BMC is releasing version 10.1.00 of the ALTER for DB2® and CHANGE MANAGER for DB2 products.

ALTER and CHANGE MANAGER are also components of BMC solutions:

- ALTER is a component of the Administrative Assistant for DB2 solution.
- CHANGE MANAGER is a component of the Database Administration for DB2 solution.

**NOTE**

Before you begin installation, BMC recommends that you check the Customer Support website at [http://www.bmc.com/support](http://www.bmc.com/support) for:

- updated product documentation (for example, flashes and technical bulletins)
- product downloads, patches, and fixes (PTFs)
- product availability and compatibility (PAC) data

These release notes supplement and supersede the product documentation and discuss product enhancements:

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What’s new

These topics describe the changes or new features in this release.

DB2 support

ALTER and CHANGE MANAGER support various features of the IBM® DB2 Universal Database™ for z/OS® subsystem.

Features of DB2 Version 10

ALTER and CHANGE MANAGER support the following features of DB2 Version 10:

- online schema changes that enable you to perform the following tasks:
  - alter the SEGSIZE, MEMBER CLUSTER, MAXPARTITIONS, and DSSIZE of table spaces
  - alter the BUFFERPOOL to a different size bufferpool for table spaces and indexes
  - remove pending changes for table spaces
- DEFINE NO large object (LOB) and XML table spaces (and their dependent indexes)
- length of inline LOB columns
  The products also support LOB columns that are referenced in indexes on an expression, and defaults for inline LOB columns that have a length defined in the INLINE LENGTH parameter.
- temporal tables with the BUSINESS_TIME period
- INCLUDE clause in a CREATE INDEX or ALTER INDEX statement for unique indexes
- precision value for a TIMESTAMP (TIMESTAMP) data type
- TIMESTAMP WITH TIME ZONE (TIMESTZ) data type
- DATE and TIMESTAMP data types in the AS SQL clause of an XML index
- removal of the PUBLIC AT ALL LOCATIONS clause in a GRANT statement for table and view privileges
  The products now process the PUBLIC AT ALL LOCATIONS clause in a DDL file as a PUBLIC clause.
the following new and modified BIND and REBIND options:

— ACQUIRE
— APRETAINDUP
— CONCURRENTACCESSRESOLUTION
— DBPROTOCOL
— EXTENDEDINDICATOR
— PLANMGMT

skip-level migration

ALTER and CHANGE MANAGER support migrating to DB2 Version 10 from DB2 Version 8, which introduces several new migration modes:

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM8</td>
<td>conversion mode from DB2 Version 8</td>
</tr>
<tr>
<td>CM8*</td>
<td>conversion mode* from DB2 Version 8</td>
</tr>
<tr>
<td>CM9</td>
<td>conversion mode from DB2 Version 9</td>
</tr>
<tr>
<td>CM9*</td>
<td>conversion mode* from DB2 Version 9</td>
</tr>
<tr>
<td>ENFM8a</td>
<td>enabling-new-function mode from DB2 Version 8</td>
</tr>
<tr>
<td>ENFM8*</td>
<td>enabling-new-function mode* from DB2 Version 8</td>
</tr>
<tr>
<td>ENFM9a</td>
<td>enabling-new-function mode from DB2 Version 9</td>
</tr>
<tr>
<td>ENFM9*</td>
<td>enabling-new-function mode* from DB2 Version 9</td>
</tr>
<tr>
<td>NFM</td>
<td>new-function mode</td>
</tr>
</tbody>
</table>

* Before using ALTER or CHANGE MANAGER in this mode, you must run the IBM DSNTIJEN job to successful completion. DSNTIJEN converts DB2 to enabling-new-function mode from DB2 Version 8 or 9.1. Successful completion of DSNTIJEN completes catalog migration. If DSNTIJEN does not complete successfully, ALTER and CHANGE MANAGER fail.

In contrast, ALTER and CHANGE MANAGER do not support the following features of DB2 Version 10:

■ objects that are organized by the hash access method
■ row and column access control through row permissions and column masks
■ temporal tables with the SYSTEM_TIME period
■ XML-schema validation with an XML-type modifier
The products perform in the following manner when they encounter an object that is associated with a DB2 Version 10 feature that is not supported:

- The Specification component either excludes unsupported objects from the Mixed List or issues an error message.
- The Analysis component issues an error message.
- The CHANGE MANAGER Compare and Baseline components ignore the objects.

Features of earlier versions of DB2

ALTER and CHANGE MANAGER also support the following features of earlier versions of DB2:

- APPEND option in CREATE TABLE and ALTER TABLE statements
- PLANMGMT BIND and REBIND options

LOB and XML columns in full-recovery baselines

CHANGE MANAGER can now include tables with columns that contain XML or LOB data in a full-recovery baseline. You can completely restore the data in these columns and the corresponding data structures.

**NOTE**

When CHANGE MANAGER is a component of the Database Administration solution, you can use the LOB DATA MOVER program to unload and load data that is contained in LOB columns. However, you cannot use the LOB DATA MOVER program to generate full-recovery baselines of tables that include a LOB column.

CHANGE MANAGER can invoke the following utilities to unload and load the XML or LOB columns:

- *(DB2 Version 9 or earlier)* BMC UNLOAD PLUS for DB2 and BMC LOADPLUS for DB2
- IBM UNLOAD and IBM LOAD

The utilities unload the XML or LOB columns by using a file reference data set. CHANGE MANAGER captures information about the file reference data set in a product table, the baseline report, and a worklist command:

- The CM_UNLOADDSN product table includes a SOURCETYPE column to indicate whether the utility generated the file reference data set for an XML or LOB column. SOURCETYPE F indicates a file reference.
The baseline report includes the source type in the unload data set information that is associated with the recoverable baseline.

