process can be run to identify potential regression problems arising from multiple update or from updates occurring independently in the QA or Production dictionaries that did not originate in the source system (i.e., emergency fixes, QA fixes). Development teams can be given the capability to suppress unnecessary warnings through the use of installation standard Status codes.

Target System Impact Analysis Rules

During execution of the Correlation Processor (program NDVRDCOR), the target system CCDB and IDD are examined to determine if any modifications have been made to the target dictionary that might conflict with the entity changes migrating in. The entities examined fall into three general categories:

- Entities contained in the migration list, which have been modified at the target since last being migrated.
- Entities, which are closely related to, those contained in the entity list, and which have changed since last migrated from the source.
- Entities, which are closely related to those, contained in the entity list, and whose presence will prevent the migration from succeeding (BUILDER CODE violations).

NDVRDCOR always checks for entities in the first category. It does so by inspecting the target CCDB. NDVRDCOR accepts an EXPAND IDD RELATIONSHIPS command. If specified, the program will check for entities in the last two categories. Entities in the first category are printed in the MIGRATION ENTITY EXCEPTIONS report produced by NDVRDCOR, entities in the second category are printed in the EXPANSION ENTITY EXCEPTIONS report, and those in the third category are printed in the TARGET ENTITY EXCEPTIONS report.

The following table identifies the relationships examined in the target system for impact analysis when the EXPAND IDD RELATIONSHIPS command is specified. For each Entity Type, the Related Entity will be Exception Listed if it has been modified in the target system since it was last migrated from the source system.

Entity Type	**Related Entity Type**
APPLICATION	LOAD MODULE
DIALOG	LOAD MODULE
	MAP
	PROCESS
	RECORD
	SUBSCHEMA
ELEMENT	RECORD
MAP	DIALOG
	LOAD MODULE
	MODULE
	PROGRAM
	RECORD

Entity Type	Related Entity Type
	TABLE
MODULE	MAP
	PROGRAM
PROCESS	DIALOG
PROGRAM	MAP
	MODULE
RECORD	APPLICATION
	DIALOG
	ELEMENT
	MAP
	PROGRAM
	SCHEMA
	SUBSCHEMA
SCHEMA	SUBSCHEMA
	RECORD
SET	SCHEMA
SUBSCHEMA	DIALOG
	LOAD MODULE
	PROGRAM
	RECORD
	SCHEMA
TABLE	LOAD MODULE
	MAP

NDVRDCOR Command Syntax

The parameters to execute NDVRDCOR are contained in the front of the NDVRENI file as created automatically by NDVRDSEL. The following command syntax specified in the NDVRIPT file is used to supplement the automatic parameters:

```
►►──── SIGnon ─┬────────────────────────────────────────────────┬────►
               ├─ DBNAme ───┬── is dictname ─┘
               └─ DICtName ─┘

►──┬─────────────────────┬──┬────────────────────────┬──────────────►
   └─ USEr name is user-id ─┘  └─ PASsword is password ─┘

►───────────┬─────────────────────────────────────┬─────────── . ────►◄
            └─ CCId name is ─┬──────── ccid ──────┤
                             │      ┌── , ──┐      │
                             └─ ( ─▼─ ccid ─┴─ ) ─┘


►►─┬─────────────────────────────────────────────────────────────┬──►◄
   └─ IGNore ─▼┬─ where STAtus name is status ────────────┬── . ─┘
               └─ WIThin CCId name is ccid ──────┘


►►──────┬──────────────────────────────────────────────────┬────────►◄
        └─ EXPand IDD relationships ─────────────────── . ─┘
```

SIGNON

Identifies the user responsible for the migration and optional password and CCID list. If no CCID list is specified, the default CCIDs for the user are assigned from the CCDB.

IGNORE

Multiple IGNORE statements can be specified. Ignored from warnings are those items, which have a particular Status. This mechanism is employed as a way of excluding individual entities, even though all other criteria would have resulted in warning.

Note: When the WITHIN clause is specified, the status under the context of the CCID name is examined. When no WITHIN clause is present, only the base status is considered. If the same base and CCID status values are to be ignored, two IGNORE statements are necessary. Multiple IGNORE statements are ORed.

EXPAND

NDVRDCOR performs its correlation processing in two passes:

- Pass 1 reads the input Entity List file and checks the target CCDB to see if any of those entities have been changed at the target since last migration.
- Pass 2 examines the IDD and checks entities related to those which will be migrating.

When the EXPAND option is not in effect (default setting), the input Entity List File is the sole source for entities to be checked. No Pass 2 is performed. In this case, no information will be provided about target changes to related entities and no information will be provided about "migration stopper" entities (See below).

When the EXPAND IDD RELATIONSHIPS clause is in effect, the Pass 2 expansion and checking will be performed. Target dictionary entities that are not migrating, but that are directly related to the migrating entities and that have changed since last migrated from the source (if ever), will be reported in the Expansion Entity Exceptions report. See the "Target System Impact Analysis Rules" section for a complete description of the correlation rules. Also, the Pass 2 processing will produce the Target Entity Exceptions report. This is a listing of all MAPs, SUBSCHEMAs and SCHEMAs that exist at the target dictionary, and include records coming in the migration but are not themselves coming in the migration. Because of the BUILDER CODE rules enforced by CA-IDD, these entities will prevent the import of the new record definitions. You must remove these "migration stopper" entities from the target dictionary before attempting to run the migration import job, or else add them to the set of entities being migrated.

Note: If the CA Endevor/DB migrator is being used, always specify the EXPAND clause.

NDVRDCOR Sample JCL

Use the following JCL to run NDVRDCOR. It is contained in member SAMPDCOR on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//*********************************************************************
//*
//*  JOB:      SAMPDCOR
//*
//*  PURPOSE:  CORRELATES SELECTED ENTITIES AGAINST TARGET CCDB/DICT
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  CORRELAT  EXAMINES TARGET CCDB/DICT FOR ENTITIES ON SELECTION FILE
//*            FROM NDVRDSEL RUN.  WARNS OF POSSIBLE REGRESSION ERRORS.
//*
//*********************************************************************
//*
//CORRELAT EXEC PGM=NDVRDCOR,REGION=600K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//NDVRLST  DD SYSOUT=*
//NDVRDTL  DD SYSOUT=*
//NDVRUTL  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
  IGNORE WHERE STATUS ='status'.
/*
```

NDVRDCOR Outputs

NDVRDCOR produces three report files:

- A control report (NDVRLST). This report echoes the expanded control syntax from the NDVRENI and NDVRIPT files, and itemizes all entities from IDD expansion and NDVRENI that have had warnings or exceptions issued against them.
- A detail report (NDVRDTL). This report itemizes all entities examined in the impact analysis process - both the entities named in the NDVRENI file and those found during IDD expansion.
- A utility report (NDVRUTL). This report lists the input Entity List file (NDVRENI). If IDD expansion is performed, it will also contain a "migration stopper" report showing all MAPs, SCHEMAs, and SUBSCHEMAs that exist at the target and will prevent the migration from succeeding.

When sending an NDVRENO file from NDVRDSEL to a remote location for impact analysis, it is not necessary to include a listing of that file. NDVRDCOR will echo the original selection syntax, as well as ENT statements originally generated.

Each report is now shown in detail.

NDVRDCOR Control Report (ddname NDVRLST)

The control report file is composed of five parts:

- An input command listing.
- A compiled command listing.
- A migration exception report.
- An IDD expansion exception report.
- An End-of-Job statistics summary.

NDVRDCOR - Input Command Listing

The Input Command Listing echoes the input statements contained in the NDVRIPT file.

```
 volser                                           CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                                 C A - E N D E V O R / D B       mm/dd/yy
07:14:48  00001
 NDVRDCOR CONTROL REPORT                            MIGRATION TARGET CORRELATION
INPUT COMMAND LISTING
    SIGNON DBNAME TGTNDVR
           USER EDB-SYSTEM-ADMINISTRATOR
           CCID EDB-SYSADMIN.
    IGNORE WHERE STATUS 'NEVER-MIGRATE'.
```

NDVRDCOR - Compiled Command Listing

The Compiled Command Listing is a combination of statements contained on the NDVRENI file merged with additional statements from the NDVRIPT file. All statements preceding the INPUT clause are taken from the NDVRENI file. Since NDVRDCOR always takes its input from the NDVRENI file, the compiled command indicates that. The EXPAND IDD command appears only if specified in the input commands. IGNORE RULES only appear if specified in the input.

```
 volser                                           CA, INC.                 DATE
TIME     PAGE
 RELEASE nn.n                             C A - E N D E V O R / D B     mm/dd/yy
07:14:52  00002
 NDVRDCOR CONTROL REPORT                            MIGRATION TARGET CORRELATION
COMPILED COMMAND LISTING
  SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '
      VERIFY DATE = mm/dd/yy TIME = 09:00:18
      USER = 'EDB-SYSTEM-ADMINISTRATOR       '
      CCID =('EDB-SYSADMIN','            ','            ','            ',
             '            ','            ','            ','            ',
             '            ','            ','            ','            ')
  .
  TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '
  .
  MODE = EXECUTE
  .
  INPUT = FILE
  .
 *********** IGNORE RULE NUMBER 0001
  IGNORE WHERE STATUS = 'NEVER-MIGRATE   '
  .
  LIST FOLLOWS .
```

NDVRDCOR - Migration Exception Report

The Migration Exception Report contains a listing of all the ENT statements from the NDVRENI file for migrating entities which have been modified in the target system since they were last migrated from the source system. If no migration activity is logged in the CCDB, the last migration is assumed to have occurred at the beginning of recorded history for the dictionary. This report will not appear if there were no exception entities.

Important! If the changes made from these modifications have not been reflected in the migrating entities, possible reversion of independently applied changes to the target system will occur.

```
 volser                                          CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                            C A - E N D E V O R / D B       mm/dd/yy
07:14:52  00003
 NDVRDCOR CONTROL REPORT                           MIGRATION TARGET CORRELATION
MIGRATION ENTITY EXCEPTIONS
                                                                      IGNR
FOUND FOUND CHANGE MULT NULL MULT NULL
      ENTITY TYPE      ENTITY NAME                             VERS    RULE IDD
CCDB  COUNT  CCID CCID USER USER
  ENT RECORD        'COVERAGE                         ' 0100.              000001
  ENT RECORD        'EMPLOYEE                         ' 0100.              000001
  ENT RECORD       'EMPMAP-WORK-RECORD                 ' 0001.             000001
  ENT MAP          'EMPMAPP1                          ' 0001.              000001
  ENT SCHEMA        'EMPSCHM                          ' 0100.              000001
  ENT SUBSCHEMA     'EMPSS01 EMPSCHM                   ' 0100.             000001
  ENT LOAD-MODULE    'EMPMAPP1                         ' 0001.             000001
  ENT MODULE       'MAP-FIELD-HELP            HELP     ' 0001.             000001
```

Report Fields

The column headings reflected in this report are used for other NDVRDCOR reports. They are explained below:

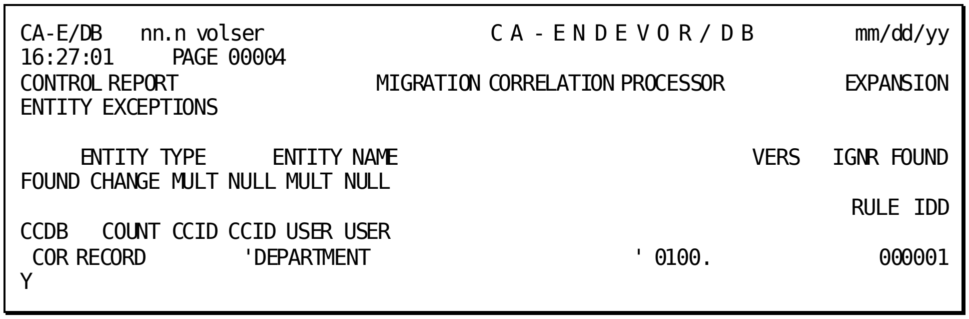
Field	Description
Entity Type	Type of entity migrating in.
Entity Name	Name of migrating entity.
Vers	Version number of migrating entity.
IGNR Rule	On detail reports, the IGNORE rule applied to overriding the exception condition. This will not appear on the exception report.
Found IDD	N = Entity could not be found in the target system IDD.
Found CCDB	N = Entity could not be found in the target system CCDB.

Field	Description
Change Count	Number of times this entity was modified in the target system since it was last migrated from the source system as specified in the NDVRENI file.
Mult CCID	Y = A modification has been made to this entity under more than one CCID since it last migrated to the target.
Null CCID	Y = A modification has been made to this entity with no CCID since it last migrated to the target.
Mult User	Y = A modification has been made to this entity under more than one userid since it last migrated to the target.
Null User	Y = A modification has been made to this entity with no userid since it last migrated to the target.

NDVRDCOR - Expansion Exception Report

This report itemizes those entities, which are closely related to the entities migrating in, and which have been modified in the target system since their last migration.

Note: Each of the entities in this list may not be synchronized with their counterparts in the source system. Therefore, when the pending migration is completed, an untested combination of entities will result. Possible consequences are date/time mismatches between Dialogs, Programs and Maps, and/or other unpredictable results. The expert rules used to determine the participants in this report are graphically depicted in the "Impact Analysis Rules" section in this chapter.



```
CA-E/DB    nn.n volser                   C A - E N D E V O R / D B        mm/dd/yy
16:27:01     PAGE 00004
CONTROL REPORT                   MIGRATION CORRELATION PROCESSOR          EXPANSION
ENTITY EXCEPTIONS

     ENTITY TYPE      ENTITY NAME                                   VERS   IGNR FOUND
FOUND CHANGE MULT NULL MULT NULL
                                                                           RULE  IDD
CCDB   COUNT CCID CCID USER USER
 COR RECORD        'DEPARTMENT                             ' 0100.               000001
Y
```

NDVRDCOR - End-of-Job Statistics

The End-of-Job Statistics report concludes each of the report files produced by NDVRDCOR. Contained within it are informational statistics relating to the work that was performed during execution.

```
 volser                                             CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                               C A - E N D E V O R / D B       mm/dd/yy
07:14:53  00004
 NDVRDCOR CONTROL REPORT                                 MIGRATION TARGET CORRELATION
END-OF-JOB STATISTICS
 NDVRDCOR: I001 CORRELATION ENTITY TOTALS
                                    MATCHED   CHANGED  ** NOT FOUND **  SIGNED
               INPUT     IDD     IGNORE     IN TGT    TARGET   TARGET   OUT IN    TOTAL
 ENTITY TYPE  NDVRENI  EXPAND    RULE        CCDB      CCDB     IDD     TARGET   SELECT
 LOAD MODULE        5       0        0         3         2        0         0        3
 MAP                3       0        0         3         0        0         0        3
 MODULE             1       0        0         1         0        0         0        1
 PROGRAM            1       0        0         1         0        0         0        1
 RECORD            14       0        0        13         1        0         0       13
 SCHEMA             2       0        0         1         1        0         0        1
 SUBSCHEMA          2       0        0         1         1        0         0        1
 INVALID            0
 ___________ _______ _______  _______  _______  _______ _______  _______ _______
 TOTAL             28       0        0        23         5        0         0       23
 NDVRDCOR: I002 ENTITIES MATCHING IGNORE RULE NUMBER 0001  .............        0
 NDVRDCOR: I003 ENTITIES MODIFIED WHEN NO CCID WAS KNOWN ..............        0
                ENTITIES MODIFIED BY MULTIPLE CCIDS....................        0
                ENTITIES MODIFIED WHEN NO USER WAS KNOWN ..............        0
                ENTITIES MODIFIED BY MULTIPLE USERS....................        0
```

NDVRDCOR Detail Report (ddname NDVRDTL)

The detail report file is composed of three parts:

- A compiled command listing.
- A listing of all entities inspected during the processing.
- An End-of-Job statistics summary.
- Compiled Command Listing The Compiled Command Listing in the NDVRDTL file is identical to the one in the NDVRLST file, and is not shown here.
- Correlation Detail Listing The Correlation Detail Listing itemizes all entities examined on the target IDD and CCDB that were involved in the impact analysis. If IGNORE rules were applied to any exception conditions, they will be shown in this report.

```
 volser                                           CA, INC.                 DATE
TIME     PAGE
 RELEASE nn.n                             C A - E N D E V O R / D B    mm/dd/yy
07:14:52  00002
 NDVRDCOR DETAIL REPORT                             MIGRATION TARGET CORRELATION
CORRELATION DETAIL LISTING
                                                                        IGNR
FOUND FOUND CHANGE MULT NULL MULT NULL
      ENTITY TYPE      ENTITY NAME                                     VERS   RULE IDD
CCDB  COUNT  CCID CCID USER USER
  ENT RECORD        'COVERAGE                         ' 0100.                 000001
  ENT RECORD        'EMPLOYEE                         ' 0100.                 000001
  ENT RECORD       'EMPMAP-WORK-RECORD                 ' 0001.                000001
  ENT MAP          'EMPMAPP1                          ' 0001.                 000001
  ENT SCHEMA        'EMPSCHM                          ' 0100.                 000001
  ENT SUBSCHEMA     'EMPSS01 EMPSCHM                   ' 0100.                000001
  ENT LOAD-MODULE    'EMPMAPP1                        ' 0001.                 000001
  ENT MODULE       'MAP-FIELD-HELP           HELP     ' 0001.                 000001
 *ENT ELEMENT           'SELECTION-DATE                          ' 0100.  0001
 *ENT ELEMENT           'SELECTION-YEAR                          ' 0100.  0001
 *ENT ELEMENT           'SELECTION-MONTH                         ' 0100.  0001
 *ENT ELEMENT           'SELECTION-DAY                           ' 0100.  0001
```

NDVRDCOR - End-of-Job Statistics

The End-of-Job Statistics listing in the NDVRDTL file is identical to the one in the NDVRLST file, and is not shown here.

NDVRDCOR Utility Report (ddname NDVRUTL)

The utility report file is composed of three parts:

- A listing of the input NDVRENI file.
- A target entities exception report.
- An End-of-Job statistics summary.

NDVRDCOR - Input Entity List File

The Input Entity List File report echoes all the control information and ENT statements contained in the NDVRENI file.

```
 volser                                          CA, INC.                   DATE
TIME     PAGE
 RELEASE nn.n                            C A - E N D E V O R / D B      mm/dd/yy
07:14:52  00001
 NDVRDCOR UTILITY REPORT             MIGRATION TARGET CORRELATION          INPUT
ENTITY LIST FILE
  SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                        00000001
      VERIFY DATE = mm/dd/yy TIME = 09:00:18                            00000002
      USER = 'EDB-SYSTEM-ADMINISTRATOR       '                          00000003
      CCID =('EDB-SYSADMIN','              ','           ','          ',00000004
             '           ','              ','           ','          ',00000005
             '           ','              ','           ','          ')00000006
  .                                                                     00000007
  TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                        00000008
  .                                                                     00000009
  MODE = EXECUTE                                                        00000010
  .                                                                     00000011
  INPUT = DATABASE                                                      00000012
  .                                                                     00000013
  SIGNOUT TO CCID = 'EDB-SYSADMIN'                                      00000014
  .                                                                     00000015
  EXPAND IDD CHANGE RELATIONSHIPS                                       00000016
  .                                                                     00000017
 *********** INCLUDE RULE NUMBER 0001                                   00000018
  INCLUDE  ALL                                                          00000019
      WHERE STATUS = 'MIGRATE-TEST    '                                 00000020
  .                                                                     00000021
 *********** INCLUDE RULE NUMBER 0002                                   00000022
  INCLUDE  ALL                                                          00000023
      FROM DATE = mm/dd/yy                                              00000024
  .                                                                     00000025
 *********** EXCLUDE RULE NUMBER 0001                                   00000026
  EXCLUDE WHERE STATUS = 'NEVER-MIGRATE   '                             00000027
  .                                                                     00000028
  LIST FOLLOWS .                                                        00000029
  ENT RECORD          'COVERAGE                             ' 0100.  00000030
  ENT RECORD          'EMPLOYEE                             ' 0100.  00000031
  ENT RECORD          'EMPMAP-WORK-RECORD                   ' 0001.  00000032
  ENT MAP             'EMPMAPP1                             ' 0001.  00000033
  ENT SCHEMA          'EMPSCHM                              ' 0100.  00000034
  ENT SUBSCHEMA       'EMPSS01 EMPSCHM                      ' 0100.  00000035
  ENT MODULE          'MAP-FIELD-HELP               HELP    ' 0001.  00000036
  ENT ELEMENT         'SELECTION-DATE                       ' 0100.  00000037
  ENT ELEMENT         'SELECTION-YEAR                       ' 0100.  00000038
  ENT ELEMENT         'SELECTION-MONTH                      ' 0100.  00000039
  ENT ELEMENT         'SELECTION-DAY                        ' 0100.  00000040
```

NDVRDCOR - Target Entity Exceptions

The Target Entity Exceptions listing is only produced if EXPAND IDD processing has been requested, and if any "migration stopper" entities have been found.

