# CA Datacom®/AD

## Release Notes

### Version 14.0

# CA Technologies Product References

This document references the following CA products:

- CA Datacom®/DB
- CA Datacom® Datadictionary™
- CA Datacom® SQL (SQL)
- CA Common Services for z/OS
- CA Mainframe Software Manager™ (CA MSM)

# Contact CA Technologies

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- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

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CA Technologies reserves the right to change the layout of our reports, message text, internal records, screen maps, and other such aspects at any time to support ongoing enhancement or modification of any CA Datacom product.

Customers who write their own code to parse the output of CA Datacom reports or messages for their own site's purposes assume some level of risk that a change CA Technologies makes could impact their process.

CA Datacom development tries to minimize such changes, especially within the life of a release, but we cannot guarantee these items will not change from time to time. Should it become necessary for us to make changes to a report, message, internal record, or screen, we will attempt to note those changes in the affected Release Notes or README documentation.

The use of the Dynamic System Tables is the recommended way to obtain CXX, MUF, SQL, and other information under program control while controlling your own report formats and minimizing the impact that our changes can have on you. Similarly, the READRXX routine should be used for referencing log data and the Datadictionary Service Facility for obtaining dictionary information.

If you have any questions regarding this position, please contact CA Support for CA Datacom.

# Contents

# Chapter 1: Introduction

CA Datacom/AD Version 14.0 delivers a number of new features that have simplified the installation, maintenance, and operational tasks that are associated with a CA Datacom/AD environment. This document lists selected features new to Version 14.0 that can be helpful to many CA Datacom/AD sites.

For more information and a complete list of all the new features and changes in CA Datacom/AD Version 14.0, see the *CA Datacom Release Notes* for Version 14.0.

**Intended Audience:** This guide is for CA Datacom/AD sites migrating from CA Datacom/AD Versions 10.0, 11.0, or 12.0 to CA Datacom/AD Version 14.0.

## Concurrent Releases

You can install this release of CA Datacom/AD and can continue to use an older release in your production environment. If you plan to continue to run a previous release, consider the following points:

- When installing into an existing SMP/E environment, this installation deletes previous releases.
- If you acquired your product from tape or with Pax-Enhanced ESD, select from the current release installation different target and distribution zones for your new release. The new zones use different libraries than your current release.

  **Note:** CA MSM installs into a new CSI by default.
- Define DDDEF entries in your new zones to point SMP/E to the proper libraries for installation. Verify that they point to the new release libraries.

# Chapter 2: New Features and Enhancements

CA Datacom Version 14.0 is a major release level that includes a number of new features and functions plus enhancements to existing features and functions. CA Datacom/AD incorporates new features and enhancements to lower your Total Cost of Ownership (TCO) and assist your daily tasks. For example, Version 14.0 provides additional performance enhancements, including the Simplify feature.

This section contains the following topics:

# Simplify Feature

The management of a CA Datacom environment has been simplified and protection has been increased.

Because the simplification process is critical, the Simplify feature is forced for CA Datacom/AD z/OS users.

## Benefits of the Simplify Feature

The main benefits of the simplification are to force the Multi-User Facility (MUF) to always be enabled and actively connect all DBUTLTY functions with the MUF. The MUF is the only updater of the CXX and is in complete control with full knowledge of all the on-going activities. Without this control, situations can occur that require research to understand and present risk to data and roadblocks to the normal 24x7 MUF availability.

With the MUF enabled, no DBUTLTY opens the CXX but instead obtains current information from the CXX through the MUF. Only a few users need security access to the CXX making it much more secure. Without the feature, you must have full write access to the CXX if you are executing any DBUTLTY function using the CXX.

Substantial additional safety of data sets is provided to prevent accidental misuse along with fundamental 24x7 processing.

Because of these reasons, it is mandatory for the CA Datacom/AD users to provide the safe 24x7 access required by the using product. We also recommend Simplify for the CA Datacom/DB z/OS users for the same reasons. However, it is not appropriate for every user because it enforces many best practices and tightens many abilities. For example, without this feature, it is possible for a production MUF and a test MUF to share a single CXX causing you to be responsible for controlling the databases that each use. It is never acceptable for multiple MUF executions other than MUFplex to share LXX and FXX data sets.

## The Simplify Feature and the MUF

One MUF is the controller of the environment and needs to be enabled to perform that task. It is enabled during or soon after each IPL and remains enabled until the next IPL. Few CA Datacom requirements exist that require an outage and it is very rare for the MUF not to be enabled on purpose or due to an unscheduled outage. There should be no condition where a MUF cannot restart itself and continue processing. If an event prevents the restart, then it is handled as a very special condition with special controls.