```
 volser                                              CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                                C A - E N D E V O R / D B       mm/dd/yy
07:14:52  00001
 NDVRDCOR UTILITY REPORT                               MIGRATION TARGET CORRELATION
TARGET ENTITY EXCEPTIONS
 ************ MIGRATION STOPPING ENTITY ************             ****************
MIGRATING ENTITY *****************
 TYP  NAME                        VERS          TYP NAME                       VERS
 SCH  EMPSCHM                                   0100                 REC  EMPLOYEE
0100
 SUB  EMPSS01                                   0100                 REC  EMPLOYEE
0100
```

NDVRDCOR - End-of-Job Statistics

The End-of-Job Statistics listing in the NDVRUTL file is identical to the one in the NDVRLST file, and is not shown here.

NDVRDLVR Definition Delivery

- After NDVRDSEL is run (to select and validate the source system) and NDVRDCOR is run (to perform impact analysis on the target), NDVRDLVR performs one or both of the following functions:
- Migrates full Source or Executable (Load Module only) definitions from the source dictionary for all items contained in the NDVRENI file created by NDVRDSEL.
- Builds a Class/Attribute Structure in the source dictionary for all items selected by NDVRDSEL. When using an alternate vendor's migrator, use the Class/Attribute migration path to export entities selected by CA Endevor/DB. The Class/Attribute structure is also useful as an audit trail when copying the entire dictionary to a system where CA Endevor/DB is not installed.

The NDVRDLVR program performs its function by first reading the NDVRIPT file with the command syntax described below. It then invokes as many of the following CA IDMS compilers as are necessary for the action being performed:

- ADSOBCOM
- ADSOBTAT
- IDMSDDDL
- IDMSCHEM
- IDMSUBSC
- RHDCMAP1
- RHDCMPUT

The DDDL syntax required to add the CLASS and ATTRIBUTE structure (if needed) and extract the source statements and/or load modules is fed to the compiler internally by NDVRDLVR.

No Change Log Entries are created as a result of NDVRDLVR activity. This program has the capability to instruct the Change Monitor to refrain from logging. This is done to prevent entities in dictionaries, which are intermediate stops in the migration path from appearing as if they were modified since the last migration. Thus, NDVRDCOR will not falsely warn against modification overlay to entities, which were migrated in and migrated out without intervening updates except by NDVRDLVR. For this reason, any user executing this program will need to be authorized for NM-MODE=Y in the Security Class.

NDVRDLVR Command Syntax

```
►►──── SIGnon ─┬─────────────────────────────────┬──────────────────►
               └─┬─ DBNAme ───┬─ is dictname ─┘
                 └─ DICtName ─┘

►─┬─────────────────────────┬─┬────────────────────────────┬────────►
  └─ USEr name is user-id ─┘ └─ PASsword is password ─┘

►─┬─────────────────────────────────────────────────┬─ . ──────────►◄
  └─ CCId name is ─┬─────────── ccid ─────────┬─┘
                   │        ┌─── , ───┐       │
                   └─ ( ─▼─ ccid ──┴─ ) ─┘


►►─┬────────────────────────────────────────────────────────────────►
   └─┬─ IDMs ───┬─┬─────────────────────────────────┬───────────────
     ├─ TARget ─┤ └─ USEr name is dc-user-name ─┘
     └─ SOUrce ─┘

►─┬─────────────────────────────────────────────────┬──────────────►◄
  └───┬──────────────────────────────┬─ . ──────────┘
      └─ PASsword is dc-password ─┘


►►─┬───────────────────────────────────────────────────────────┬───►◄
   └─ TAG with CLAss class-name ATTribute attribute-name ── . ─┘


►►─┬──────────────────────────────────────────────┬────────────────►◄
   └─ EXPort ─┬─ SOUrce ─────┬─ form ── . ─┘
              └─ EXEcutable ─┘


►►─┬─────────────────────────────────────┬─────────────────────────►◄
   └─ MODe is ─┬────────────────┬── . ─┘
               ├─ EXECute ◄─┤
               └─ BACkoff ───┘


►►─┬──────────────────────────────────────────────────────────────┬►◄
   │ ┌──────────────────────────────────────────────────────────┐ │
   └─▼─ SET ─┬─ SOUrce IDMsdddl SESsion ─┬─ OPTions options ── . ─┴─┘
             ├─ SOUrce IDMsdddl RECord ──┤
             ├─ SOUrce IDMsdddl ELEment ─┤
             ├─ SOUrce SCHema ───────────┤
             ├─ SOUrce SUBschema ────────┤
             ├─ SOUrce RHDcmput PROcess ─┤
             ├─ TARget IDMsdddl SESsion ─┤
             └─ TARget RHDcmput PROcess ─┘
```

Note: The option text referred to in the syntax above identifies option values that are not validated by CA Endevor/DB. When the option values are specified, CA Endevor/DB simply inserts them into the appropriate CA IDMS compiler command. Also, if a SET OPTIONS command is repeated, only the last one specified will be used.

SIGNON

The SIGNON command identifies the user responsible for the migration and optional password and CCID list. If no CCID list is specified, the default CCIDs for the user are assigned from the CCDB.

Note: For this utility to operate, the user must be authorized in the Security Class for MIGRATE=Y and (optionally) NM-MODE=Y if TAG is selected.

IDMS USER

The IDMS command is used to specify the IDD USER and (optionally) PASSWORD information used to access the migration dictionaries. The IDMS USER statement and the SOURCE/TARGET USER statements are mutually exclusive: if you specify IDMS USER, you cannot specify either SOURCE or TARGET USER. If you specify either the SOURCE or TARGET USER command, you cannot specify the IDMS USER command. If you specify the IDMS USER command, the user and password on that command will be used for the dictionary processing at **both the source and target** dictionaries. If omitted, you may specify either SOURCE and/or TARGET USER commands. If you specify none of these, no CA IDMS user identification will be used at either the target or the source dictionaries.

SOURCE USER

The SOURCE command is used to specify the IDD USER and (optionally) PASSWORD information used to access the source dictionary. The SOURCE USER statement and the IDMS USER statements are mutually exclusive: if you specify SOURCE USER, you cannot specify IDMS USER. Likewise, if you specify the IDMS USER command, you cannot specify the SOURCE USER command. You may specify or omit the TARGET USER command if you specify SOURCE USER. The SOURCE USER command must be used when a source IDD user name is needed and either a different or no target IDD user name is needed.

TARGET USER

The TARGET command is used to specify the IDD USER and (optionally) PASSWORD information used to access the target dictionary. The TARGET USER statement and the IDMS USER statements are mutually exclusive: if you specify TARGET USER, you cannot specify IDMS USER. Likewise, if you specify the IDMS USER command, you cannot specify the TARGET USER command. You may specify or omit the SOURCE USER command if you specify TARGET USER. The TARGET USER command must be used when a target IDD user name is needed and either a different or no source IDD user name is needed.

TAG

The TAG command is used to instruct NDVRDLVR to build a CLASS and ATTRIBUTE structure to tag the entities contained in the NDVRENI file.

EXPORT

The EXPORT command causes NDVRDLVR to extract the entities contained in the NDVRENI file from the source dictionary. Two mutually exclusive options are available:

- EXECUTABLE FORM -- whenever possible, only LOAD MODULES for entities will be extracted from the dictionary. See the "NDVRDLVR Output Files" section for a description of generated output.
- SOURCE FORM -- whenever possible, source descriptions of the entities will be extracted for regeneration on the target system. See the "NDVRDLVR Output Files" section for a description of generated output.

MODE

The MODE command determines whether to add CLASS/ATTRIBUTE relationships or remove them. To create a CLASS/ATTRIBUTE relationship on each entity in the NDVRENI file list, run with MODE = EXECUTE. To reverse the effects of a prior run, run the same NDVRENI file back into NDVRDLVR with MODE = BACKOFF. Only the CLASS/ATTRIBUTE relationships are deleted by BACKOFF. If TAG has not been run, there is nothing to back-off.

SET SOURCE IDMSDDDL SESSION OPTIONS

This command allows changes to the default session options used by CA Endevor/DB for the source dictionary. CA Endevor/DB sets the source IDMSDDDL session options using the following DDDL command:

```
SET SESSION OPTIONS
QUOTE IS '
INPUT 1 THRU 72 OUTPUT 80
DISPLAY AS SYNTAX VERB REPLACE
WITH DETAILS MODULE SOURCE PICTURE OVERRIDES SYNONYMS
ATTRIBUTES ALL COMMENT TYPES.
```

These options may be overridden or added to by specifying the SET SOURCE IDMSDDDL SESSION OPTIONS command. For example, the command:

```
SET SOURCE IDMSDDDL SESSION OPTIONS REGISTRATION OVERRIDE.
```

causes a second DDDL SET SESSION OPTIONS command to be used, which turns off entity occurrence security.

Refer to the *CA IDMS IDD DDDL Reference Guide* for a full discussion of DDDL session options.

SET SOURCE IDMSDDDL RECORD OPTIONS

This command allows changes to the default punch record options specified by CA Endevor/DB when punching record definitions from the source dictionary. CA Endevor/DB sets the following options by default when punching record definitions from the source dictionary.

```
PUNCH RECORD record-name VERSION version-nr ALSO
WITH FILES ELEMENTS SUBORDINATE ELEMENTS.
```

Note that the 'ALSO WITH' indicates that these options are to be added to the source IDMSDDDL session options.

The punch record options can be overridden by specifying the SET SOURCE IDMSDDDL RECORD OPTIONS command. If you specify any options here, you must specify them all. The option text specified must begin with the 'ALSO WITH' or 'WITHOUT' or 'WITH' text. For example, the command:

```
SET SOURCE IDMSDDDL RECORD OPTIONS ALSO WITH OLQ HEADERS.
```

includes OLQ headers in the punched record output.

With this command, following punch record command is issued:

```
PUNCH RECORD record-name VERSION version-nr ALSO WITH
OLQ HEADERS.
```

Refer to the *CA IDMS IDD DDDL Reference Guide* for a full discussion of DDDL PUNCH RECORD options.

SET SOURCE IDMSDDDL ELEMENT OPTIONS

This command allows changes to the default options specified by CA Endevor/DB when punching element definitions from the source dictionary. CA Endevor/DB sets the following options by default when punching element definitions from the source dictionary:

```
PUNCH ELEMENT element-name VERSION version-nr.
```

The element options can be overridden by specifying the SET SOURCE IDMSDDDL ELEMENT OPTIONS command. If you specify any options here, you must specify them all. The options text specified must begin with the 'ALSO WITH' or 'WITH' or 'WITHOUT' text. For example, the command:

```
SET SOURCE IDMSDDDL ELEMENT OPTIONS WITHOUT SYNONYMS.
```

excludes element synonyms from the punched element output.

With this command, the following punch element command is issued:

```
PUNCH ELEMENT element-name VERSION version-nr
WITHOUT SYNONYMS.
```

Refer to the *CA IDMS IDD DDDL Reference Guide* for a full discussion of DDDL PUNCH ELEMENT options.

SET TARGET IDMSDDDL SESSION OPTIONS

This command allows changes to the default session options used by CA Endevor/DB for the target dictionary.

CA Endevor/DB sets the following target IDMSDDDL session options:

```
QUOTE IS ' DEFAULT IS ON INPUT 1 THRU 72 OUTPUT 80
```

These options can be overridden or added to by specifying the SET TARGET IDMSDDDL SESSION OPTIONS command. For example, the command:

```
SET TARGET IDMSDDDL SESSION OPTIONS DECIMAL-POINT IS COMMA.
```

establishes the comma (,) as the default decimal-point character.

Refer to the *CA IDMS IDD DDDL Reference Guide* for a full discussion of DDDL session options.

SET SOURCE SCHEMA OPTIONS

This command allows changes to the default options specified by CA Endevor/DB when punching schema definitions from the source dictionary.

CA Endevor/DB sets the following options by default when punching schema definitions from the source dictionary:

PUNCH SCHEMA**schema-id** VERSION **version-nr**.

The punch schema options can be overridden by specifying the SET SOURCE SCHEMA OPTIONS command. If you specify any options here, you must specify them all. The options text specified must begin with 'ALSO WITH', 'WITHOUT', or 'WITH' text. For example, the command:

```
SET SOURCE SCHEMA OPTIONS ALSO WITH HISTORY.
```

includes all history associated with the schema.

With this command, the following punch schema command is issued:

PUNCH SCHEMA **schema-id** VERSION **version-nr** ALSO WITH HISTORY.

Refer to the *CA IDMS Database Administration Guide* for a full discussion of PUNCH SCHEMA options.

SET SOURCE SUBSCHEMA OPTIONS

This command allows changes to the default options specified by CA Endevor/DB when punching subschema definitions from the source dictionary.

CA Endevor/DB sets the following options by default when punching subschema definitions from the source dictionary:

PUNCH SUBSCHEMA **subschema-id.**

The punch subschema options can be overridden by specifying the SET SOURCE SUBSCHEMA OPTIONS command. If you specify any options here, you must specify them all. The options text specified must begin with the 'ALSO WITH' or 'WITHOUT' or 'WITH' text. For example, the command:

```
SET SOURCE SUBSCHEMA OPTIONS ALSO WITH HISTORY.
```

includes the date and time the subschema was created or last modified.

With this command, the following punch subschema command is issued:

PUNCH SUBSCHEMA **subschema-id** ALSO WITH HISTORY.

Refer to the *CA IDMS Database Administration Guide* for a full discussion of PUNCH SUBSCHEMA options.

SET SOURCE RHDCMPUT OPTIONS

This command allows changes to the default RHDCMPUT process options used by CA Endevor/DB for the source dictionary. By default, the following process options are set:

```
PROCESS=TERSE
```

This option can be overridden by specifying the SET SOURCE RHDCMPUT PROCESS OPTIONS command. For example, the command:

```
SET SOURCE RHDCMPUT PROCESS OPTIONS PROCESS=TERSE,DATETIME=YES.
```

produces the syntax to define a map in terse form with the date/time stamp preserved.

Refer to the *CA IDMS Mapping Facility Guide* for a full discussion of RHDCMPUT PROCESS options.

TARGET RHDCMPUT OPTIONS

This command allows changes to the default RHDCMPUT process options used by CA Endevor/DB for the target dictionary. By default, the following process options are set:

```
PROCESS=LOAD
```

This option can be overridden by specifying the SET TARGET RHDCMPUT PROCESS OPTIONS command. For example, the command:

```
SET TARGET RHDCMPUT PROCESS OPTIONS PROCESS=LOAD,REPORT.
```

includes a report of all maps generated.

Refer to the *CA IDMS Mapping Facility Guide* for a full discussion of RHDCMPUT process options.

NDVRDLVR Sample JCL

Use the following JCL to run NDVRDLVR. It is contained in member SAMPDLVR on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//********************************************************************
//*
//*  JOB:      SAMPDLVR
//*
//*  PURPOSE:  PRODUCES ALL MIGRATION OUTPUTS FROM SENDING SYSTEM.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  DELIVERY  PROGRAM NDVRDLVR DRIVES IDMSDDDL, RHDCMPUT, ETC. TO
//*            GENERATE DATA STREAMS FOR EXECUTABLE/SOURCE MIGRATION.
//*
//********************************************************************
//*
//DELIVERY EXEC PGM=NDVRDLVR,REGION=1200K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DSN=&.&SYSIPT.,SPACE=(CYL,(5,5)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SYSPCH   DD DSN=&.&SYSPCH.,SPACE=(CYL,(5,5)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//NDVRUT1  DD DSN=&.&NDVRUT1.,SPACE=(CYL,(5,5)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//*******************************************************************
//*   THE FOLLOWING FILES NEEDED FOR EXPORT PROCESSING (EITHER TYPE) *
//*******************************************************************
//*** ADSA STATEMENTS ***            (SMALL)
//NDVRAGEN DD DSN=user.ndvrdlvr.dsagen,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** DCMT VARY COMMANDS  ***        (SMALL)
//NDVRDVAR DD DSN=user.ndvrdlvr.dsdvar,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** ADD ENTITY STATEMENTS  ***     (LARGE)
//NDVRDUPD DD DSN=user.ndvrdlvr.dsdupd,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(CYL,(5,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** ADD LOAD MODULES STMTS ***     (LARGE)
//NDVRDLOD DD DSN=user.ndvrdlvr.dsdlod,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(CYL,(5,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*******************************************************************
```

```
//*   THE FOLLOWING FILES NEEDED FOR EXPORT SOURCE PROCESSING ONLY   *
//********************************************************************
//*** ADSOBCOM SYNTAX STMTS ***       (SMALL)
//NDVRDGEN DD DSN=user.ndvrdlvr.dsdgen,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** SCHEMA DELETE STMTS ***        (SMALL)
//NDVRCDEL DD DSN=user.ndvrdlvr.dscdel,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** ADD SCHEMA STMTS ***           (LARGE)
//NDVRCUPD DD DSN=user.ndvrdlvr.dscupd,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(CYL,(5,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** DELETE SUBSCHEMA STMTS ***     (SMALL)
//NDVRUDEL DD DSN=user.ndvrdlvr.dsudel,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** ADD SUBSCHEMA STMTS ***        (LARGE)
//NDVRUUPD DD DSN=user.ndvrdlvr.dsuupd,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(CYL,(5,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** DELETE MAP  STMTS ***          (SMALL)
//NDVRMDEL DD DSN=user.ndvrdlvr.dsmdel,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** GENERATE MAP STMTS ***         (SMALL)
//NDVRMGEN DD DSN=user.ndvrdlvr.dsmgen,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** ADD MAP SYNTAX STMTS ***       (LARGE)
//NDVRMUPD DD DSN=user.ndvrdlvr.dsmupd,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(CYL,(5,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//********************************************************************
//*   THE FOLLOWING FILES NEEDED FOR CA-E/OS/390 ELEMENTS ONLY.      *
//*   IF CA-E/DB - CA-E/OS/390 BRIDGE NOT USED, SPECIFY THESE FILES  *
//*   WITH DD DUMMY                                                  *
//********************************************************************
//*** SOURCE TRANSFER STMTS ***      (SMALL)
//NDVRSCL1 DD DSN=user.ndvrdlvr.dsscl1,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//*** TARGET TRANSFER STMTS ***      (SMALL)
//NDVRSCL2 DD DSN=user.ndvrdlvr.dsscl2,DISP=(,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(1,5),RLSE),
//            DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
```

```
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
   IDMS USER =  idduserid PASSWORD = iddpswd.
   EXPORT SOURCE FORM.
   MODE = EXECUTE.
/*
```

NDVRDLVR Outputs

NDVRDLVR produces one control report (NDVRLST) and up to 12 output files. The control report echoes the user-specified syntax and itemizes all entities and control information read from the NDVRENI file. Each CA IDMS compiler executed under NDVRDLVR also produces an output listing.

NDVRDLVR Output Files

The output files produced by NDVRDLVR are a function of the input commands specified and the entities being migrated. When no output is needed for a required file, it is opened and closed to create a null data set.

File Requirements

This section summarizes the contents of required output files for the following input commands:

- TAG
- EXPORT - SOURCE OR EXEC. FORMS
- EXPORT SOURCE FORM

TAG

There is no output file for the TAG command. All class/attribute work is done through internal compiler invocation.

EXPORT - SOURCE OR EXECUTE. FORMs

The following table summarizes the contents of required output files for the EXPORT - SOURCE OR EXEC. FORMS command.

Output (Compiler and Content)	Required DDNAME
ADSOBTAT statements to define APPLICATIONS	NDVRAGEN
DCMT Vary commands to optionally run through the UCF batch simulator on the target system to pick up LOAD MODULE updates.	NDVRDVAR
IDMSDDDL statements to update entities on the target system. ■ When EXECUTABLE FORM is specified, this file will contain QFILES and MESSAGES. ■ When SOURCE FORM is specified, this file will contain QFILES, MESSAGES, ELEMENTS, RECORDS, PROCESSES, TABLES, MODULES, and PROGRAM DEFINITIONS.	NDVRDUPD
IDMSDDDL statements to add LOAD MODULES.	NDVRDLOD

EXPORT SOURCE FORM

The following table summarizes the contents of required output files for the EXPORT SOURCE FORM command.

Output (Compiler and Content)	Required DDNAME
ADSOBCOM generate statements to define DIALOGS.	NDVRDGEN
IDMSCHEM statements to delete SCHEMAS.	NDVRCDEL
IDMSCHEM statements to add SCHEMAS.	NDVRCUPD
IDMSUBSC statements to delete SUBSCHEMAS.	NDVRUDEL
IDMSUBSC statements to add SUBSCHEMAS	NDVRUUPD
RHDCMAP1 statements to delete MAPS	NDVRMDEL
RHDCMPUT "PROCESS=LOAD" statements to load MAPS	NDVRMGEN
RHDCMAP1 statements to add	NDVRMUPD

NDVRDLVR Control Report (ddname NDVRLST)

NDVRDLVR produces a three-part control report as follows:

- An input command listing.
- An entity file listing.
- A processing summary.

An explanation of each report follows.

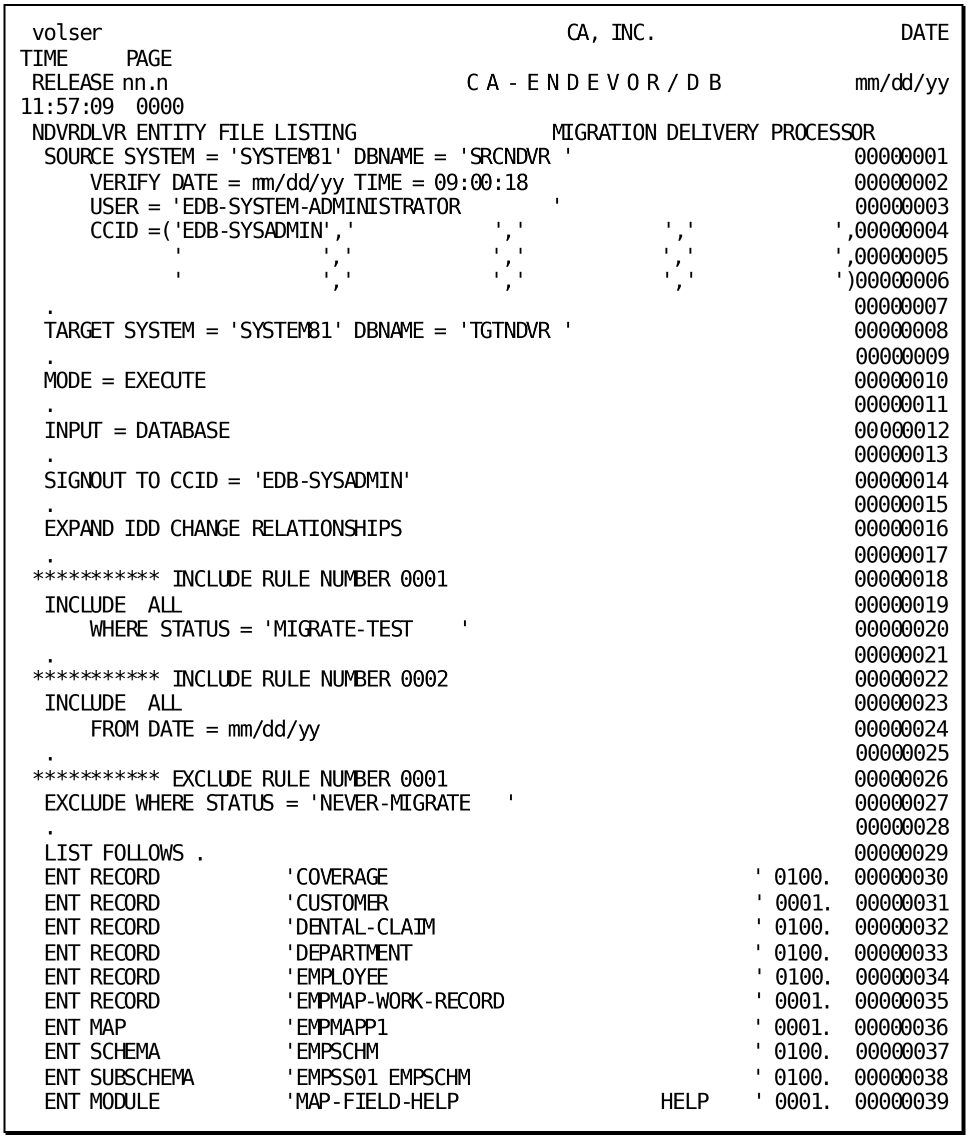
NDVRDLVR - Input Command Listing

The input command listing echoes the user-specified syntax in the NDVRIPT file.

```
 volser                                      CA, INC.                    DATE
TIME     PAGE
 RELEASE nn.n                        C A - E N D E V O R / D B          mm/dd/yy
11:57:08  0000
 NDVRDLVR INPUT COMMAND LISTING              MIGRATION DELIVERY PROCESSOR
    SIGNON DBNAME SRCNDVR
           USER EDB-SYSTEM-ADMINISTRATOR
           CCID EDB-SYSADMIN.
    IDMS USER DBADMIN PASSWORD ????????.
    SET SOURCE IDMSDDDL RECORD OPTIONS
        WITH ALL WITHOUT ATTRIBUTES HISTORY.
    SET TARGET IDMSDDDL SESSION OPTIONS DELETE IS ON.
    EXPORT SOURCE FORM.
```

NDVRDLVR - Entity File Listing

The Entity File Listing contains a display of the NDVRENI file as it was seen by NDVRDLVR. This is an informational report included for reference.



```
 volser                                       CA, INC.                     DATE
TIME     PAGE
 RELEASE nn.n                         C A - E N D E V O R / D B        mm/dd/yy
11:57:09  0000
 NDVRDLVR ENTITY FILE LISTING                MIGRATION DELIVERY PROCESSOR
  SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                       00000001
      VERIFY DATE = mm/dd/yy TIME = 09:00:18                           00000002
      USER = 'EDB-SYSTEM-ADMINISTRATOR       '                         00000003
      CCID =('EDB-SYSADMIN','           ','            ','           ',00000004
             '            ','           ','            ','           ',00000005
             '            ','           ','            ','           ')00000006
  .                                                                    00000007
  TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                       00000008
  .                                                                    00000009
  MODE = EXECUTE                                                       00000010
  .                                                                    00000011
  INPUT = DATABASE                                                     00000012
  .                                                                    00000013
  SIGNOUT TO CCID = 'EDB-SYSADMIN'                                     00000014
  .                                                                    00000015
  EXPAND IDD CHANGE RELATIONSHIPS                                      00000016
  .                                                                    00000017
 *********** INCLUDE RULE NUMBER 0001                                  00000018
  INCLUDE  ALL                                                         00000019
      WHERE STATUS = 'MIGRATE-TEST    '                                00000020
  .                                                                    00000021
 *********** INCLUDE RULE NUMBER 0002                                  00000022
  INCLUDE  ALL                                                         00000023
      FROM DATE = mm/dd/yy                                             00000024
  .                                                                    00000025
 *********** EXCLUDE RULE NUMBER 0001                                  00000026
  EXCLUDE WHERE STATUS = 'NEVER-MIGRATE  '                             00000027
  .                                                                    00000028
  LIST FOLLOWS .                                                       00000029
  ENT RECORD          'COVERAGE                               ' 0100.  00000030
  ENT RECORD          'CUSTOMER                               ' 0001.  00000031
  ENT RECORD          'DENTAL-CLAIM                           ' 0100.  00000032
  ENT RECORD          'DEPARTMENT                             ' 0100.  00000033
  ENT RECORD          'EMPLOYEE                               ' 0100.  00000034
  ENT RECORD          'EMPMAP-WORK-RECORD                     ' 0001.  00000035
  ENT MAP             'EMPMAPP1                               ' 0001.  00000036
  ENT SCHEMA          'EMPSCHM                                ' 0100.  00000037
  ENT SUBSCHEMA       'EMPSS01 EMPSCHM                        ' 0100.  00000038
  ENT MODULE          'MAP-FIELD-HELP                 HELP    ' 0001.  00000039
```

NDVRDLVR - Processing Summary

The Processing Summary is composed of two sections:

- A phase-level return code summary showing the return codes that resulted from the execution of each of the required compilers. The phases of execution are as follows:
  - Phase 1 – IDMSDDDL
  - Phase 2 – IDMSCHEM
  - Phase 3 – IDMSUBSC
  - Phase 4 – RHDCMPUT
  - Phase 5 - IDMSDDDL (LOAD MODULES ONLY)

    In the example below, phase 5 was not required and was omitted from execution.
- An End-of-Job statistics summary showing the number and types of output records produced to each file.

```
 volser                                        CA, INC.                    DATE
TIME     PAGE
 RELEASE nn.n                          C A - E N D E V O R / D B         mm/dd/yy
11:57:19  0000
 NDVRDLVR PROCESSING SUMMARY                   MIGRATION DELIVERY PROCESSOR
 NDVRDLVR: I001 DELIVERY PROCESSING PHASE 1 DONE - IDMSDDDL RETURN CODE ... 0000
 NDVRDLVR: I002 DELIVERY PROCESSING PHASE 2 DONE - IDMSCHEM RETURN CODE ... 0000
 NDVRDLVR: I003 DELIVERY PROCESSING PHASE 3 DONE - IDMSUBSC RETURN CODE ... 0000
 NDVRDLVR: I004 DELIVERY PROCESSING PHASE 4 DONE - RHDCMPUT RETURN CODE     0000
 NDVRDLVR: I009 MIGRATION DELIVERY ENTITY TOTALS
                                      INPUT       IDD                     TOTAL
               ENTITY TYPE           NDVRENI     EXPAND                  DELIVER
               LOAD MODULE                 5          0                        0
               MAP                         3          3                        3
               MODULE                      1          1                        1
               PROGRAM                     1          1                        1
               RECORD                     14         14                       14
               SCHEMA                      2          2                        2
               SUBSCHEMA                   2          2                        2
               INVALID                     0

               ____________          _______    _______                  _______
               TOTAL                      28         23                       23
 NDVRDLVR: I010 MIGRATION DELIVERY FILE TOTALS
               NDVRAGEN APPLICATION ADD COMMANDS (ADSOBTAT) ...........        0
               NDVRDGEN APPLICATION GENERATE COMMANDS (ADSOBCOM) ......        0
               NDVRDUPD IDD ENTITY COMMANDS (IDMSDDDL) ................       16
               NDVRDLOD IDD LOAD MODULE COMMANDS (IDMSDDDL) ...........        0
               NDVRCDEL SCHEMA DELETE COMMANDS (IDMSCHEM) .............        2
               NDVRCUPD SCHEMA ADD COMMANDS (IDMSCHEM) ................        2
               NDVRUDEL SUBSCHEMA DELETE COMMANDS (IDMSUBSC) ..........        2
               NDVRUUPD SUBSCHEMA ADD COMMANDS (IDMSUBSC) .............        2
               NDVRMDEL MAP DELETE COMMANDS (RHDCMAP1) ................        3
               NDVRMUPD MAP ADD COMMANDS (RHDCMAP1) ...................        3
               NDVRMGEN MAP GENERATE COMMANDS (RHDCMPUT) ..............        3
               NDVRDVAR DCMT VARY PROGRAM COMMANDS ....................        5
```

NDVRBOOK in Migration Mode

After NDVRDLVR has been run and all entities have been punched from the Source Dictionary, NDVRBOOK will be used to migrate the entities into the Target Dictionary. When this type of processing is being performed, NDVRBOOK is being executed in migration mode and must be run under Batch/CV.

When running DDDL compilers or other utilities that invoke compilers to perform the migration on the target system, NDVRBOOK is run in a special migrate mode.

Note: In order to run NDVRBOOK in Migration Mode, the user must be associated with a Security Class with MIGRATE=Y and DE-CCID (Derived CCID) = N. Derived CCID processing is not valid for migration processing.

When running in migrate mode, NDVRBOOK will read the NDVRENI file for control information before invoking the necessary compiler or utility to be executed. The SOURCE SYSTEM/DICTIONARY and VERIFY DATE/TIME will be extracted from the NDVRENI file and passed to the Change Monitor.

When processing the NDVRENI file for a migration at the target system, NDVRBOOK updates each entity record in the target CCDB applicable to the compiler named in the *PROGRAM IS program-name* statement with the migration-id. If the *VERIFY ALL* clause is specified on the *OPTION IS MIGRATE* statement, each entity record in the target CCDB is updated with the migration-id regardless of the compiler named in the *PROGRAM IS program-id* statement. NDVRBOOK performs the migration-id updated for the first applicable entity on the NDVRENI file last and checks for this entity's being updated with the migration ID first, ensuring that duplicate and incomplete updates are avoided.

When the compilers ADD or MODIFY any entity while under migrate mode, a special Change Log Entry will be produced which contains an action code of V (Migrate-in), the SOURCE SYSTEM/DICTIONARY, and the VERIFY DATE/TIME extracted from the NDVRENI file. This record serves as an audit trail or "footprint" to register the entity's source origin and selection time, as well as the time it was received. CLEs are created when the Change Monitor detects an update by the executing compiler or migrator. When an update is performed by an executing compiler in migrator mode, the Change Monitor compares the migration-id for the entity in the CCDB (which had been previously updated by NDVRBOOK) with the migration-id for this session. If they are equal, a **V** type CLE is created. If they are not equal, no CLE is created. Migrate-in CLEs can be reported on in summary fashion by NDVRPT17, the TARGET MIGRATION REPORT (See Chapter 12 of the *CA Endevor/DB for CA IDMS User Guide*).

The Migrate-in CLEs created by the Change Monitor running in migrate mode are an essential part of the Correlation and Verification integrity checking process. They also provide an essential audit trail that assists in the resolution of production problems.

NDVRBOOK Command Syntax

To run any compiler or utility in migrate mode, specify the following syntax in NDVRIPT:

```
►►──── SIGnon ─┬──────────────────────────────────────┬──────────────────►
               ├─ DBNAme ───┬──── is dictname ─────────┘
               └─ DICtName ─┘

►─┬────────────────────────┬─┬────────────────────────────┬──────────────►
  └─ USEr name is user-id ─┘ └─ PASsword is password ─────┘

►─────┬──────────────────────────────────────────────┬─── . ─────────────►◄
      └─ CCId name is ─┬────────── ccid ────────────┤
                       │      ┌──── , ───┐          │
                       └─ ( ──▼── ccid ──┴── ) ─────┘


►►──────┬──────────────────────────────────────┬─────────────────────────►◄
        └─ PROgram name is program-name ── . ──┘


►►──────┬─────────────────────────────────────────────────────┬──────────►◄
        └─ OPTion is MIGrate ──┬──────────────────┬──── . ─────┘
                               └── VERify all ────┘
```

SIGNON

The SIGNON command identifies the user responsible for the migration and optional password and CCID list. If no CCID list is specified, the default CCIDs for the user are assigned from the CCDB.

Note: The user must be authorized for MIGRATE=Y in the Security Class for this utility to operate.

PROGRAM

The PROGRAM command provides the name of the program or compiler name to execute.

OPTION

The OPTION command instructs the Change Monitor to go into migration mode. All ADD and MODIFY actions made by the program executed in this step will create a CLE with action code = V, as well as descriptive information from the control file such as the SOURCE SYSTEM/DICTIONARY and the SOURCE DATE/TIME.

When MIGRATE is specified, an NDVRENI file, generally created by NDVRDSEL, must be included in the JCL.

VERIFY ALL

When processing the NDVRENI file, this option instructs NDVRBOOK to update each entity record in the target CCDB that corresponds to an ENT entity in the Entity List File with the migration ID, regardless of the compiler named in the *PROGRAM IS program-name* statement. If omitted (default), only those entity records in the target CCDB applicable to the compiler named in the *PROGRAM IS program-name* statement will be updated with the migration-id.

NDVRBOOK Outputs

When running under NDVRBOOK with OPTION=MIGRATE, the NDVRLST file will consist of three parts:

- The input syntax from the NDVRIPT file.
- The control commands extracted from NDVRENI used to create the Migrate-in CLEs.
- The entity statements from the NDVRENI file. You will only see this third portion for the first step executed for any given migration.

```
 volser                                CA, INC.                             DATE
TIME     PAGE
 RELEASE nn.n                    C A - E N D E V O R / D B              mm/dd/yy
06:18:19  00002
 NDVRBOOK                                BATCH MIGRATION SUPPORT
  SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                        00000001
      VERIFY DATE = mm/dd/yy TIME = 09:00:18                            00000002
      USER = 'EDB-SYSTEM-ADMINISTRATOR        '                         00000003
      CCID =('EDB-SYSADMIN','            ','            ','           ',00000004
             '            ','            ','            ','           ',00000005
             '            ','            ','            ','           ')00000006
  .                                                                     00000007
  TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                        00000008
  .                                                                     00000009
  MODE = EXECUTE                                                        00000010
  .                                                                     00000011
  INPUT = DATABASE                                                      00000012
  .                                                                     00000013
  SIGNOUT TO CCID = 'EDB-SYSADMIN'                                      00000014
  .                                                                     00000015
  EXPAND IDD CHANGE RELATIONSHIPS                                       00000016
  .                                                                     00000017
 *********** INCLUDE RULE NUMBER 0001                                   00000018
  INCLUDE  ALL                                                          00000019
      WHERE STATUS = 'MIGRATE-TEST    '                                 00000020
  .                                                                     00000021
 *********** INCLUDE RULE NUMBER 0002                                   00000022
  INCLUDE  ALL                                                          00000023
      FROM DATE = mm/dd/yy                                              00000024
  .                                                                     00000025
 *********** EXCLUDE RULE NUMBER 0001                                   00000026
  EXCLUDE WHERE STATUS = 'NEVER-MIGRATE   '                             00000027
  .                                                                     00000028
  LIST FOLLOWS .                                                        00000029
  ENT RECORD          'COVERAGE                                ' 0100.  00000030
  ENT RECORD          'EMPLOYEE                                ' 0100.  00000031
  ENT RECORD          'EMPMAP-WORK-RECORD                      ' 0001.  00000032
  ENT MAP             'EMPMAPP1                                ' 0001.  00000033
  ENT SCHEMA          'EMPSCHM                                 ' 0100.  00000034
  ENT SUBSCHEMA       'EMPSS01 EMPSCHM                         ' 0100.  00000035
  ENT MODULE          'MAP-FIELD-HELP                 HELP     ' 0001.  00000036
  ENT ELEMENT         'SELECTION-DATE                          ' 0100.  00000037
  ENT ELEMENT         'SELECTION-YEAR                          ' 0100.  00000038
  ENT ELEMENT         'SELECTION-MONTH                         ' 0100.  00000039
  ENT ELEMENT         'SELECTION-DAY                           ' 0100.  00000040
```

Importing Entities Exported by NDVRDLVR

When importing entities extracted by NDVRDLVR, examine the NDVRDLVR PROCESSING SUMMARY report (NDVRLST), Migration Delivery File Totals to determine which of the following files should be processed. If the Migration Delivery File Total for a file (i.e., NDVRMDEL) is 0, then the corresponding NDVRBOOK job should not be executed. CA IDMS compilers must be executed in the order listed for those files whose Migration Delivery File Total is not 0. All CA IDMS compilers should be run through NDVRBOOK, except as noted below.