The one MUF always knows the status of every part of the environment. The needed control is handled simply, efficiently, and safely. Because the MUF is always enabled, the DBUTLTY functions can run safely by using more MUF services. For example, DBUTLTY uses MUF for CXX activity that allows accurate information to constantly be provided and controlled. There are only a few rare conditions where MUF is not enabled and DBUTLTY is forced to open the CXX and where it uses the same protections as when not running Simplify.

## Update Considerations

The database control in the CXX directory is always opened with update intent. With MUF enabled, the MUF fully controls the CXX. The URT option of UPDATE is honored for specific read versus write command support.

## Data Set Protection in a Datacom Environment

Data set protection makes certain that a data set currently in use by MUF or DBUTLTY cannot be used in an unwanted way by another DBUTLTY or MUF. Data set protection makes certain that a MUF or another DBUTLTY cannot use a data set DBUTLTY creates until the creation process completes.

Data set protection is provided in two layers.

**Layer 1**

ENQ is provided to protect data sets within CA Datacom processing for Version 14.0 and later releases.

ENQ uses the z/OS Global Resource Serialization (GRS) facility to ENQ across the systems and makes certain that a data set can be used for the intended purpose.

With this layer of protection, any protection of the CXX, LXX, or FXX lasts for the entire job step. Any protection for database data sets for the index or data areas only lasts for the specific DBUTLTY function having the requirement. The temporary condition is valid if the data sets are dynamically allocated, and not provided as JCL DD statements.

**Layer 2**

DISPOLD is provided to protect data sets within CA Datacom processing for all releases and also outside CA Datacom processing. DISPOLD provides similar protection to Layer 1.

With this layer of protection, any protection of the CXX, LXX, or FXX, lasts for the entire job step. Any protection for database data sets for the index or data areas only lasts for the specific DBUTLTY function having the requirement. An exception exists if the specific data set name protected is referenced in a subsequent step of the job. The operating system extends the protection to include the remainder of the step where acquired through all the succeeding steps and through the step where it is last specified. Layer 2 is important protection but it can be disabled in individual JCL streams or completely as an option in the DBSIDPR member being used.

For more information, see the *CA Datacom/DB Database and System Administration Guide*.

## DBUTLTY with MUF Enabled

With the Simplify feature, normal DBUTLTY functions can access and update control data and user data using MUF to make certain MUF has control while providing current and updated information.

## DBUTLTY with MUF Not Enabled

A small set of normal, but rare, DBUTLTY functions must execute with MUF not enabled.

Another set of functions usually executes with MUF enabled but can execute with the MUF not enabled. These functions can deal with rare and special cases when restart errors cause a MUF not to enable. The functions can run in the same DBUTLTY step as a function that only runs when MUF is not enabled. Alternately, they must use SET OPTION1=MUF_NOT_ENABLED to declare their intent to run the complete DBUTLTY step without MUF enabled.

For more information, see the *CA Datacom/DB DBUTLTY Reference Guide for z/OS*.

# Automation of the Installation for the DB Subsystem

In Version 14.0, enhancements were made to simplify, for z/OS users, the CA Datacom install and usage. This includes removing the need for a CA Datacom SVC and the CA Datacom subsystem that had to be manually installed. The changes include the following:

- A new Program Call PC routine, DBPCCPR, was built to support Version 14.0 normal MUF requirements. CAIRIM installs DBPCCPR during the IPL process, or later. If DBPCCPR is not installed at the time of the first MUF execution, MUF dynamically does the install, creating a PC number for Version 14.0. DBPCCPR supports all MUF functions, basic DBUTLTY functions, and MUF user interface requirements.
- MUF does not use the old PC subsystem, and therefore it can be removed after Version 14.0 is the only, or oldest, CA Datacom release executed on the system. The old subsystem is present if the DBUTLTY function REPORT AREA=MVS prints the line: CA DATACOM/DB SUBSYSTEM IS PRESENT. The old subsystem is also represented by the modules being displayed of DBESPPR and DBSSPPR.

- MUF does not use a CA Datacom/DB SVC. The current release interface does not use the CA Datacom/DB SVC. The SVC should not be installed because it exists only in case of some future requirement that is not expected.
- A new Program Call PC subroutine has been built that is subordinate to the CAMASTER Subsystem to support special requirements. Those special requirements include the use of XCF communications and RRS for two-phase processing. CAIRIM installs the DBPCSPR routine during the IPL process, or later. If not installed by CAIRIM, there is no support for XCF and RRS. CAMASTER is part of CA Common Services for z/OS.