Important! Failure to do so will result in unpredictable results.

Order of Compiler Execution

Compiler	Input File Taken From NDVRDLVR
RHDCMAP1	NDVRMDEL - Delete Maps
IDMSUBSC	NDVRUDEL - Delete Subschemas
IDMSCHEM	NDVRCDEL - Delete Schemas
IDMSDDDL	NDVRDUPD - Add Entities_
IDMSCHEM	NDVRCUPD - Add Schemas
IDMSUBSC	NDVRUUPD - Add Subschemas
RHDCMAP1	NDVRMUPD - Add Maps
RHDCMPUT	NDVRMGEN - Generate Maps
IDMSDDDL	NDVRDLOD - Add Load Modules_
ADSOBCOM	NDVRDGEN - Generate Dialogs
ADSOBTAT	NDVRAGEN - Update Application Table_
UCF Batch Simulator	NDVRDVAR - DCMT Vary commands to activate the new load modules. This step is optional. Restarting the CV also causes the new load modules to be invoked. The UCF batch simulator is custom-generated at each installation according to Computer Associates installation instructions. It is not necessary to run this step under NDVRBOOK since no dictionary updating will take place._

Note: Run only the steps marked with **+** if EXPORT EXECUTABLE FORM was specified in NDVRDLVR. Run all steps if EXPORT SOURCE FORM was specified.

NDVRBOOK Migration JCL (Source)

The following sample step illustrates the use of NDVRBOOK to create Migrate-in CLEs for source entities migrated out with CA Endevor/DB (MIGRATE SOURCE FORM to NDVRDLVR). It is contained in member SAMPMIGS on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//*********************************************************************
//*
//*  JOB:      SAMPMIGS
//*
//*  PURPOSE:  MIGRATE-IMPORT JOB FOR SOURCE-FORM STYLE MIGRATION.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  MAP1MDEL  DELETES MAPS TO BE MIGRATED. (ALLOWS DDDL CHANGES)
//*
//*  UBSCUDEL  DELETES SUBSCHEMAS TO BE MIGRATED.
//*
//*  CHEMCDEL  DELETES SCHEMAS TO BE MIGRATED.
//*
//*  DDDLDUPD  DELETE/ADD/MOD/REPLACE IDMSDDDL ENTITIES MIGRATING.
//*
//*  CHEMCUPD  ADDS SCHEMAS TO BE MIGRATED.
//*
//*  UBSCUUPD  ADDS SUBSCHEMAS TO BE MIGRATED.
//*
//*  MAP1MUPD  ADDS MAPS TO BE MIGRATED.
//*
//*  MPUTMGEN  GENERATES MAPS TO BE MIGRATED.
//*
//*  DDDLDLOD  UPDATES LOAD MODULES TO BE MIGRATED.
//*
//*  BGENDGEN  GENERATES ADSO DIALOGS TO BE MIGRATED.
//*
//*  BTATAGEN  RUNS ADSOBTAT TO UPDATE THE ADS/A APPLICATION TABLE.
//*
//*  UCFDCMT   (OPTIONAL) USES 'UCFBATCH' TO DRIVE DCMT TO VARY
//*            LOAD MODULES / MAPS TO NEW COPY.
//*            NOTE: YOU MUST GENERATE 'UCFBATCH' MODULE AND SET ITS
//*                  PROGRAM NAME HERE AS GENERATED IN YOUR SHOP.
//*
//*********************************************************************
//*
//MAP1MDEL EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsmdel
//NDVRLST  DD SYSOUT=*
```

```
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
     DICTNAME userdict.
PROGRAM = RHDCMAP1.
OPTION = MIGRATE.
/*
//*
//UBSCUDEL EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsudel
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
PROGRAM = IDMSUBSC.
OPTION = MIGRATE.
/*
//*
//CHEMCDEL EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dscdel
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
```

```
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
           DICTNAME userdict.
PROGRAM = IDMSCHEM.
OPTION = MIGRATE.
/*
//*
//DDDLDUPD EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsdupd
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
PROGRAM = IDMSDDDL.
OPTION = MIGRATE.
/*
//*
//CHEMCUPD EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dscupd
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
```

```
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
PROGRAM = IDMSCHEM.
OPTION = MIGRATE.
/*
//*
//UBSCUUPD EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsuupd
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
           DICTNAME userdict.
PROGRAM = IDMSUBSC.
OPTION = MIGRATE.
/*
//*
//MAP1MUPD EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdsel.dsmupd
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
           DICTNAME userdict.
PROGRAM = RHDCMAP1.
OPTION = MIGRATE.
```

```
/*
//*
//MPUTMGEN EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsmgen
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
PROGRAM = RHDCMPUT.
OPTION = MIGRATE.
/*
//*
//DDDLDLOD EXEC PGM=NDVRBOOK,REGION=2048K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsdlod
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
PROGRAM = IDMSDDDL.
OPTION = MIGRATE.
/*
//*
//BGENDGEN EXEC PGM=NDVRBOOK,REGION=900K
//CDMSLIB  DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//         DD DISP=SHR,DSN=ca.caiclid
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsdgen
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSPCH   DD DUMMY
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
           DICTNAME userdict.
  PROGRAM = ADSOBCOM.
  OPTION = MIGRATE .
/*
//*
//BTATAGEN EXEC PGM=NDVRBOOK,REGION=500K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsagen
//SYSLST   DD SYSOUT=*
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
  PROGRAM = ADSOBTAT.
  OPTION = MIGRATE .
/*
//*
//* 'UCFBATCH' MAY NOT BE THE PROGRAM-ID GENERATED IN YOUR SHOP.
//* STEP IS OPTIONAL
//*
//UCFDCMT  EXEC PGM=UCFBATCH,REGION=500K
```

```
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsdvar
//SYSLST   DD SYSOUT=*
//SYSPCH   DD DUMMY
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
```

NDVRBOOK Migration JCL (Executable)

The following sample job illustrates the use of NDVRBOOK to create Migrate-in CLEs for executable entities migrated out with CA Endevor/DB (MIGRATE EXECUTABLE FORM to NDVRDLVR). It is contained in member SAMPMIGE on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//*********************************************************************
//*
//*  JOB:      SAMPMIGE
//*
//*  PURPOSE:  MIGRATE-IMPORT JOB FOR EXECUTABLE-ONLY STYLE MIGRATION.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  DDDLDLOD  IMPORTS LOAD MODULES FROM DELIVERY OUTPUT FILE
//*
//*  BTATAGEN  RUNS ADSOBTAT TO UPDATE THE ADS/A APPLICATION TABLE.
//*
//*  UCFDCMT   (OPTIONAL) USES 'UCFBATCH' TO DRIVE DCMT TO VARY
//*            LOAD MODULES / MAPS TO NEW COPY.
//*            NOTE: YOU MUST GENERATE 'UCFBATCH' MODULE AND SET ITS
//*                  PROGRAM NAME HERE AS GENERATED IN YOUR SHOP.
//*
//*********************************************************************
//*
//DDDLDLOD EXEC PGM=NDVRBOOK,REGION=1000K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSPCH   DD DUMMY
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
  PROGRAM = IDMSDDDL.
  OPTION = MIGRATE .
/*
//SYSIPT    DD DSN=user.ndvrdlvr.dsdlod,DISP=SHR
//*
//BTATAGEN EXEC PGM=NDVRBOOK,REGION=1000K
```

```
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdsel.dseno
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsagen
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSPCH   DD DUMMY
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
  PROGRAM = ADSOBTAT.
  OPTION = MIGRATE .
/*
//*
//* 'UCFBATCH' MAY NOT BE THE PROGRAM-ID GENERATED IN YOUR SHOP.
//* STEP IS OPTIONAL
//*
//UCFDCMT  EXEC PGM=UCFBATCH,REGION=500K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//SYSIPT   DD DISP=SHR,DSN=user.ndvrdlvr.dsdvar
//SYSLST   DD SYSOUT=*
//SYSPCH   DD DUMMY
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
```

NDVRBOOK Generic Migration JCL (any program)

The following sample JCL illustrates the use of NDVRBOOK to create Migrate-in CLEs for any program executing on the target system. If you are using another vendor's migrator, simply run the import step with the program name of the migrate in utility in the PROGRAM statement. Remember to include any DD statements required by the migration utility statement in this step as well:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//**********************************************************************
//*
//*  JOB:      SAMPBOOK
//*
//*  PURPOSE:  RUN ANY CA COMPILER WITH CA-ENDEVOR/DB USER/CCID SIGNON.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  BOOKDDDL  RUNS IDMSDDDL UNDER CA-ENDEVOR/DB BOOK-END.
//*            (CHANGE PROGRAM SENTENCE TO RUN OTHER COMPILERS)
//*
//**********************************************************************
//*
//BOOKDDDL EXEC PGM=NDVRBOOK,REGION=1300K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSLST   DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSPCH   DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
   PROGRAM = IDMSDDDL.
/*
//SYSIPT   DD *
   SIGNON
     USER = idduserid PASSWORD = iddpswd
          DICTNAME userdict.
*+ PUT YOUR IDMSDDDL STATEMENTS HERE. +*
/*
```

NDVRDCF1 Target Confirmation

After a migration is executed under NDVRBOOK with OPTION=MIGRATE, Change Log Entries exist in the target CCDB that reflect the event. To create corresponding CLEs on the source system to reflect the fact that an entity was selected for migration and actually received on the target, a two-step procedure is invoked.

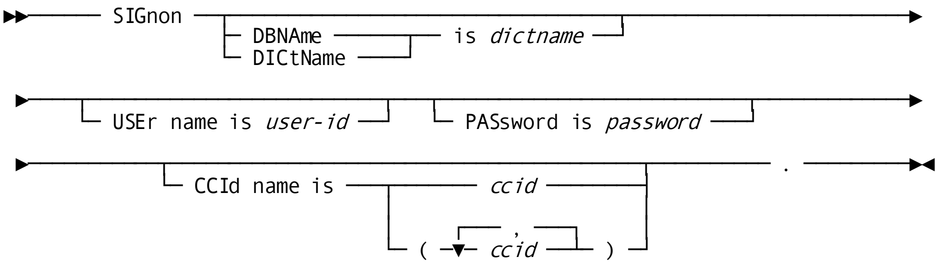
Step 1 is the execution of NDVRDCF1 on the target system to extract an entity list. To perform this task, the NDVRENI file created by NDVRDSEL and previously consumed by NDVRBOOK is again consumed by NDVRDCF1. This is done to obtain the necessary control information to identify the appropriate CLEs involved. It is accomplished on the basis of the SOURCE SYSTEM/DICTIONARY and VERIFY DATE/TIME.

During Step 2, a new file is created DDNAME NDVRENO) which contains a confirmation file to be sent to NDVRDCF2 on the source system. The confirmation file will contain the control information from the NDVRENI file and a generated CONFIRM statement (See format below). The CONFIRM statement identifies the actual target system. One ENT statement will exist in the confirmation file for each entity received with OPTION=MIGRATE. The ENT statement will contain the DATE and TIME the entity was received.

Each ENT statement produced by NDVRDCF1 will be consumed by NDVRDCF2 on the source system and used to create a Migrate-out CLE (action code = C) in the CCDB. Each Migrate-out CLE will contain the actual received DATE/TIME and the TARGET SYSTEM/DICTIONARY names in its description. The CLE will appear in the source CCDB as of the VERIFY DATE/TIME of the entity after it is processed by NDVRDCF.

NDVRDCF1 Command Syntax

NDVRDCF1 accepts the following syntax:



SIGNON

The SIGNON command identifies the user responsible for the migration and optional password and CCID list.

Note: If no CCID list is specified, the default CCIDs for the user are assigned from the CCDB. The user must be authorized for MIGRATE=Y in the Security Class for this utility to operate.

NDVRDCF1 Sample JCL

Use the following JCL to run NDVRDCF1. It is contained in member SAMPDCF1 on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*********************************************************************
//*
//*  JOB:      SAMPDCF1
//*
//*  PURPOSE:  POST-MIGRATION CONFIRMATION EXTRACT: RUN ON TARGET.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  CONFIRM1  EXTRACT LIST OF MIGRATED ENTITIES RECEIVED AT TARGET
//*            SYSTEM TO LOG BACK ON SENDING SYSTEM.
//*
//*********************************************************************
//CONFIRM1 EXEC PGM=NDVRDCF1,REGION=1000K
//SYSCTL   DD DSN=idms.sysctl,DISP=SHR
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRLST  DD SYSOUT=*
//NDVRDTL  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//NDVRENI  DD DSN=user.ndvrdsel.dseno,DISP=SHR
//*
//*  CONFIRM FILE TO PASS TO NDVRDCF2 ON THE SENDING SYSTEM:
//*
//NDVRENO  DD DSN=user.ndvrdcf1.dseno,DISP=(,CATLG,DELETE),
//       UNIT=disk,SPACE=(TRK,(15,5),RLSE),VOL=SER=volser,
//       DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//SYSUDUMP DD SYSOUT=*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
/*
```

NDVRDCF1 Outputs

NDVRDCF1 produces two reports:

- A control report (NDVRLST). This report echoes the user-specified syntax.
- A detail report (NDVRDTL). This report itemizes all statements placed in the NDVRENO file.

NDVRDCF1 Output File (ddname NDVRENO)

The output file from NDVRDCF1 is source syntax as shown below.

```
CONFIRM SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                         00000001
     DATE = mm/dd/yy TIME = 09:14:34                                    00000002
     USER = 'EDB-SYSTEM-ADMINISTRATOR        '                          00000003
     CCID =('EDB-SYSADMIN','            ','            ','            ',00000004
            '            ','            ','            ','            ',00000005
            '            ','            ','            ','            ')00000006
 .                                                                      00000007
 SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                         00000008
     VERIFY DATE = mm/dd/yy TIME = 09:00:18                             00000009
 .                                                                      00000010
 TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                         00000011
 .                                                                      00000012
 MODE = EXECUTE                                                         00000013
 .                                                                      00000014
 INPUT = DATABASE                                                       00000015
 .                                                                      00000016
 SIGNOUT TO CCID = 'EDB-SYSADMIN'                                       00000017
 .                                                                      00000018
*********** INCLUDE RULE NUMBER 0000                                    00000019
 INCLUDE  ALL                                                           00000020
     WHERE STATUS = 'MIGRATE-TEST    '                                  00000021
 .                                                                      00000022
*********** INCLUDE RULE NUMBER 0000                                    00000023
 INCLUDE  ALL                                                           00000024
     FROM DATE = mm/dd/yy                                               00000025
 .                                                                      00000026
*********** EXCLUDE RULE NUMBER 0001                                    00000027
 EXCLUDE WHERE STATUS = 'NEVER-MIGRATE   '                              00000028
 .                                                                      00000029
 EXPAND IDD CHANGE RELATIONSHIPS                                        00000030
 .                                                                      00000031
 LIST FOLLOWS .                                                         00000032
 ENT RECORD           'COVERAGE                                ' 0100   00000033
     MIGRATED TO 'TGTNDVR SYSTEM81'                                     00000034
     DATE mm/dd/yy TIME = 06:38:36 .                                    00000035
```

NDVRDCF1 Control Report (ddname NDVRLST)

The control report produced by NDVRDCF1 is comprised of three parts:

- An input command listing.
- An input entity header list.
- An End-of-Job statistics summary.

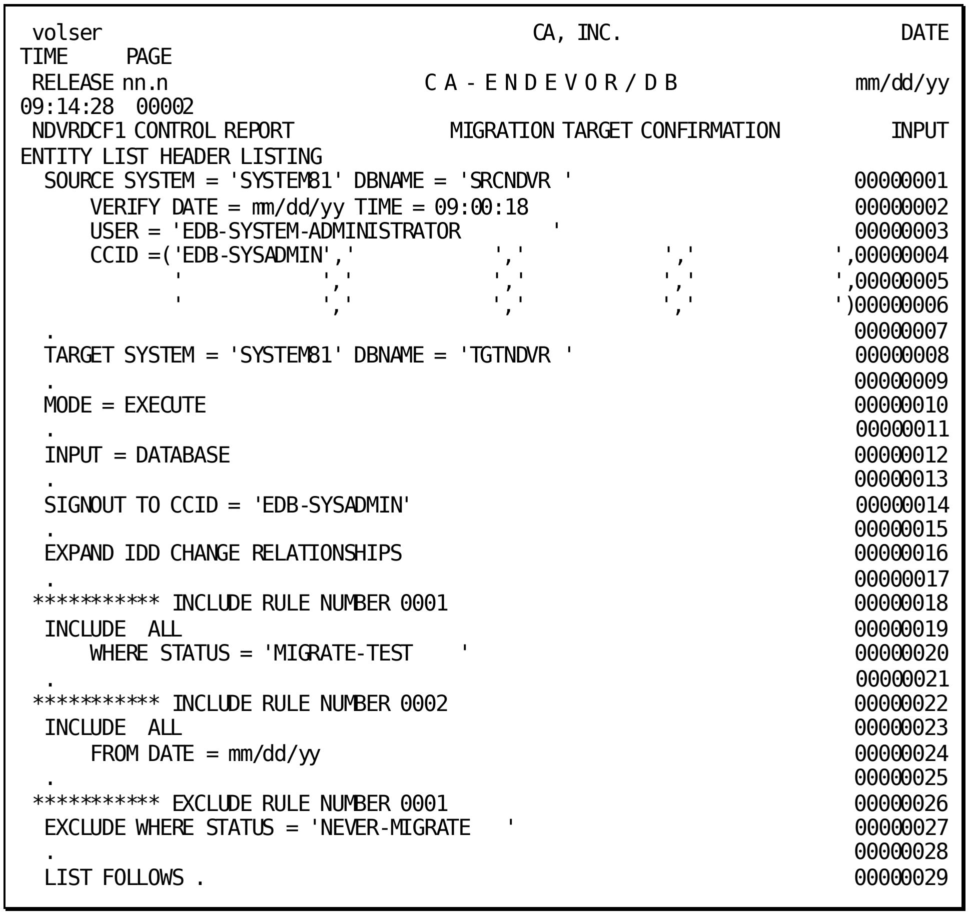
NDVRDCF1- Input Command Listing

The Input Command Listing echoes the user-supplied syntax. All required control information for the execution of the extract comes from the NDVRENI file. The SIGNON is the only command displayed.

```
 volser                                  CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                       C A - E N D E V O R / D B          mm/dd/yy
09:14:27  00001
 NDVRDCF1 CONTROL REPORT          MIGRATION TARGET CONFIRMATION          INPUT
COMMAND LISTING
    SIGNON DBNAME TGTNDVR
           USER EDB-SYSTEM-ADMINISTRATOR
           CCID EDB-SYSADMIN.
```