### Production and Test Subsystem and Subroutine Support

When Datacom used an SVC it was possible to have two. One SVC could be used for production and one could be used for testing rare changes to the SVC. Most users never had this requirement even for the rare changes as they waited until the change was confirmed and provided with normal maintenance.

The subsystem and subroutine have a similar need but do not have the SVC number strategy. To provide the equivalent, the ability was built to allow a Production version to be installed for normal use and also a Test version installed for testing the rare changes. Most users should not require the Test version.

You can select the Production or Test version by using the keyword PC= in the DBSYSID Macro used to generate the DBSIDPR and related modules. Specify PC=PRODUCTION or PC=PROD (the default) to request the Production Subsystem and subroutine. Specify PC=TEST to request the Test Subsystem and subroutine. This option applies to the set of both DBPCCPR and DBPCSPR.

## CAIRIM Installation

CAIRIM installation has changed. For more information, see the *CA Datacom/DB Database and System Administration Guide*.

## MUF Changes

The following are changes that occur in MUF:

- The FORCE_SVC startup option is no longer needed. If specified, a message occurs indicating it is obsolete and ignored. Remove this option.
- The MUFMSG startup option defaults to YES,NO,YES and does not display the SVC number of 000. You can set it to YES in case there are message interception routines that skip over the message prefix based upon an expected size.
- The first MUF execution after an IPL installs the Version 14.0 Program Call PC routine DBPCCPR if it was not previously installed by CAIRIM or a previous Version 14.0 MUF.
- A new MUF startup option has been added, but only for testing or in the event of a serious memory overlay. X_FORCE_CAAT_REFRESH YES causes the MUF to abandon any previous Version 14.0 common memory and start fresh and instantly causes errors for existing Version 14.0 MUFs executing. The most likely symptom is RC 68, RC 86, or hung executing programs. If the common memory is overlaid and needs refreshing then other MUFs are not successfully running.

For more information, see the *CA Datacom/DB Database and System Administration Guide*.

### Messages Added

- DB00205 - 1206 CACS CAAT ERROR NNN
- DB00205 - 1207 INSTALL SYSTEM ANCHOR FAILED
- DB00205 - 1208 DBSIDPR PC=INVALID
- DB00205 - 1209 UNABLE TO GET SYSTEM LINKAGE
- DB00205 - 1210 UNABLE TO CREATE DATA SPACE

### Messages Changed

- DB00249I - message reflecting fields of the DBSIDPR being used, no longer prints the SUBID keyword and now prints the PC=value of either PROD or Test. For example:

  DB00249I - DBSIDPR  2010/09/14 10.19 SVC=000
  TOGROUP=DBDVM0  CCISYS=  PC=PROD

  Note: User programs use the same PC as the MUF selected.

- DB00201 - removed the SVC=nn

### Messages Removed

- Existing DB00205 message number 1113
- DB00219I - MVS ECSA REQUIREMENT -9999,999 K

For more information, see the *CA Datacom/DB Message Reference Guide*.

## TASKS_XCF New Console-Like Command

After MUF is enabled, TASKS_XCF *nnnn* can be used to change the value for the maximum number of tasks that are available for the processing of XCF requests to the MUF.

Value *nnnn* is an integer in the range of 1 (one) through 6999, representing the maximum number of tasks that can be simultaneously allocated to process XCF requests to the MUF.

**Note:** If the *nnnn* specified with TASKS_XCF is larger than the number of tasks specified with the TASKS startup option when the MUF was enabled, the value for TASKS_XCF is lowered to match the value that was specified with TASKS.

For more information, see the *CA Datacom/DB Database and System Administration Guide*.

# XCF_FROM New MUF Startup Option and Console-Like Command

The XCF_FROM startup option and console-like command replaces the options: XCFFROM and X_XCFFROM_JOB.

XCF_FROM can be entered at MUF startup or as a command while MUF is executing to define permissible origins for XCF requests to MUF.

Multiple occurrences of XCF_FROM are permitted in the startup parameters. New connections are evaluated against existing XCF_FROM occurrences so that the most specific values are evaluated first, and the most generic are evaluated last. You are responsible for ensuring that the entries form a logical set.

For more information, see the *CA Datacom/DB Database and System Administration Guide*.