NDVRDCF1- Input Entity List Header Report

The Input Entity List Header Report displays the control information from the front of the NDVRENI file that was used to perform the extract. All Migrate-in CLEs containing the specified SOURCE SYSTEM, SOURCE DBNAME, and VERIFY DATE/TIME will be extracted into the confirmation file format described above. Since the control information reflects the NDVRDSEL run that last selected the entities, the appropriate data is extracted regardless of when the importation occurred. A unique date and time for importation will be placed on each record in the confirmation file.



```
 volser                                      CA, INC.                       DATE
TIME     PAGE
 RELEASE nn.n                      C A - E N D E V O R / D B              mm/dd/yy
09:14:28  00002
 NDVRDCF1 CONTROL REPORT              MIGRATION TARGET CONFIRMATION          INPUT
ENTITY LIST HEADER LISTING
   SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                         00000001
       VERIFY DATE = mm/dd/yy TIME = 09:00:18                             00000002
       USER = 'EDB-SYSTEM-ADMINISTRATOR        '                          00000003
       CCID =('EDB-SYSADMIN','           ','           ','           ',00000004
              '           ','           ','           ','           ',00000005
              '           ','           ','           ','           ')00000006
   .                                                                      00000007
   TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                         00000008
   .                                                                      00000009
   MODE = EXECUTE                                                         00000010
   .                                                                      00000011
   INPUT = DATABASE                                                       00000012
   .                                                                      00000013
   SIGNOUT TO CCID = 'EDB-SYSADMIN'                                       00000014
   .                                                                      00000015
   EXPAND IDD CHANGE RELATIONSHIPS                                        00000016
   .                                                                      00000017
  *********** INCLUDE RULE NUMBER 0001                                    00000018
   INCLUDE  ALL                                                           00000019
       WHERE STATUS = 'MIGRATE-TEST     '                                 00000020
   .                                                                      00000021
  *********** INCLUDE RULE NUMBER 0002                                    00000022
   INCLUDE  ALL                                                           00000023
       FROM DATE = mm/dd/yy                                               00000024
   .                                                                      00000025
  *********** EXCLUDE RULE NUMBER 0001                                    00000026
   EXCLUDE WHERE STATUS = 'NEVER-MIGRATE    '                             00000027
   .                                                                      00000028
   LIST FOLLOWS .                                                         00000029
```

NDVRDCF1- End-of-Job Statistics

The End-of-Job Statistics report summarizes the processing activity of NDVRDCF1. All entities in the CCDB are examined for CLEs relating to the migration.

```
 volser                                        CA, INC.                      DATE
TIME     PAGE
 RELEASE nn.n                          C A - E N D E V O R / D B            mm/dd/yy
09:14:35  00003
 NDVRDCF1 CONTROL REPORT                    MIGRATION TARGET CONFIRMATION
END-OF-JOB STATISTICS
 NDVRDCF1: I001 TARGET CONFIRMATION ENTITY TOTALS
                                                               CLE(S)   CONFIRM
                ENTITY TYPE                                    INSPECT  NDVRENO
                ELEMENT                                            386        0
                LOAD MODULE                                          4        2
                MAP                                                 10        2
                MODULE                                               1        1
                PROGRAM                                              1        1
                RECORD                                              26       13
                SCHEMA                                               2        1
                SUBSCHEMA                                            2        1
                OTHER                                                3        0
                ____________                                   _______  _______
                TOTAL                                              435       21
```

NDVRDCF1 Detail Report (ddname NDVRDTL)

The detail report produced by NDVRDCF1 itemizes confirmation sent to the NDVRENO file. Confirmation information is comprised of two parts. The first part represents the control information propagated from the NDVRENI file. The second part contains confirmation type ENT statements. These ENT statements produce DATEs and TIMEs that represent the time the run unit that updated the target dictionary actually began execution. This date and time will be placed in the descriptive portion of Migrate-out CLEs to be created when NDVRDCF2 (See below) reads the NDVRENO file on the source system.

NDVRDCF1- Output Confirmation File Report

Each entity successfully received by the target system is displayed in collating sequence by name. After the NDVRENI file is reused by the next migration (and the control information is overlaid in the NDVRENI file), an entity list report on any migration can be obtained through the Target Migration Summary (See *CA Endevor/DB for CA IDMS User Guide*).

```
 volser                                        CA, INC.                           DATE
TIME     PAGE
 RELEASE nn.n                          C A - E N D E V O R / D B                  mm/dd/yy
09:14:34  00001
 NDVRDCF1 DETAIL REPORT              MIGRATION TARGET CONFIRMATION                OUTPUT
CONFIRMATION FILE
 CONFIRM SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                                 00000001
      DATE = mm/dd/yy TIME = 09:14:34                                            00000002
      USER = 'EDB-SYSTEM-ADMINISTRATOR        '                                  00000003
      CCID =('EDB-SYSADMIN','              ','              ','              ',00000004
             '            ','              ','              ','              ',00000005
             '            ','              ','              ','              ')00000006
  .                                                                              00000007
  SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                                 00000008
      VERIFY DATE = mm/dd/yy TIME = 09:00:18                                     00000009
  .                                                                              00000010
  TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                                 00000011
  .                                                                              00000012
  MODE = EXECUTE                                                                 00000013
  .                                                                              00000014
  INPUT = DATABASE                                                               00000015
  .                                                                              00000016
  SIGNOUT TO CCID = 'EDB-SYSADMIN'                                               00000017
  .                                                                              00000018
 *********** INCLUDE RULE NUMBER 0000                                            00000019
  INCLUDE  ALL                                                                   00000020
      WHERE STATUS = 'MIGRATE-TEST     '                                         00000021
  .                                                                              00000022
 *********** INCLUDE RULE NUMBER 0000                                            00000023
  INCLUDE  ALL                                                                   00000024
      FROM DATE = mm/dd/yy                                                       00000025
  .                                                                              00000026
 *********** EXCLUDE RULE NUMBER 0001                                            00000027
  EXCLUDE WHERE STATUS = 'NEVER-MIGRATE    '                                     00000028
  .                                                                              00000029
  EXPAND IDD CHANGE RELATIONSHIPS                                                00000030
  .                                                                              00000031
  LIST FOLLOWS .                                                                 00000032
  ENT RECORD          'COVERAGE                                  ' 0100         00000033
      MIGRATED TO 'TGTNDVR SYSTEM81'                                             00000034
      DATE mm/dd/yy TIME = 06:38:36 .                                            00000035
```

NDVRDCF2 Source Confirmation

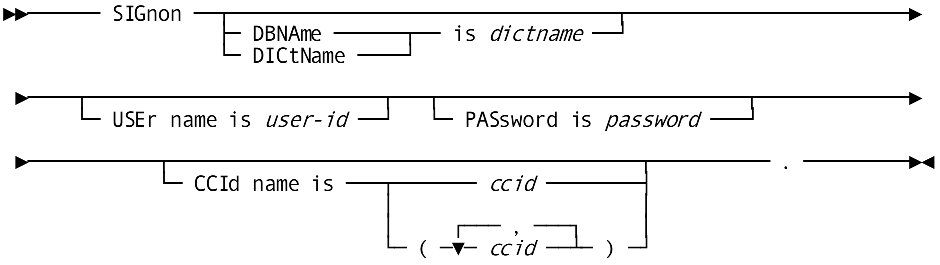
NDVRDCF2 processes the output file created by NDVRDCF1 as ddname NDVRENI to create Migrate-out (action code = C) CLEs on the source system. These CLEs serve as an essential audit trail to the target destination of entities. Any entity that has not been modified since it was last migrated from the source to the target will not be selected for subsequent migration to that target system by NDVRDSEL. Similarly, the NDVRDSEL will only examine CLEs up to the last Migrate-out CLE for the target system for integrity warnings.

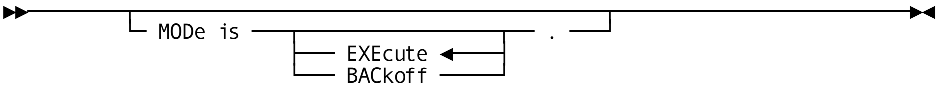
Another function of NDVRDCF2 is to signin all entities signed out when NDVRDSEL originally ran. This will be done if the SIGNOUT TO command appears in the control information contained in NDVRENI.

Optionally, NDVRDCF2 can be used to backout previously created Migrate-out CLEs in the event that a migration is backed-off of the target system permanently. In this case, the appropriate CLEs are deleted. Backoff is accomplished by reading in the same NDVRENI file that was originally used to create the CLEs.

NDVRDCF2 Command Syntax

NDVRDCF2 accepts the following syntax:





SIGNON

The SIGNON command identifies the user responsible for the migration and optional password and CCID list. If no CCID list is specified, the default CCIDs for the user are assigned from the CCDB.

Note: For this utility to operate, the user must be authorized for MIGRATE=Y in the Security Class.

MODE

The MODE command instructs NDVRDCF2 to create or delete CLEs. In either case, the confirmation file produced by NDVRDCF1 must be supplied as ddname NDVRENI. MODE=BACKOFF must be coded to delete CLEs created by a prior MODE=EXECUTE.

Note: For this utility to operate, the user must be authorized for MIGRATE=Y in the Security Class.

NDVRDCF2 Sample JCL

Use the following JCL to run NDVRDCF2. It is contained in member SAMPDCF2 on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//*********************************************************************
//*
//*  JOB:      SAMPDCF2
//*
//*  PURPOSE:  MARK ENTITIES ON SENDING SYSTEM 'CONFIRMED' AS MIGRATED
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  CONFIRM2  UPDATE ENTITIES LISTED ON FILE FROM NDVRDCF1.
//*
//*********************************************************************
//*
//CONFIRM2 EXEC PGM=NDVRDCF2,REGION=800K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//NDVRENI  DD DISP=SHR,DSN=user.ndvrdcf1.dseno
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
   MODE = EXECUTE.
/*
```

NDVRDCF2 Outputs

NDVRDCF2 produces one control report (NDVRLST). The control report is composed of two parts as follows:

- An input command listing.
- An entity file listing.

The report formats are explained below in detail.

NDVRDCF2 - Input Command Listing

The Input Command Listing displays the input syntax supplied in the NDVRIPT file.

```
 volser                                   CA, INC.                    DATE
TIME     PAGE
 RELEASE nn.n                        C A - E N D E V O R / D B            mm/dd/yy
11:42:58  00001
 NDVRDCF2                       MIGRATION SOURCE CONFIRMATION              INPUT
COMMAND LISTING
    SIGNON DBNAME SRCNDVR
           USER EDB-SYSTEM-ADMINISTRATOR
           CCID EDB-SYSADMIN.
    MODE EXECUTE.
```

NDVRDCF2- Entity File Listing

The Entity File Listing displays the NDVRENI file that was processed by NDVRDCF2. All Migrate-out CLEs created on the source system will be inserted into the Change Log as of the date of selection by NDVRDSEL. This accurately reflects the time the entity was selected for migration. The descriptive portion of the Migrate-out CLEs created will contain the target system identifier and the date and time it was received at the target.

At this point in time, a permanent and complete audit trail exists on both the target and source systems. The descriptive portions of each system's CLEs point to each other.

```
 volser                                         CA, INC.                             DATE
TIME     PAGE
 RELEASE nn.n                          C A - E N D E V O R / D B                 mm/dd/yy
11:43:03  00002
 NDVRDCF2                      MIGRATION SOURCE CONFIRMATION                       ENTITY
FILE LISTING
 CONFIRM SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                                 00000001
      DATE = mm/dd/yy TIME = 10:27:25                                            00000002
      USER = 'EDB-SYSTEM-ADMINISTRATOR          '                                00000003
      CCID =('EDB-SYSADMIN','             ','              ','            ',00000004
               '            ','             ','              ','            ',00000005
               '            ','             ','              ','            ')00000006
  .                                                                              00000007
  SOURCE SYSTEM = 'SYSTEM81' DBNAME = 'SRCNDVR '                                 00000008
      VERIFY DATE = mm/dd/yy TIME = 09:00:18                                     00000009
  .                                                                              00000010
  TARGET SYSTEM = 'SYSTEM81' DBNAME = 'TGTNDVR '                                 00000011
  .                                                                              00000012
  MODE = EXECUTE                                                                 00000013
  .                                                                              00000014
  INPUT = DATABASE                                                               00000015
  .                                                                              00000016
  SIGNOUT TO CCID = 'EDB-SYSADMIN'                                               00000017
  .                                                                              00000018
 *********** INCLUDE RULE NUMBER 0000                                            00000019
  INCLUDE  ALL                                                                   00000020
      WHERE STATUS = 'MIGRATE-TEST    '                                          00000021
  .                                                                              00000022
 *********** INCLUDE RULE NUMBER 0000                                            00000023
  INCLUDE  ALL                                                                   00000024
      FROM DATE = mm/dd/yy                                                       00000025
  .                                                                              00000026
 *********** EXCLUDE RULE NUMBER 0001                                            00000027
  EXCLUDE WHERE STATUS = 'NEVER-MIGRATE    '                                     00000028
  .                                                                              00000029
  EXPAND IDD CHANGE RELATIONSHIPS                                                00000030
  .                                                                              00000031
  LIST FOLLOWS .                                                                 00000032
  ENT RECORD           'COVERAGE                                ' 0100   00000033
      MIGRATED TO 'TGTNDVR SYSTEM81'                                             00000034
      DATE mm/dd/yy TIME = 06:38:36 .                                            00000035
```

NDVRDCF2- End-of-Job Statistics

The End-of-Job Statistics report summarizes the processing activity of NDVRDCF2.

```
 volser                                           CA, INC.                DATE
TIME     PAGE
 RELEASE nn.n                             C A - E N D E V O R / D B       mm/dd/yy
11:43:19  00004
 NDVRDCF2                                         MIGRATION SOURCE CONFIRMATION
END-OF-JOB STATISTICS
 NDVRDCF2: I001 SOURCE CONFIRMATION ENTITY TOTALS
                                                 CONFIRM     CONFIRM     CONFIRM
                ENTITY TYPE                      NDVRENI     SIGNIN      CHG LOG
                LOAD MODULE                            2           4           2
                MAP                                    2           2           2
                MODULE                                 1           1           1
                PROGRAM                                1           1           1
                RECORD                                13          13          13
                SCHEMA                                 1           1           1
                SUBSCHEMA                              1           1           1
                ___________                      _______     _______     _______
                TOTAL                                 21          23          21
```

Chapter 10: The Source Code Comparator

This section contains the following topics:

Overview (see page 204)
Running the Comparator in Stand-alone Mode (see page 205)
Running the Comparator in Migration Mode (see page 221)
NDVRDCMP Command Syntax (see page 221)
NDVRDCMP Inputs (see page 227)
NDVRDCMP Outputs (see page 228)

Overview

CA Endevor/DB's Source Code Comparator is designed to identify changes to individual lines of code modified between one version of a system and another. Typically, the Comparator is employed as a troubleshooting aid, or as a means of identifying the changes that an installation has made to tailor a vendor-supplied application system. It is an invaluable tool when applying maintenance releases of vendor software or when combining parallel development versions. In these cases, the Promotion Support Facilities, in conjunction with the CCDB Change Log, identify and extract the affected entities, while the Comparator identifies the exact areas within those entities that have changed.

The Source Code Comparator can be executed in one of two modes:

- Stand-alone mode

  Any two sequential files with a record length of between 4 and 256 bytes (fixed or variable) can be compared with the stand-alone CA Endevor/DB utility NDVRCOMP.

- Migration mode

  In migration mode, the standard output files from a NDVRDLVR run (See Chapter 8) is compared with the target dictionary. The CA Endevor/DB utility program NDVRDCMP:

  - Automatically parses the input files and identifies the entities contained therein;
  - Dynamically invokes IDD to extract the corresponding entities from the target dictionary;
  - Internally invokes the source statement comparator for each entity;
  - Index and summarize the results by entity name and type in a control report.

Facilities also exist to limit the compare to entities of specific types in a single execution. For example, only ELEMENTs and RECORDs might be singled out for comparison even though the input files contain entities of all types. Sample JCL for the execution of the compare in migration mode is contained on the CA Endevor/DB installation media.

Running the Comparator in Stand-alone Mode

CA Endevor/DB provides a utility, NDVRCOMP, which compares the contents of two PDS members and/or sequential files, and reports the differences between them.

NDVRCOMP accepts as input two files, which can be either PDS members or sequential files. The files can be fixed or variable length, but cannot exceed an LRECL of 256 (260 for variable-length files).

NDVRCOMP reports the differences between the two files. The first file, NDVRIN1, is assumed to be the "base" file. The second file, NDVRIN2, is assumed to be the "changed" file. NDVRCOMP reports the differences in file-2 as compared to file-1.

The files are compared line-by-line, based on the contents of particular (contiguous) characters. The range of characters included in the compare is defined in terms of a *from* and *thru* column. For example, you might want to compare two files based on the contents of positions 1-5 only.

The output from NDVRCOMP can be formatted either for file browse (without ASA characters and headings) or for hardcopy printout (including ASA characters and headers).

JCL

Use the JCL below to run NDVRCOMP. It is contained in member SAMPCOMP on the CA Endevor/DB installation media JCL library:

Sample z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=ndvrdb.loadlib
//*
//*********************************************************************
//*
//*  JOB:     SAMPCOMP
//*
//*  PURPOSE: COMPARE THE CONTENTS OF TWO SOURCE-CODE TYPE FILES
//*           (NDVRIN1 AND NDVRIN2) AND PRODUCE A FILE DESCRIBING
//*           THEIR DIFFERENCES.
//*
//*  YOU TELL NDVRCOMP WHAT TO DO BY SPECIFYING A 'COMPARE' COMMAND.
//*  THE SYNTAX IS AS FOLLOWS:
//*
//*    COMPARE
//*       COLUMN = N TO M RECORD TYPE = FIXED/VARIABLE LENGTH = NNN
//*       PAD = BLANK/NULL/X'FF' OUTPUT = CHANGES/HISTORY/NEW
//*       FORMAT = FILE/DISPLAY SIZE = NNNNN TITLE = 'YOUR TITLE'
//*       .
//*
//*    ALL CLAUSES ARE OPTIONAL.  THE DEFAULT VALUES ARE AS FOLLOWS:
//*
//*    COMPARE COLUMN = 1 TO 72 RECORD TYPE = FIXED LENGTH = 80
//*       PAD = BLANK OUTPUT=CHANGES FORMAT = DISPLAY SIZE = 10000
//*       TITLE = ' '.
//*
//*       WHERE:
//*
//*       COLUMN        THE START AND END COLUMNS TO INSPECT
//*       RECORD        THE RECORD FORMAT AND (MAXIMUM) RECORD LENGTH
//*       PAD           THE CHARACTER TO USE IN EXTENDING VARIABLE-
//*                     LENGTH RECORDS BEFORE COMPARING THEM
//*       OUTPUT        CONTENT OF OUTPUT FILE:
//*         CHANGES       SHOW THE INSERTIONS AND DELETIONS
//*         HISTORY       SHOW THE INSERTS AND DELETES IN THE CONTEXT
//*                       OF THE NDVRIN1 SOURCE
//*         NEW           SHOW THE INSERTS IN THE CONTEXT OF THE
//*                       NDVRIN2 SOURCE
//*       FORMAT        WHERE THE OUTPUT IS TO BE WRITTEN
//*         FILE          WRITE TO NDVRPCH FILE
//*         DISPLAY       WRITE TO NDVRLST FILE
//*       SIZE          THE ESTIMATED COUNT OF THE NUMBER OF RECORDS
//*                     IN NDVRIN1 PLUS THE NUMBER OF RECORDS IN
//*                     NDVRIN2 (OVER ESTIMATE IF YOU DON'T KNOW).
//*       TITLE         A TITLE FOR THE TOP OF EACH PAGE OF OUTPUT
//*                     WHEN FORMAT=DISPLAY IS SPECIFIED
//*
//*   RESTRICTION:  LRECL FOR INPUT FILES (NDVRIN1 AND NDVRIN2) MAY
//*                 NOT EXCEED 256
//*
//********************************************************************
//*
//COMPARE  EXEC PGM=NDVRCOMP,REGION=400K
//NDVRIN1  DD DISP=SHR,DSN=original.source.dataset.or.member
//NDVRIN2  DD DISP=SHR,DSN=changed.source.dataset.or.member
//NDVRPCH  DD DSN=user.changes.dataset,DISP=(NEW,CATLG,DELETE),
//            UNIT=disk,VOL=SER=volser,SPACE=(TRK,(5,5),RLSE),
//            DCB=(RECFM=FB,LRECL=88,BLKSIZE=3168)
//SORTWK01 DD UNIT=disk,SPACE=(CYL,(2,1))
//SORTWK02 DD UNIT=disk,SPACE=(CYL,(2,1))
//SORTWK03 DD UNIT=disk,SPACE=(CYL,(2,1))
//SORTWK04 DD UNIT=disk,SPACE=(CYL,(2,1))
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSOUT   DD DUMMY
//SYSUDUMP DD DUMMY
//NDVRIPT  DD *
COMPARE COLUMN = 1 TO 72 RECORD TYPE = FIXED LENGTH = 80
   PAD = BLANK OUTPUT=CHANGES FORMAT = DISPLAY SIZE = 10000
   TITLE = ' '.
/*
```