## Related External Security Changes

Related to the use of XCF_FROM, XCF External Security changed in the following two ways:

- When security is checked
- What error is produced when an XCF connection is blocked by security

At MUF startup, *cxxname*.XCF is checked, as it always has been, to determine if XCF connectivity is externally secured, as described in the *CA Datacom Security Reference Guide*. But only that one XCF security resource is checked at startup.

Individual XCF remote connections are checked when a remote job opens a URT, which in turn initiates a connection to MUF through XCF (if XCF is externally secured). The check has the same format as in Version 12.0: *cxxname*.XCFFOM.*from-system.groupname*. It is done using the USERID submitting the MUF startup.

If access is allowed, the open continues. If access is denied, the open fails with a return code 87(003) and no connection is established.

### Message DB00205E (error 1081) Removed

Related to the change in XCF security, message DB00205E (error 1081), can no longer occur because XCF security is no longer checked at startup.

## Changes to the DBSYSID Macro Building the DBSIDPR Module

The DBSYSID macro was changed as follows:

### Removed from the z/OS DBSYSID Macro for Version 14.0

- CCIAPPL= has been removed from the macro.
- CCIUSER= has been removed from the macro.
- SUBID= has been removed from the macro.
- TOMUF= has been removed from the macro.
- XMEM= has been removed from the macro.
- CONSOLE= has been removed from the macro.
  CONSOLE_MINUTES= replaced CONSOLE=.

## Changes to DBUTLTY Features and Functions

The following changes to DBUTLTY features were made.

## DBUTLTY LOAD Function Sort Default (SORTDFLT=)

The DBUTLTY LOAD function has a new keyword, SORTDFLT=, that allows the DBUTLTY SORT value when specified as greater than 0 for a LOAD to be overridden with an estimate expected to be more accurate. SORTDFLT= can only be used in conjunction with the SORT= keyword. When set as SORTDFLT=YES, the LOAD looks for record counts in the control records of the BACKUP input or the current CXX to use for the SORT= override. If the count in both places is zero (no records) for all tables to be loaded then the SORT=*n* value is used and not overwritten. Verify that it is in the appropriate range to allow a successful LOAD.

The record count and the number of key definitions per table are multiplied for each table to be loaded and the products are summed as the estimate for record index entries. Based on the areas space management (DSOP) options, additional counts are added to verify a successful sort.

When using this DBUTLTY LOAD enhancement, consider the following:

- The number of records in a table is not always known.
- The number of records in a table after a MUF outage is likely to be inaccurate.
- A backup taken before Version 12.0 does not include information regarding the record count.
- The backup with Version 12.0 or later has the count as stored in the CXX at the time of the backup.
- Extract files never have a count, because they have no control records.
- For each table, the record count in the BACKUP control record is used if known and not zero, otherwise, the current CXX record count is used. Either could be more accurate.

- The record count information from BACKUP input is taken from the control records that exist before the first data record, and any use of concatenated input is inappropriate to using the SORTDFLT=YES option, for example, if a database has two areas and they are each backed up separately. That is, if the two backups are concatenated into one base load, the control records at the start of the first input provide information about the first area, but the control records for the second input are not seen until the first area is complete, which is therefore too late to use to start the SORT. The pairing of base backups with base loads and area backups with areas loads do not have this issue.

## SORTDFLT=

*(z/OS only)* As previously noted, the DBUTLTY SORT= value can now be overridden with what is expected to be a more accurate number. SORTDFLT= can be set to the following:

- YES - SORT value must be specified with a value greater than zero
- NO - Default

Note: The option has no equivalent in the DBFLSUB process.

## DBUTLTY LOAD Report Changes

An additional section to the LOAD report was added after the optional BACKUP INFORMATION, if present, and before the INPUT FILE INFORMATION if SORDTDFLT is set to YES. The heading of the new section is SORTDFLT INFORMATION. After the heading, one line is printed for each table to be loaded.

For more information, see the *CA Datacom/DB DBUTLTY Reference Guide*.

## DBUTLTY RETIX Function Sort Default (SORTDFLT=)

The DBUTLTY RETIX function has a new keyword, SORTDFLT=, that allows the SORT value when specified as greater than 0 for a RETIX to be overridden with an estimate expected to be more accurate. SORTDFLT= can only be used in conjunction with the SORT= keyword. When set as SORTDFLT=YES, the RETIX uses the current CXX count of records and definition to calculate a value for the SORT= override. If the count is zero (no records) for all tables to be loaded then the SORT=*n* value is used and not overwritten. Verify that it is in the appropriate range to allow a successful RETIX.