SAMPLE z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=usercv.loadlib
//         DD DISP=SHR,DSN=ndvrdb.loadlib
//         DD DISP=SHR,DSN=idms.loadlib
//*
//*********************************************************************
//*
//*  JOB:      SAMPDCMP
//*
//*  PURPOSE:  PRODUCES SOURCE-COMPARISON REPORT FROM NDVRDLVR OUTPUT
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  COMPARE   PROGRAM NDVRDCMP DRIVES IDMSDDDL, RHDCMPUT, ETC. TO
//*            COMPARE TARGET SOURCE WITH NDVRDLVR MIGRATION EXPORT
//*            FILE CONTENTS.
//*
//*********************************************************************
//*
//COMPARE  EXEC PGM=NDVRDCMP,REGION=1000K
//SYSCTL   DD DISP=SHR,DSN=idms.sysctl
//SYSIPT   DD DSN=&.&SYSIPT.,SPACE=(TRK,(1,1)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SYSPCH   DD DSN=&.&SYSPCH.,SPACE=(CYL,(2,2)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//NDVRIN1  DD DSN=&.&NDVRIN1.,SPACE=(CYL,(2,2)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//NDVRIN2  DD DSN=&.&NDVRIN2.,SPACE=(CYL,(2,2)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SORTIN   DD DSN=&.&SORTIN.,SPACE=(CYL,(1,1)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SORTOUT  DD DSN=&.&SORTOUT.,SPACE=(CYL,(1,1)),DISP=(NEW,DELETE),
//            UNIT=disk,DCB=(RECFM=FB,LRECL=80,BLKSIZE=3200)
//SORTWK01 DD SPACE=(CYL,(4,4)),UNIT=disk
//SORTWK02 DD SPACE=(CYL,(4,4)),UNIT=disk
//SORTWK03 DD SPACE=(CYL,(4,4)),UNIT=disk
//SORTWK04 DD SPACE=(CYL,(4,4)),UNIT=disk
//********************************************************************
//*   THE FOLLOWING FILE CONCATENATES THE "SOURCE CODE" EXPORT       *
//*   FILES PRODUCED BY NDVRDLVR AT THE SOURCE SYSTEM/DICTIONARY.    *
//********************************************************************
//NDVRSRC  DD DISP=SHR,DSN=user.ndvrdlvr.dsdupd
//         DD DISP=SHR,DSN=user.ndvrdlvr.dscupd
//         DD DISP=SHR,DSN=user.ndvrdlvr.dsuupd
//         DD DISP=SHR,DSN=user.ndvrdlvr.dsmupd
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
```

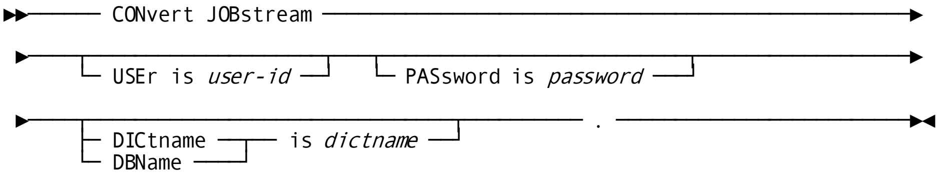
```
//SYSLST   DD DUMMY
//SYSOUT   DD DUMMY
//SYSUDUMP DD DUMMY
//SYSIDMS  DD *
DMCL=dmcl-name
DICTNAME=dictionary-name
Other Optional SYSIDMS Parameters
/*
//NDVRIPT  DD *
   SIGNON
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
   REPORT CHANGES AND DETAILS.
   COMPARE TYPES = (PROCESS, PROGRAM, ELEMENT, RECORD, SCHEMA,
          SUBSCHEMA, QFILE, TABLE, MODULE, MESSAGE, MAP).
/*
```

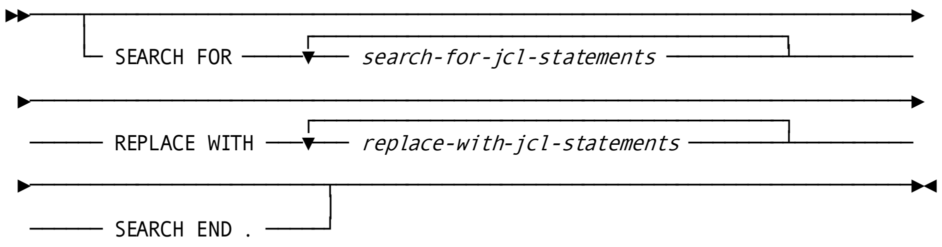
z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=ndvrdb.loadlib
//*
//********************************************************************
//*
//*  JOB:      SAMPRJCL
//*
//*  PURPOSE:  CONVERT JCL TO USE NDVRBOOK.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  GORJCL    CONVERTS JCL TO EXECUTE NDVRBOOK WITH INSTRUCTIONS AS
//*            TO THE PROGRAM TO EXECUTE AND THE USER TO ASSIGN CHANGE
//*            LOG ENTRIES TO.
//*
//********************************************************************
//*
//GORJCL   EXEC PGM=NDVRRJCL,REGION=640K
//NDVRJCLI DD DISP=SHR,DSN=your.input.jcl.dataset
//NDVRJCLO DD DISP=OLD,DSN=your.output.jcl.dataset
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSUDUMP DD DUMMY
//NDVRIPT  DD DATA,DLM='##'
   CONVERT JOBSTREAM
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
*+ PUT YOUR SEARCH FOR COMMANDS HERE.   +*
##
/*
```

NDVRRJCL Command Syntax

Through the use of input commands the CA Endevor/DB user, password, and dictionary are specified. In addition, blocks of JCL statements can be replaced.





Syntax Rules

CONVERT JOBSTREAM

The CONVERT JOBSTREAM command is used to identify which CA Endevor/DB user to assign dictionary updates. When the converted JCL is executed, the CA Endevor/DB user name and password are passed to CA Endevor/DB's Security System/Change Monitor prior to invoking the utility that performs dictionary updates. The dictname specifies the dbname of the dictionary to which the updates are to be performed.

NDVRRJCL can convert any type of JCL. For example, you can run NDVRRJCL in CMS and convert a z/OS or OS/390 jobstream. NDVRRJCL automatically recognizes the job language.

The user, password, and dbname(dictname) clauses are used to build the SIGNON command so that NDVRBOOK can perform the CA Endevor/DB signon (when the converted JCL is executed). Depending on your CA Endevor/DB signon requirements, all or none of these clauses may be required. In addition, if the USER clause is not specified, the PASSWORD clause is not used to build the subsequent CA Endevor/DB SIGNON command.

SEARCH FOR REPLACE WITH

The SEARCH FOR command is used to search for blocks of JCL statements within the input JCL and to replace those blocks with the "REPLACE WITH" JCL statements in the output JCL. The command must be written as follows:

- The SEARCH FOR clauses must begin in card column 1 and be exact, up to and including card column 72.
- The REPLACE WITH clauses must begin in card column 1 and include up to and including card column 72.
- The "REPLACE WITH" and "SEARCH END" clauses must begin in card column 1 and cannot be abbreviated.
- This command must be entered exactly in the sequence as indicated in the diagram above.
- Replacement of partial statements is not supported.

SEARCH END

The SEARCH END clause terminates the SEARCH FOR/REPLACE WITH blocks.

NDVRRJCL Inputs

The NDVRRJCL JCL input file (NDVRJCLI) contains the JCL jobstream(s) which are to be converted. The following is an example of a jobstream contained in that file.

```
//SAMPDDDL JOB (????????),'IDD UPDATE'
//DDDL     EXEC PGM=IDMSDDDL,REGION=1024K
//STEPLIB  DD  DISP=SHR,DSN=SYSTEM.LOAD
//         DD  DISP=SHR,DSN=EDB.LOAD
//         DD  DISP=SHR,DSN=IDMS.LOAD
//SYSLST   DD  SYSOUT=*
//SYSPRINT DD  SYSOUT=*
//SORTMSG  DD  SYSOUT=*
//SYSUDUMP DD  SYSOUT=*
//SYSCTL   DD  DISP=SHR,DSN=SYSTEM.SYSCTL
//SYSPCH   DD  SYSOUT=*
//SYSIDMS  DD  *
DMCL=CVDMCL
/*
//SYSIPT   DD *
SIGNON USER DBADMIN PASSWORD DBADMIN DICTNAME SRCNDVR.
 ...
/*
//
```

The NDVRRJCL input commands file (NDVRIPT) contains the input command syntax NDVRRJCL uses to convert the JCL. The following are the input commands contained in that file.

```
CONVERT JOBSTREAM USER IS EDBADMIN PASSWORD IS EDBADMIN DICTNAME IS DEMO.
SEARCH FOR
//STEPLIB  DD DSN=TEST.LOADLIB,DISP=SHR
//         DD DSN=DEVEL.LOADLIB,DISP=SHR
//         DD DSN=RELEASE.LOADLIB,DISP=SHR
REPLACE WITH
//STEPLIB  DD DSN=TEST.LOADLIB,DISP=SHR
//         DD DSN=DEVEL.LOADLIB,DISP=SHR
//         DD DSN=RELEASE.LOADLIB,DISP=SHR
//         DD DSN=ENDEVOR.LOADLIB,DISP=SHR
SEARCH END.
```

NDVRRJCL Outputs

The NDVRRJCL output file (NDVRJCLO) will contain the converted JCL jobstream(s) which have been converted using the input commands against the input file.

The NDVRRJCL output listing file (NDVRLST) will contain a summary of the input commands read and all error and informational messages issued.

The following is an output file contained in the NDVRJCLO file.

```
//SAMPDDDL JOB (????????),'IDD UPDATE'
//DDDL     EXEC PGM=NDVRBOOK,REGION=1024K
//STEPLIB  DD  DISP=SHR,DSN=SYSTEM81.LOADLIB
//         DD  DISP=SHR,DSN=DIST.CAABF0.LOADLIB
//         DD  DISP=SHR,DSN=DIST.CAGJE0.LOADLIB
//SYSLST   DD  SYSOUT=*
//SYSPRINT DD  SYSOUT=*
//SORTMSG  DD  SYSOUT=*
//SYSUDUMP DD  SYSOUT=*
//SYSCTL   DD  DISP=SHR,DSN=SYSTEM.SYSCTL
//SYSPCH   DD  SYSOUT=*
//SYSIDMS  DD  *
DMCL=CVDMCL
/*
//SYSIPT   DD *
SIGNON USER DBADMIN PASSWORD DBADMIN DICTNAME SRCNDVR.
 ...
/*
//NDVRLST DD SYSOUT=*
//NDVRIPT DD *
SIGNON USER NAME IS "EDBADMIN"
       PASSWORD  IS "EDBADMIN"
        DICTNAME IS "SRCNDVR"
        .
PROGRAM IS IDMSDDDL.
/*
//
```

Return Codes

NDVRRJCL will return a **0** if it is successful, or an **8** if an error is encountered. If an error is encountered, the output NDVRLST file will contain message(s) stating the reason for the failure. The following is an example of an output listing contained in the NDVRLST file.

```
volser                                      CA, INC.                        DATE
TIME     PAGE
RELEASE nn.n                        C A - E N D E V O R / D B             mm/dd/yy
11:34:58  00001
CONVERT JOBSTREAM USER = EDBADMIN PASSWORD = EDBADMIN DICTNAME SRCNDVR.
SEARCH FOR
//STEPLIB  DD  DISP=SHR,DSN=SYSTEM.LOAD
//         DD  DISP=SHR,DSN=EDB.LOAD
//         DD  DISP=SHR,DSN=IDMS.LOAD
REPLACE WITH
//STEPLIB  DD  DISP=SHR,DSN=SYSTEM81.LOADLIB
//         DD  DISP=SHR,DSN=DIST.CAABF0.LOADLIB
//         DD  DISP=SHR,DSN=DIST.CAGJE0.LOADLIB
SEARCH END.
NDVRRJCL: I003 NDVRRJCL SUCCESSFULLY COMPLETED
```

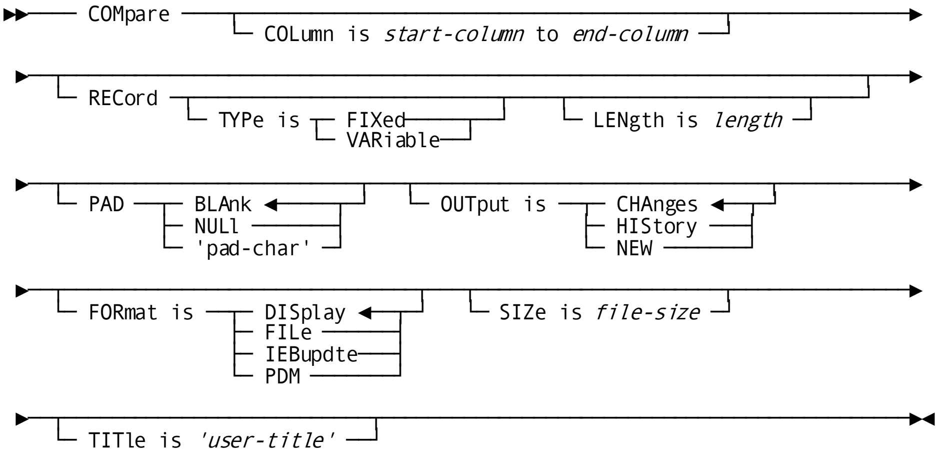
Running NDVRCOMP

You can use either the NDVRIPT file (control card specifications) or input parms to supply information to run NDVRCOMP. Each of the methods is described in the following sections.

Control Card Specifications

Control cards are supplied on file NDVRIPT and are free-form. The control cards consist of the word COMPARE followed by optional clauses and ending with a period (.). This method provides the greatest degree of flexibility and control.

Syntax



```
►►─── COMpare ──┬──────────────────────────────────────┬──────────────►
                └─ COLumn is start-column to end-column ┘

►─┬──────────────────────────────────────────────────────────────────┬─►
  └─ RECord ─┬───────────────────────────┬─┬─────────────────────┬──┘
             └─ TYPe is ┬─ FIXed ────┬───┘ └─ LENgth is length ─┘
                        └─ VARiable ─┘

►─┬────────────────────────────┬─┬─────────────────────────────┬───────►
  └─ PAD ──┬─ BLAnk ◄───────┬──┘ └─ OUTput is ──┬─ CHAnges ◄─┬─┘
           ├─ NULl ─────────┤                   ├─ HIStory ──┤
           └─ 'pad-char' ───┘                   └─ NEW ──────┘

►─┬────────────────────────────────────┬─┬────────────────────────┬────►
  └─ FORmat is ──┬─ DISplay ◄──────┬───┘ └─ SIZe is file-size ───┘
                 ├─ FILe ──────────┤
                 ├─ IEBupdte ──────┤
                 └─ PDM ───────────┘

►─┬──────────────────────────────┬────────────────────────────────────►◄
  └─ TITle is 'user-title' ──────┘
```

A description of the syntax clauses follows:

COLUMN

Specifies the columns to compare from and thru. If omitted, columns 1-72 are used.

OUTPUT

Specifies which records are to be output. The default is CHANGES only. The options are: HISTORY (shows the existing member together with both inserts and deletes), and NEW (shows the new member, highlighting inserts only).

FORMAT

Specifies the output format. The default is DISPLAY that writes the output to file NDVRLST. The syntax listing is produced first, followed by the original output file in report format - with carriage control and page headings. The FILE option (i.e., BROWSE) writes the data to DDname NDVRPCH without page headings.

PAD

PAD is applicable to variable length records only. The default is BLANK (which pads short records with blanks up to the compare length). The options are NULL (which pads with binary zeros) or "x" (which pads with the specified single character).

SIZE

Specifies a file-size estimate for the sort. By default, this option is ignored.

TITLE

Appears before the first data line as a line of asterisks, followed by the title string and another line of asterisks. Useful if FORMAT=FILE.

Input Parameters

Specify PARM values as described below. Separate the values using a single comma, leaving no spaces between the values.

output-format

Two-character code that indicates the type of comparison information you want reported (character 1) and the format of the output file (character 2). The default is CD.

Specify the *first character* (type of information you want) as follows:

Code	Meaning
C	Print only the changes between the two files; that is, those lines inserted from file 2 and those lines deleted from file 1. A modification to a line of code displays as an insert of the modified line(s) immediately followed by a delete of the old line(s).
H	Print a history of both files including: ■ Inserts. Any lines that were in file-2 but are not in file-1, highlighting those lines with **%INSERT** to the far left: **%** allows you to scan for changes easily; INSERT indicates that the line was new in file-2. ■ Deletes. Any lines that were in file-1 but are not in file-2, highlighting those lines with **%DELETE** to the far left: **%** allows you to scan for changes easily; **DELETE** indicates that the line is not in file-2. ■ Equals. Any lines that were equal in file-1 and in file-2. These lines display with blanks in the far left.
B	Print (browse) the contents of file-2, highlighting only the statements inserted relative to file-1 with **%INSERT** in the far left.

Specify the *second character* (output format) as follows:

Code	Meaning
F	The output file is in browse format and does not have any ASA characters or headers. The output is written to DDname NDVRPCH.
D	The output file is formatted for print, and includes ASA characters and headers. The output is written to DDname NDVRLST.

from

Starting character for the compare. NDVRCOMP begins its search at this position, within both files. The default is 1.

thru

Ending character for the compare. NDVRCOMP ends its search with this position, within both files. For variable-length records, if the record in one file is longer than that in the other, and the *thru* character extends beyond the end of the record, NDVRCOMP pads according to the *pad-char* specification before performing the compare.

The default *thru* specification is 72.

rec-count

Largest number of records in either file. The default is 10000. Estimate high when specifying this value.

pad-char

Pad character used for variable-length records, as described for the *thru* parameter above. Specify this as follows. (The default is BLANK.)

Code	Pad with:
BLANK	Blanks.
NULL	Null values (binary zeros).
nnn	The hexadecimal equivalent of *nnn*, where *nnn* is a 1-3 character decimal value. Specify 64 to pad with X'40', 255 to pad with X'FF', and so forth.

Sample Outputs

The following report is returned when you specify **output-format code CD** (Changes Report). It shows only the changes between the two files: that is, those lines that are in file-2 but not in file-1 (marked with %INSERT), or those lines that are missing from file-2 that were in file-1 (marked with %DELETE).

```
volser                           CA, INC.                       DATE     TIME
PAGE
nn.n                    C A - E N D E V O R / D B           mm/dd/yy  15:06:59
00001
NDVRCOMP                             FILE COMPARE UTILITY
   COMPARE COLUMN 1 TO 72
   RECORD TYPE FIXED  LENGTH 80
   PAD = BLANK
   OUTPUT = CHANGES
   FORMAT = DISPLAY
   SIZE = 250
   .
 INSERT     ADD MODULE NAME IDMS-STATUS VERSION 2 LANGUAGE IS COBOL       000001
 DELETE     ADD MODULE NAME IDMS-STATUS VERSION 1 LANGUAGE IS COBOL       000001
 INSERT            IF DB-STATUS-OK GO TO IDMS-STATUS-EXIT.                000007
 DELETE             IF DB-STATUS-OK GO TO ISABEX.                         000007
 INSERT           IF ERROR-STATUS = '0295' OR '0895' OR '0995' OR '1295'  000009
 INSERT               DISPLAY 'CA-ENDEVOR/DB AUTHORIZATION ERROR'         000010
 INSERT                    UPON CONSOLE                                   000011
 INSERT                GO TO IDMS-STATUS-EXIT.                            000012
 INSERT             DISPLAY                                               000013
 INSERT               'PROGRAM ' PROGRAM-NAME ' ABORTING WITH '           000014
 INSERT                'ERROR STATUS ' ERROR-STATUS                       000015
 INSERT               ' - NOTIFY DATABASE ADMINISTRATION GROUP'           000016
 INSERT                UPON CONSOLE.                                      000017
 DELETE            DISPLAY '*************************'                    000009
 DELETE                    ' ABORTING - ' PROGRAM-NAME                    000010
 DELETE                    ', '         ERROR-STATUS                      000011
 DELETE                    ', '         ERROR-RECORD                      000012
 DELETE                    ' **** RECOVER IDMS ****'                      000013
 DELETE                    UPON CONSOLE.                                  000014
 INSERT      IDMS-STATUS-EXIT.                                            000028
 INSERT          EXIT.                                                    000029
 DELETE      ISABEX. EXIT.                                                000025
%****** RECORDS: FILE 1 = 00026  FILE 2 = 00030  INSERTS = 00013  DELETES = 00009
******
```

The following report is returned when you specify **output-format code HD** (History Report). It lists the contents of file-2, highlighting inserts from file-2 and deletes from file-1.

```
volser                               CA, INC.                      DATE     TIME
PAGE
nn.n                       C A - E N D E V O R / D B            mm/dd/yy  15:08:14
00001
NDVRCOMP                                  FILE COMPARE UTILITY
   COMPARE COLUMN 1 TO 72
   RECORD TYPE FIXED  LENGTH 80
   PAD = BLANK
   OUTPUT = HISTORY
   FORMAT = DISPLAY
   SIZE = 250
   .
%INSERT      ADD MODULE NAME IDMS-STATUS VERSION 2 LANGUAGE IS COBOL        000001
%DELETE      ADD MODULE NAME IDMS-STATUS VERSION 1 LANGUAGE IS COBOL        000001
               MODULE SOURCE                                                000002
              ******************************************************************
000003
               IDMS-STATUS                                      SECTION.  000004
              ******************************************************************
000005
               IDMS-STATUS-PARAGRAPH.                                       000006
%INSERT             IF DB-STATUS-OK GO TO IDMS-STATUS-EXIT.                 000007
%DELETE              IF DB-STATUS-OK GO TO ISABEX.                          000007
                       PERFORM IDMS-ABORT.                                  000008
%INSERT            IF ERROR-STATUS = '0295' OR '0895' OR '0995' OR '1295'   000009
%INSERT               DISPLAY 'CA-ENDEVOR/DB AUTHORIZATION ERROR'           000010
%INSERT                    UPON CONSOLE                                     000011
%INSERT                GO TO IDMS-STATUS-EXIT.                              000012
%INSERT              DISPLAY                                                000013
%INSERT                'PROGRAM ' PROGRAM-NAME ' ABORTING WITH '            000014
%INSERT                 'ERROR STATUS ' ERROR-STATUS                        000015
%INSERT                ' - NOTIFY DATABASE ADMINISTRATION GROUP'            000016
%INSERT                 UPON CONSOLE.                                       000017
%DELETE             DISPLAY '**************************'                    000009
%DELETE                     ' ABORTING - ' PROGRAM-NAME                     000010
%DELETE                     ', '         ERROR-STATUS                       000011
%DELETE                     ', '         ERROR-RECORD                       000012
%DELETE                     ' **** RECOVER IDMS ****'                       000013
%DELETE                     UPON CONSOLE.                                   000014
                       DISPLAY 'PROGRAM NAME ------ ' PROGRAM-NAME.         000018
                       DISPLAY 'ERROR STATUS ------ ' ERROR-STATUS.         000019
                       DISPLAY 'ERROR RECORD ------ ' ERROR-RECORD.         000020
                       DISPLAY 'ERROR SET --------- ' ERROR-SET.            000021
                       DISPLAY 'ERROR AREA -------- ' ERROR-AREA.           000022
                       DISPLAY 'LAST GOOD RECORD -- ' RECORD-NAME.          000023
                       DISPLAY 'LAST GOOD AREA ---- ' AREA-NAME.            000024
                       DISPLAY 'DML SEQUENCE ------ ' DML-SEQUENCE.         000025
                       ROLLBACK.                                            000026
                       CALL 'ABORT'.                                        000027
%INSERT       IDMS-STATUS-EXIT.                                             000028
%INSERT           EXIT.                                                     000029
%DELETE       ISABEX. EXIT.                                                 000025
               MSEND.                                                       000030
%****** RECORDS: FILE 1 = 00026  FILE 2 = 00030  INSERTS = 00013  DELETES = 00009
******
```

Return Codes

The COND CODE values below can be returned by NDVRCOMP. Code 3007 is the expected result. Other values might be returned, indicating a problem with the sort. If this happens, rerun the job to obtain the sort messages, specifying //SYSOUT DD SYSOUT=*.

Return Code	Meaning
3000	The input files are identical for the columns compared. No reports were produced.
3001	An input or output file could not be opened. Ensure that the DD statements are correct for all files and try again.
3002	The number of records in one or both of the input files exceeds the maximum count specified by the *rec-count* parameter. Increase the count and try again. It is better to estimate high rather than low.
3003	The LRECL for an input file exceeded 256 (260 for variable-length). You cannot use this file as input.
3005	The record format for an input file is Undefined. The record must specify either Fixed or Variable.
3006	An input parameter is missing or invalid (e.g., *thru* > *from*). Check your syntax with the parameter descriptions above, correct the problem, and resubmit the job.
3007	NDVRCOMP completed its compare successfully, and found differences between the files. This is the standard return code.

Running the Comparator in Migration Mode

To run a compare in migration mode, the utility program NDVRDCMP is executed. NDVRDCMP accepts as input the standard source files extracted by the NDVRDLVR program (See Chapter 8 for details on NDVRDLVR).

The contents of the incoming files are compared with the contents of the target dictionary on an entity-by-entity, line-by-line basis. The output reports of changes is identical to the stand-alone utility display. The target dictionary is considered file-1, and the input files produced by NDVRDLVR comprise file-2. When an entity exists in the incoming file, but does not exist in the target system, no compare is attempted. However, the summary report following the execution will reflect this condition. Similarly, when the incoming entity and the entity at the target system are identical, no report is produced.

NDVRDCMP Command Syntax

Through the use of an input command file it is possible to limit a compare run to specific entity types and/or vary the output report format. NDVRDCMP will parse the input files for only the type(s) specified.

```
►►──── SIGnon ─┬───────────────────────────────────┬─────────────────►
               ├─ DBNAme ────────┬── is dictname ──┘
               └─ DICtName ──────┘

 ►─┬──────────────────────┬──┬──────────────────────────┬───────────►◄
   └─ USEr name is user-id ┘  └─ PASsword is password ───┘


►►─┬────────────────────────────────────────────────┬──────────────►◄
   └─ REPort CHAnges ─┬─ ONLy ◄─────────────┬─ . ───┘
                      └─ And DETails ───────┘


►►─┬─────────────────────────────────────────────────────┬─────────►◄
   └─ COMpare TYPes is ─┬─ ALL ◄───────────────────┬─ . ─┘
                        ├─ type ───────────────────┤
                        │       ┌─── , ───┐        │
                        └─ ( ─▼─ type ────┴─ ) ────┘


►►─┬───────────────────────────────────────────────────────────────┬─►◄
   │  ┌────────────────────────────────────────────────────────┐   │
   └─▼─ SET TARget ─┬── IDMsdddl SESsion ─┬─ OPTions options ── . ─┴───┘
                    ├── IDMsdddl RECord ──┤
                    ├── IDMsdddl ELEment ─┤
                    ├── SCHema ───────────┤
                    └── SUBschema ────────┘
```

The option text referred to in the syntax above identifies option values that are not validated by CA Endevor/DB. When the option values are specified, CA Endevor/DB simply inserts them into the appropriate CA compiler command. Also, if a SET OPTIONS command is repeated, only the last one specified will be used.

SIGNON

The SIGNON command is fed directly to the IDMSDDDL and other CA utility programs, and is used to identify the dictionary, CA IDMS user and password which will be used to extract entity definitions. Note that this is CA IDMS SIGNON and it specifies an **CA IDMS user**, not an CA Endevor/DB user. The SIGNON commands processed by all other CA Endevor/DB utilities are CA Endevor/DB SIGNON commands - this implementation is unique to the NDVRDCMP program.

REPORT

The REPORT command is optionally used to vary the printed results in the NDVRLST file.

Option	Meaning
CHANGES ONLY	Only the inserted and deleted lines will display (same as stand-alone option C as described above). This is the default setting.
CHANGES AND DETAILS	The contents of the target dictionary for each entity are displayed with the inserted and deleted lines in context (same as the stand-alone option H as described above).

COMPARE

The COMPARE command is optionally used to limit the compare to specified entity types.

Option	Meaning
TYPES = ALL	All the entities contained in the input files under dd statement NDVRSRC are compared to the target dictionary. This is the default setting.

Option	Meaning
TYPES = (type, ...)	A single entity type or list of entity types can also be specified. The allowable types are: ■ SCHEMA ■ SUBSCHEMA ■ PROGRAM ■ PROCESS ■ FILE ■ ELEMENT ■ QFILE ■ TABLE ■ MODULE ■ MESSAGE ■ RECORD ■ MAP For example, when COMPARE TYPES = (MAP, SUBSCHEMA). is coded, only the Maps and Subschema from the input files will be compared to the target dictionary.

SET TARGET IDMSDDDL SESSION OPTIONS

Note: To accurately compare the differences between the source and target dictionaries, this set of options must be identical to the 'SET SOURCE IDMSDDDL SESSION OPTIONS' specified for NDVRDLVR in Chapter 8.

This command allows changes to the default session options used by CA Endevor/DB for the target dictionary.

CA Endevor/DB sets the following target IDMSDDDL session options:

```
SET SESSIONS OPTIONS
QUOTE IS ' DEFAULT IS ON INPUT 1 THRU 72 OUTPUT 80.
```

These options can be overridden or added to by specifying the SET TARGET IDMSDDDL SESSION OPTIONS command. For example, the command:

```
SET TARGET IDMSDDDL SESSION OPTIONS
REGISTRATION NO OVERRIDE.
```

will cause a second SET SESSION OPTIONS command to be used, which will turn off entity occurrence security.

Refer to the *CA IDMS IDD DDDL Reference Guide* for a full discussion of IDD session options.

SET TARGET IDMSDDDL RECORD OPTIONS

Note: To accurately compare the differences between the source and target dictionaries, this set of options must be identical to the 'SET SOURCE IDMSDDDL RECORD OPTIONS' specified for NDVRDLVR in Chapter 8.

This command allows changes to the default punch record options specified by CA Endevor/DB when punching record definitions from the target dictionary. The following options are set by default when punching record definitions from the target dictionary.

```
PUNCH RECORD record-name VERSION version-nr ALSO
 WITH FILES ELEMENTS SUBORDINATE ELEMENTS.
```

Note that the 'ALSO WITH' indicates that these options are to be added to the target IDD session options.

The punch record options can be overridden by specifying the SET SOURCE IDMSDDDL RECORD OPTIONS command. If you specify any options here, you must specify them all. The option text specified must begin with the 'ALSO WITH' or 'WITHOUT' or 'WITH' text. For example, the command:

```
SET TARGET IDMSDDDL RECORD OPTIONS
ALSO WITH OLQ HEADERS.
```

includes OLQ headers in the punched record output.

With this command, the following punch record command is issued:

```
PUNCH RECORD record-name VERSION version-nr ALSO
 WITH OLQ HEADERS.
```

Refer to the *CA IDMS IDD DDDL Reference Guide* for a full discussion of DDDL PUNCH RECORD options.

SET TARGET IDMSDDDL ELEMENT OPTIONS

Note: To accurately compare the differences between the source and target dictionaries, this set of options must be identical to the 'SET SOURCE IDMSDDDL ELEMENT OPTIONS' specified for NDVRDLVR in Chapter 8.

This command allows changes to the default options specified by CA Endevor/DB when punching element definitions from the target dictionary. The following options are set by default when punching element definitions from the target dictionary:

Punch element **element-name** version **version-nr**.

These punch element options can be overridden by specifying the SET TARGET IDMSDDDL ELEMENT OPTIONS command. If you specify any options here, you must specify them all. The options text specified must begin with the 'ALSO WITH' or 'WITH' or 'WITHOUT' text. For example, the command:

```
SET TARGET IDMSDDDL ELEMENT OPTIONS ALSO WITH
subordinate elements SYNONYMS ATTRIBUTES.
```

will include subordinate elements, element synonyms, and attributes in the punched element output.

With this command, the following punch element command is issued:

```
PUNCH ELEMENT element-name VERSION version-nr
ALSO WITH SUBORDINATE ELEMENTS SYNONYMS ATTRIBUTES.
```

Refer to the *CA IDMS IDD DDDL Reference Guide* for a full discussion of DDDL PUNCH ELEMENT options.

SET TARGET SCHEMA OPTIONS

Note: To accurately compare the differences between the source and target dictionaries, this set of options must be identical to the 'SET SOURCE IDMSDDDL SCHEMA OPTIONS' specified for NDVRDLVR in Chapter 8.

This command allows changes to the default options specified by CA Endevor/DB when punching schema definitions from the target dictionary.

The following options are set by default when punching schema definitions from the target dictionary:

PUNCH SCHEMA **schema-id** VERSION **version-nr.**

These punch schema options can be overridden by specifying the SET TARGET SCHEMA OPTIONS command. If you specify any options here, you must specify them all. The options text specified must begin with 'ALSO WITH' or 'WITHOUT' or 'WITH' text. For example, the command:

```
SET TARGET SCHEMA OPTIONS ALSO WITH HISTORY.
```

includes all history information for the schema.

With this command, the following punch schema command is issued:

```
PUNCH SCHEMA schema-id VERSION version-nr ALSO WITH HISTORY.
```

Refer to the *CA IDMS Database Administration Guide* for a full discussion of PUNCH SCHEMA options.

SET TARGET SUBSCHEMA OPTIONS

To accurately compare the differences between the source and target dictionaries, this set of options must be identical to the 'SET SOURCE IDMSDDDL SUBSCHEMA OPTIONS' specified for NDVRDLVR in Chapter 8.

This command allows changes to the default options specified by CA Endevor/DB when punching subschema definitions from the target dictionary.

The following options are set by default when punching subschema definitions from the target dictionary:

```
PUNCH SUBSCHEMA subschema-id.
```

These punch subschema options can be overridden by specifying the SET TARGET SUBSCHEMA OPTIONS command. If you specify any options here, you must specify them all. The options text specified must begin with the 'ALSO WITH' or 'WITHOUT' or 'WITH' text. For example, the command:

```
SET TARGET SUBSCHEMA OPTIONS ALSO WITH HISTORY.
```

will include the date and time the subschema was created or last modified.

With this command, the following punch subschema command is issued:

```
PUNCH SUBSCHEMA subschema-id ALSO WITH HISTORY.
```

Refer to the *CA IDMS Database Administration Guide* for a full discussion of PUNCH SUBSCHEMA options.

JCL

Use the JCL below to run NDVRDCMP. It is contained in member SAMPDCMP on the CA Endevor/DB installation media JCL library:

NDVRDCMP Inputs

The NDVRDCMP input file (NDVRSRC) may either be constructed using NDVRDLVR or built manually.

- If you wish to use the NDVRDLVR files, simply run NDVRDLVR and then specify the NDVRDUPD, NDVRCUPD, NDVRUUPD and NDVRMUPD files as the input to NDVRDCMP.
- If you wish to construct the NDVRSRC file for NDVRDCMP manually, you must use one or more of the following CA IDMS utilities:
  - RHDCMPUT. Used to produce MAP and PANEL source.
  - IDMSCHEM. Used to produce Schema source.
  - IDMSUBSC. Used to produce Subschema source.
  - IDMSDDDL. Used to produce source for all other entity types.

When you run these CA IDMS compilers, you must instruct them to output entity source via PUNCH commands (PROCESS TERSE in the case of RHDCMPUT). Note that NDVRDCMP depends critically on the exact PUNCH command options used by IDMSDDDL, IDMSCHEM and IDMSUBSC.

For RHDCMPUT, use the following commands:

```
PROCESS=TERSE}
mapname VERSION=nnnn
```

For IDMSCHEM, use the following commands:

```
SET OPTIONS QUOTE IS 'OUTPUT 80 DISPLAY AS SYNTAX VERB ADD.
PUNCH SCHEMA schema VERSION nnnn.
```

For IDMSUBSC, use the following commands:

```
SET OPTIONS QUOTE IS 'OUTPUT 80 DISPLAY AS SYNTAX VERB ADD.
PUNCH SUBSCHEMA subschema SCHEMA schema VERSION nnnn.
```

For IDMSDDDL, use the following commands:

```
SET OPTIONS QUOTE IS 'OUTPUT 80 DISPLAY AS SYNTAX VERB REPLACE WITH ALL.

PUNCH PROGRAM program VERSION nnnn ALSO WITH ENTRY POINTS TASKS.

PUNCH TABLE table VERSION nnnn.

PUNCH QFILE qfile VERSION nnnn.

PUNCH MESSAGE message.

PUNCH PROCESS process VERSION nnnn.
PUNCH MODULE module VERSION nnnn LANGUAGE language.

PUNCH RECORD record VERSION nnnn ALSO WITH FILES ELEMENTS SUBORDINATE ELEMENTS.

PUNCH ELEMENT element VERSION nnnn.
```

The PUNCH processing produces sequential data sets, which may then be used directly as input to NDVRDCMP.