The record count and the number of key definitions per table are multiplied for each table to be loaded and the products are summed as the estimate for record index entries. Based on the areas space management (DSOP) options, additional counts are added to verify a successful sort.

When using this DBUTLTY RETIX enhancement, take into consideration that the number of records in a table after a MUF outage is likely to be inaccurate.

### SORTDFLT=

*(z/OS only)* As previously noted, the SORT= value can now be overridden with what is expected to be a more accurate number. SORTDFLT= can be set to the following:

- YES - SORT value must be specified with a value greater than zero
- NO - Default

### DBUTLTY RETIX Report Changes

An additional section to the RETIX report was added before the table and count information.

For more information, see the *CA Datacom/DB DBUTLTY Reference Guide*.

## DBUTLTY INIT Enhancements

The INIT function has been enhanced as follows.

### OPTION1=REINIT

A new option, OPTION1=REINIT, can be used during initialization to "re-initialize" an index area or data area. Specifying OPTION1=REINIT requires that you also specify VERIFY=YES.

OPTION1=REINIT causes history information in the control block to be retained. Without OPTION1=REINIT, all history data is removed.

When using OPTION1=REINIT, the data set is re-initialized with the same number of tracks that were in use before the INIT, and no additional tracks are found or added to the data set during the INIT. When OPTION1=REINIT is not specified, the INIT closes the data set for update, opens the data set for output (honoring current, complete JCL specifications), closes the data set for output, then reopens the data set for update.

Adding space to an index or data area is normally accomplished using a DBUTLTY EXTEND function, but it can be done during an INIT function as well. A benefit of the OPTION1=REINIT for z/OS users is that it allows unused volumes to be added to data sets that do not have to be removed before an INIT. For example, in a z/OS environment, if you are not using SMS, you could INIT an area on 3 volumes and load the area. You might then manually uncatalog the area and recatalog it with an additional volume or volumes. Those additional volumes would be available for any dynamic extend for the area that was needed, but to prevent the INIT from forcing the use of the volumes that were added solely for the use of dynamic extend, you would need to manually uncatalog the area before another INIT and recatalog it without any additional volumes.

### VOLUMES=*n*

With the INIT function VOLUMES=*n,* you can specify the maximum number of volumes to initialize. Without the VOLUMES= option, the number of volumes having specific VOLSER information is initialized. The VOLUMES= option allows more volumes to be cataloged as part of the data set and made available to a DBUTLTY EXTEND or dynamic EXTEND, while being effectively held in reserve without a specific allocation. For example, you could specify VOLUMES=3 when using an INIT to initialize an area that needs three volumes, intending to only initialize the space on three volumes. But the JCL could specify six specific volumes, for example, VOL=SER=(VOL001,VOL002,VOL003,VOL004,VOL005,VOL006), so that volumes 4, 5, and 6 are not allocated or used during the INIT but are available to a dynamic extend. In this case, the extra volumes would not need to be removed before another INIT.

## DBUTLTY OLREORG Options to Allow Use of Empty Blocks

The CA Datacom DBUTLTY function OLREORG has been enhanced to allow the use of empty blocks in a reorganization when the amount of free space is limited in used data blocks. Support for the new OLREORG empty block includes the following categories:

- Implementation of a way to keep track of empty blocks
- New DBUTLTY behaviors
- Changes to the REPORT produced by OLREORG.
- External limits

## Keeping Track of Empty Blocks

CA Datacom/DB keeps track of the available space of a data area using a special key ID in each DBID index. In Version 12.0, data space options 1, basic space reclamation, and 2, wraparound mode, did not keep track of which blocks were logically empty, that is, blocks that were used in the past but currently have all their rows deleted.

To enhance the efficiency of OLREORG, the following space options were added that keep track of empty blocks:

- Option 4 is basic space reclamation with an empty block index.
- Option 5 is wraparound mode with an empty block index.

Support for these Space Management Options were added to the Datadictionary 3002 Area transaction.

Support was also added to the DBUTLTY CXXMAINT ALTER DSOP function, but we recommend that you change your space option in CA Datacom Datadictionary.

Changing the space option does not affect the loaded status of the data area and is effective immediately following its change in the CXX. Because the empty block index was not maintained in the past for basic and wraparound modes, we recommend that, when changing to a DSOP 4 or 5, you run a RETIX KEYNAME=*DATA to rebuild the space index, including the new empty block component of the space index.

**Note:** You are not required to run this RETIX.

## External Limits

If there are no more blocks in the empty block index, OLREORG uses the next available overflow (NAO) block. OLREORG never causes a dynamic extend.