NDVRDCMP Outputs

NDVRDCMP produces a 4-part output report in ddname NDVRLST. The output report comprises:

- An Input Command Listing
- An Entity Comparison Listing
- An Entity Comparison Index
- A Processing Summary

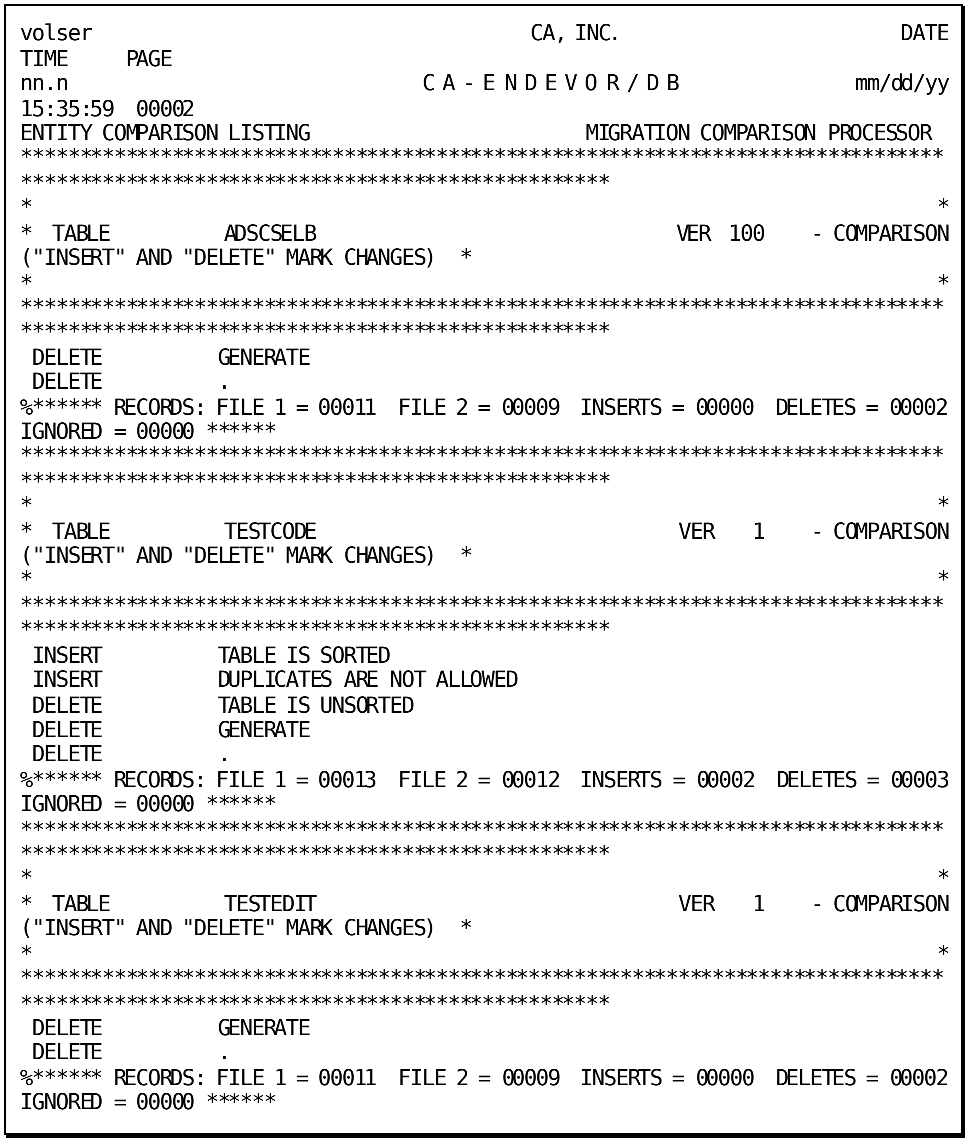
NDVRDCMP - Input Command Listing

The Input Command Listing echoes the user-supplied syntax contained in the NDVRIPT file.

```
volser                              CA, INC.                        DATE     TIME
PAGE
nn.n                         C A - E N D E V O R / D B                   mm/dd/yy
15:34:35  00001
INPUT COMMAND LISTING               MIGRATION COMPARISON PROCESSOR
   SIGNON USER DBADMIN PASSWORD ???????? DBNAME TGTNDVR.
   REPORT CHANGES ONLY.
   COMPARE TYPES = (SCHEMA, SUBSCHEMA, PROGRAM, PROCESS, QFILE, TABLE,
                    MODULE, MESSAGE, FILE, MAP).
```

NDVRDCMP - Entity Comparison Listing

The Entity Comparison Listing displays the results of each unequal entity comparison requested. A display of changes only, or of the entire target dictionary entity with inserted and deleted statements embedded within will be produced. Output formats are varied with the REPORT statement. In this listing the target dictionary is considered file-1 and the incoming source statements comprise file-2. Modified statements show as inserts followed by deletes.



```
volser                                    CA, INC.                               DATE
TIME     PAGE
nn.n                             C A - E N D E V O R / D B                   mm/dd/yy
15:35:59  00002
ENTITY COMPARISON LISTING                              MIGRATION COMPARISON PROCESSOR
******************************************************************************
**************************************************
*                                                                             *
*  TABLE          ADSCSELB                                VER  100    - COMPARISON
("INSERT" AND "DELETE" MARK CHANGES)   *
*                                                                             *
******************************************************************************
**************************************************
 DELETE          GENERATE
 DELETE          .
%****** RECORDS: FILE 1 = 00011  FILE 2 = 00009  INSERTS = 00000  DELETES = 00002
IGNORED = 00000 ******
******************************************************************************
**************************************************
*                                                                             *
*  TABLE          TESTCODE                                VER   1     - COMPARISON
("INSERT" AND "DELETE" MARK CHANGES)   *
*                                                                             *
******************************************************************************
**************************************************
 INSERT          TABLE IS SORTED
 INSERT          DUPLICATES ARE NOT ALLOWED
 DELETE          TABLE IS UNSORTED
 DELETE          GENERATE
 DELETE          .
%****** RECORDS: FILE 1 = 00013  FILE 2 = 00012  INSERTS = 00002  DELETES = 00003
IGNORED = 00000 ******
******************************************************************************
**************************************************
*                                                                             *
*  TABLE          TESTEDIT                                VER   1     - COMPARISON
("INSERT" AND "DELETE" MARK CHANGES)   *
*                                                                             *
******************************************************************************
**************************************************
 DELETE          GENERATE
 DELETE          .
%****** RECORDS: FILE 1 = 00011  FILE 2 = 00009  INSERTS = 00000  DELETES = 00002
IGNORED = 00000 ******
```

NDVRDCMP - Index to Entity Listing

The Index to Entity Listing displays the result of each comparison in alphabetical sequence by entity name. If there is a difference between the source and target entities, a page number will be found in the right-hand column. Detailed comparison results will be found on the page number indicated in the Entity Comparison Listing as shown above. When an entity appears more than once in the input entity file produced by NDVRDLVR (as when an element is contained in more than one migrating record), it may appear more than once in the comparison listing.

```
volser                                    CA, INC.                            DATE
TIME     PAGE
nn.n                             C A - E N D E V O R / D B                mm/dd/yy
15:40:44  00003
INDEX TO ENTITY LISTING                        MIGRATION COMPARISON PROCESSOR
TABLE          ADSCSELB                            VER  100 SOURCE IS DIFFERENT
THAN TARGET ..........................    2
PROGRAM        AUTODIAG                              VER  100 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
MODULE         AUTOUSER-FLD-HELP             HELP    VER  100 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
MODULE         AUTOUSER-MAP-HELP             HELP    VER    1 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
MODULE         AUTOUSER-MAP-HELP             HELP    VER  100 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
FILE           CUSTOMER-FILE                         VER    1 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
MESSAGE        DC601086                              VER    0 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
PROGRAM        EMPINQ                                VER    1 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
MODULE         MAP-FIELD-HELP                HELP    VER    1 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
FILE           ORDER-FILE                            VER    1 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
PROGRAM        PRANDEM1                              VER    1 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
FILE           RPTFILE                               VER    1 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
TABLE          TESTCODE                            VER    1 SOURCE IS DIFFERENT
THAN TARGET ..........................    2
TABLE          TESTEDIT                            VER    1 SOURCE IS DIFFERENT
THAN TARGET ..........................    2
MAP             EMPMAPP1                                VER    1 NOT AT TARGET,
NEW ENTITY COMING FROM SOURCE (NOT LISTED)
MAP             EMPMAPP2                                VER    1 NOT AT TARGET,
NEW ENTITY COMING FROM SOURCE (NOT LISTED)
SCHEMA         EMPSCHM                               VER  100 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
SUBSCHEMA      EMPSS01                       EMPSCHM VER  100 SOURCE AND TARGET
IDENTICAL (NOT LISTED)
MAP             EMPMAP01                                VER    2 NOT AT TARGET,
NEW ENTITY COMING FROM SOURCE (NOT LISTED)
MAP             EMPMAP02                                VER    1 NOT AT TARGET,
NEW ENTITY COMING FROM SOURCE (NOT LISTED)
```

NDVRDCMP - Processing Summary

The Processing Summary displays end-of-job statistics that reflect the results of the comparison run.

```
volser                                  CA, INC.                                DATE
TIME     PAGE
nn.n                          C A - E N D E V O R / D B                     mm/dd/yy
15:40:44  00004
PROCESSING SUMMARY                 MIGRATION COMPARISON PROCESSOR
NDVRDCMP: I001 COMPARISON PROCESSING COMPLETED
                                                     NEW FROM          CHANGED AT
          ENTITY TYPE         PROCESSED               SOURCE             SOURCE
          FILES                       3                    0                  0
          MAPS                        4                    4                  0
          MESSAGES                    1                    0                  0
          MODULES                     4                    0                  0
          PROGRAMS                    3                    0                  0
          SCHEMAS                     1                    0                  0
          SUBSCHEMAS                  1                    0                  0
          TABLES                      3                    0                  3
          TOTAL                      20                    4                  3
```

Chapter 11: The JCL Converter

This section contains the following topics:

Overview (see page 233)
Why JCL Needs To Be Converted (see page 233)
JCL (see page 234)
z/OS and OS/390 JCL (see page 234)

Overview

CA Endevor/DB's JCL Converter converts JCL that executes dictionary update utilities to use CA Endevor/DB's NDVRBOOK program. NDVRBOOK assigns the dictionary updates to a particular user or CCID. Typically, the JCL Converter is employed as a conversion aid to tailor vendor-supplied sets of JCL or old jobstreams used at a shop prior to the installation of CA Endevor/DB. It is a valuable tool when applying maintenance releases of vendor software.

The JCL Converter can convert JCL to execute against a monitored dictionary. It will dynamically determine the type of JCL that it is converting and build the appropriate control statements for that environment. Additionally, it will accept input "SEARCH FOR/REPLACE WITH" commands to replace blocks of JCL statements. Typically, these commands are used to replace JOBLIB or STEPLIB statements to include CA Endevor/DB's load libraries. These "SEARCH FOR/REPLACE WITH" commands can, however, be used against any blocks of statements.

Why JCL Needs To Be Converted

When a dictionary is monitored by CA Endevor/DB, dictionary updates are identified and assigned to users and/or CCIDs. When executing batch dictionary updates, CA Endevor/DB's NDVRBOOK program identifies the CA Endevor/DB user and/or CCIDs to validate and assign the updates. Instead of specifying the dictionary update utility on the EXEC statement in your JCL, specify NDVRBOOK. An input NDVRIPT file contains control statements for NDVRBOOK, specifying the particular user to whom the updates are to be credited and the dictionary update utility to invoke. When executed, NDVRBOOK passes this user identification to CA Endevor/DB's Security System/Change Monitor and then loads and passes control to the dictionary update utility. The subsequent dictionary updates are assigned to the user and/or CCIDs specified to NDVRBOOK.

JCL

Use the JCL below to run NDVRRJCL. It is contained in member SAMPRJCL on the CA Endevor/DB installation media JCL library:

z/OS and OS/390 JCL

```
//JOBNAME  JOB YOUR.JOBCARD.INFORMATION
//JOBLIB   DD DISP=SHR,DSN=ndvrdb.loadlib
//*
//*********************************************************************
//*
//*  JOB:      SAMPRJCL
//*
//*  PURPOSE:  CONVERT JCL TO USE NDVRBOOK.
//*
//*  STEP:     FUNCTION:
//*  =====     =========
//*
//*  GORJCL    CONVERTS JCL TO EXECUTE NDVRBOOK WITH INSTRUCTIONS AS
//*            TO THE PROGRAM TO EXECUTE AND THE USER TO ASSIGN CHANGE
//*            LOG ENTRIES TO.
//*
//*********************************************************************
//*
//GORJCL   EXEC PGM=NDVRRJCL,REGION=640K
//NDVRJCLI DD DISP=SHR,DSN=your.input.jcl.dataset
//NDVRJCLO DD DISP=OLD,DSN=your.output.jcl.dataset
//NDVRLST  DD SYSOUT=*
//NDVRERR  DD SYSOUT=*
//SYSUDUMP DD DUMMY
//NDVRIPT  DD DATA,DLM='##'
   CONVERT JOBSTREAM
     USER = youruserid PASSWORD = yourpswd
          DICTNAME userdict.
*+ PUT YOUR SEARCH FOR COMMANDS HERE.   +*
##
/*
```

Appendix A: Security Menu Mask Definitions

This section contains the following topics:

Overview (see page 235)
Mask Values (see page 235)

Overview

Security Class definitions allow the tailoring of menu screens. The following table defines the menu items that correspond to the rows and columns on the Security Class Detail screen. An **N** in all subfunctions for a category causes the suppression of that category on the main menu screen. Conversely, a **Y** next to any subfunction causes that category to appear on the main menu screen.

Mask Values

Main Menu Category	Subfunction	Meaning
1	Signin/Signout	Browse entities signed out. Signout entities Signin entities
2	Authorization	Browse preauthorizations Add preauthorizations Delete preauthorizations
3	Lock/Unlock	Browse locked users Lock users Unlock users Browse locked CCIDs Lock CCIDs Unlock CCIDs Browse locked dictionaries Lock dictionaries Unlock dictionaries

Main Menu Category	Subfunction	Meaning
4	Entity	Browse entity descriptors Add a new entity descriptor Modify entity descriptors Delete entity descriptors Browse entity change history Browse entity status history
5	CCID	Browse CCID descriptors Add a CCID descriptor Modify CCID descriptors Delete CCID descriptors Browse CCID/change associations Add CCID/change associations Modify CCID/change associations Delete CCID/change associations Browse entity status for CCID
6	Status	Browse status descriptors Add a status descriptor Modify status descriptors Delete status descriptors Browse status/entity associations Add a status/entity association Modify status/entity associations Delete status/entity associations

Main Menu Category	Subfunction	Meaning
7	User	Browse user descriptors Add a user descriptor Modify user descriptors Delete user descriptors Browse user/change associations Add a user/change association Modify user/change associations Delete user/change associations
8	Dictionary	Browse dictionary descriptors Modify dictionary descriptors Delete dictionary descriptors Browse change log entries Modify change log entries Delete change log entries
9	Management Group	Browse management groups Add a management group Modify management groups Delete management groups Browse MGRP/CCID associations Add a MGRP/CCID association Modify MGRP/CCID associations Delete MGRP/CCID associations

Main Menu Category	Subfunction	Meaning
10	Control	Browse CCDB descriptor records Modify CCDB descriptor records Browse security descriptors Add a security descriptor Modify security descriptors Delete security descriptors Browse monitor dict. stat blocks Modify monitor dict. stat blocks

Appendix B: Online/Batch Control Flags

This section contains the following topics:

Overview (see page 239)

Overview

The **Y/N** flags on the Security Class Detail screen (described in Chapter 4) control a user's ability to use Batch front end commands and command options. PUNCH mode is the CA Endevor/DB Batch equivalent of Browse actions in the CA Endevor/DB Online front end.

The full breakdown of MENU flags and the Online and Batch functions that they control is as follows:

Online Function		**Batch Function**		
Main Menu	**Subfunction Menu**	**Option**	**Command**	**Mode**
Signin/Signout Functions	Browse Entities Signed Out	1	Signin and Signout	Punch
	Signout Entities	2	Signout	Process
	Signin Entities	3	Signin	Process
Preauthor-ization Functions	Browse Preauthor-izations	1	Add Preauthor-ization	Punch
			Modify Preauthor-ization	Punch
			Delete Preauthor-ization	Punch
	Add Preauthor-ization	2	Add Preauthor-ization	Process
	Delete Preauthor-izations	3	Delete Preauthor-ization	Process

Online Function		Batch Function		
Main Menu	**Subfunction Menu**	**Option**	**Command**	**Mode**
	Modify Preauthorizations	4	Modify Preauthorization	Process
Lock Functions	Browse Locked Users	1		- - - - -
	Lock Users	2		- - - - -
	Unlock Users	3		- - - - -
	Browse Locked CCIDs	4		- - - - -
	Lock CCIDs	5		- - - - -
	Unlock CCIDs	6		- - - - -
	Browse Dictionaries	7		- - - - -
	Lock Dictionaries	8		- - - - -
	Unlock Dictionaries	9		- - - - -
Entity Functions	Browse Entity Descriptors	1	Add Entity	Punch
			Modify Entity	Punch
			Delete Entity	Punch
	Add New Entity Descriptor	2	Add Entity	Process
	Modify Entity Descriptors	3	Modify Entity	Process
	Delete Entity Descriptors	4	Delete Entity	Process
	Browse Entity Change History	5		- - - - -
	Browse Entity Status History	6		- - - - -
CCID Processing	Browse CCID Descriptors	1	Add CCID	Punch
			Modify CCID	Punch

Online Function		Batch Function		
Main Menu	Subfunction Menu	Option	Command	Mode
			Delete CCID	Punch
	Add CCID Descriptor	2	Add CCID	Process
	Modify CCID Descriptors	3	Modify CCID	Process
	Delete CCID Descriptors	4	Delete CCID	Process
	Browse CCID/ Change Associations	5		- - - - -
	Add CCID/ Change Association	6		- - - - -
	Modify CCID/ Change Association	7		- - - - -
	Delete CCID/ Change Association	8		- - - - -
	Browse Entity Status for CCID	9		- - - - -
Status Processing	Browse Status Descriptors	1	Add Status	Punch
			Modify Status	Punch
			Delete Status	Punch
	Add Status Descriptor	2	Add Status	Process
	Modify Status Descriptors	3	Modify Status	Process
	Delete Status Descriptors	4	Delete Status	Process
	Browse Status/ Entity Associations	5	Add Entity/ STATUS clause	Punch

Online Function		Batch Function		
Main Menu	Subfunction Menu	Option	Command	Mode
	Add Status/ Entity Associat-ions	6	Add Entity/ STATUS clause	Process
	Modify Status/ Entity Associations	7	Modify Entity/ STATUS clause	Process
	Delete Status/ Entity Associations	8	Delete Entity/ STATUS clause	Process
User Processing	Browse User Descriptions	1	Add User	Punch
			Modify User	Punch
			Delete User	Punch
	Add User Description	2	Add User	Process
	Modify User Descriptions	3	Modify User	Process
	Delete User Descriptions	4	Delete User	Process
	Browse User/ Change Associations	5		- - - - -
	Add User/ Change Association	6		- - - - -
	Modify User/ Change Associations	7		- - - - -
	Delete User/ Change Associations	8		- - - - -
Dictionary Processing	Browse Dictionary Descriptors	1	Modify Dictionary	Punch
	Modify Dictionary Descriptors	2	Modify Dictionary	Process

Online Function		Batch Function		
Main Menu	**Subfunction Menu**	**Option**	**Command**	**Mode**
	Delete Dictionary Descriptors	3		- - - - -
	Browse Change Log Entries	4		- - - - -
	Modify Change Log Entries	5		- - - - -
	Delete Change Log Entries	6		- - - - -
Management Group Processing	Browse Management Groups	1	Add Management Group	Punch
			Modify Management Group	Punch
			Delete Management Group	Punch
	Add Management Group	2	Add Management Group	Process
	Modify Management Groups	3	Modify Management Groups	Process
	Delete Management Groups	4	Delete Management Groups	Process
	Browse Mgrp/ CCID Associations	5	Add Mgmt Grp/ CCID clause	Punch
	Add Mgrp/ CCID Association	6	Add Mgmt Grp/ CCID clause	Process
			Modify Mgmt Grp/ CCID clause	Process

Online Function		Batch Function		
Main Menu	Subfunction Menu	Option	Command	Mode
	Modify Mgrp/ CCID Associations	7	Modify Mgmt Grp/ CCID clause	Process
	Delete Mgrp/ CCID Associations	8	Modify Mgmt Grp/ CCID clause	Process
Control Functions	Browse CCDB Descriptor Record	1		- - - - -
	Modify CCDB Descriptor Record	2		- - - - -
	Browse Security Descriptors	3	Add Security Class	Punch
			Modify Security Class	Punch
			Delete Security Class	Punch
	Add Security Descriptor	4	Add Security Class	Process
	Modify Security Descriptors	5	Modify Security Class	Process
	Delete Security Descriptors	6	Delete Security Class	Process
	Browse Monitor DictStat Blocks	7		- - - - -
	Modify Monitor DictStat Blocks	8		- - - - -
CA Endevor/DB	Signon and Return to CA IDMS	1		- - - - -
Signon Functions	Signon and Go To Function Menu	2	Signon	