The -UNRC worklist command includes the FILEREF parameter to indicate that the unload data set contains XML or LOB data.

Reorganization enhancements

You can now control whether to include a reorganization utility command in a worklist if changes result in DB2 placing table spaces and indexes in a REORG-pending status. The Analysis Reorg Options panel now allows you to select the following options:

- determine when to perform a reorganization (when required or when applicable)

For example, a reorganization is required under the following circumstances:

- The changes that you make to the object attributes cause DB2 to place the object in a REORG-pending (REORP) restrictive status (for example, a change to the limit key for a partition).

- DB2 requires that the objects be reorganized before data can be accessed.

A reorganization is optional or applicable under the following circumstances:

- The changes that you make to the object attributes cause DB2 to place the object in a REORG-pending (AREO*) advisory or an advisory REORG-pending (AREOR) status (for example, changes to data types or column lengths).

- DB2 suggests that the objects be reorganized for optimal performance.

- generate an online reorganization (by using the SHRLEVEL CHANGE option) when it is applicable

- if an online reorganization is not applicable or not requested, generate a reorganization by using the SHRLEVEL REFERENCE option or the SHRLEVEL NONE option

In addition, the products now allow you to use the IBM REORG utility to reorganize a LOB table space by performing either of these reorganizations:

- an online reorganization by using the SHRLEVEL CHANGE option
- a reorganization by using the SHRLEVEL REFERENCE option
The following table summarizes the new and changed ALUIN keywords and installation options that support the enhancement:

<table>
<thead>
<tr>
<th>Installation option</th>
<th>Option values</th>
<th>Corresponding ALUIN keyword</th>
<th>Keyword description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REORG</td>
<td>I</td>
<td>IBMREORG</td>
<td>use the IBM REORG utility to reorganize table spaces and indexes</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>BMCREORG</td>
<td>use the BMC REORG PLUS utility to reorganize table spaces and indexes</td>
</tr>
<tr>
<td>REORGALL</td>
<td>Y</td>
<td>REORGALL</td>
<td>reorganize a table space when a reorganization would be applicable</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>REORGPENDONLY</td>
<td>reorganize a table space when the table space requires a reorganization</td>
</tr>
<tr>
<td>REORGALT</td>
<td>Y</td>
<td>REORGALT</td>
<td><em>(DB2 Version 8 only)</em> generate a REORG TABLESPACE command in the worklist when a column is altered to the end of a table by using the ALTER TABLE statement</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>NOREORGALT</td>
<td><em>(DB2 Version 8 only)</em> do not generate a REORG TABLESPACE command in the worklist when an ALTER TABLE statement alters a column to the end of a table</td>
</tr>
<tr>
<td>REORGONL</td>
<td>Y</td>
<td>REORGONLINE</td>
<td>reorganize a table space by using an online reorg (SHRLEVEL CHANGE)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>NOREORGONLINE</td>
<td>do not use an online reorg (SHRLEVEL CHANGE) to reorganize a table space</td>
</tr>
<tr>
<td>REORGREF</td>
<td>Y</td>
<td>REORGREF</td>
<td>reorganize a table space by using the SHRLEVEL REFERENCE option when an online reorg (SHRLEVEL CHANGE) is not applicable or is not requested</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>REORGNONE</td>
<td>reorganize a table space by using the SHRLEVEL NONE option when an online reorg (SHRLEVEL CHANGE) is not applicable or is not requested</td>
</tr>
</tbody>
</table>

When reorganizing a table space that includes a table with one or more LOB columns, the product can now generate the REORG command with the AUX YES parameter on the base table space. The reorganization occurs on the base table space and all associated LOB table spaces simultaneously.

The following table summarizes the valid SHRLEVEL options for different versions of DB2:

<table>
<thead>
<tr>
<th>Object</th>
<th>DB2 version</th>
<th>Reorg utility</th>
<th>SHRLEVEL options</th>
</tr>
</thead>
<tbody>
<tr>
<td>index</td>
<td>8</td>
<td>IBM or BMC</td>
<td>CHANGE, REFERENCE, or NONE</td>
</tr>
<tr>
<td>table space</td>
<td>9, 10</td>
<td>IBM</td>
<td></td>
</tr>
<tr>
<td>LOB index</td>
<td>8</td>
<td>IBM or BMC</td>
<td>CHANGE or REFERENCE</td>
</tr>
<tr>
<td></td>
<td>9, 10</td>
<td>IBM</td>
<td></td>
</tr>
</tbody>
</table>
Validation of limit keys and sequencing

When you alter the limit key values for a table-controlled partitioned object, the product must alter each partition in a specific sequence. Each altered limit key cannot exceed the value of the existing limit key of the next partition. ALTER and CHANGE MANAGER now sort the limit key values so that ALTER TABLE ALTER PARTITION statements can be executed in the correct sequence.

ALTER and CHANGE MANAGER also validate the limit key values for index- and table-controlled partitioned objects to ensure that partition ranges do not overlap. The Analysis component detects any errors that might occur.

Work ID sorting

You can now sort a list of work IDs explicitly or implicitly:

- To sort the work IDs explicitly, issue the SORT command on the Command line.

You can sort the work IDs for one or more of the following columns: owner, name, type, status, status date, and comments. You can also sort the work IDs by sequence and by ascending or descending order.

- To sort the work IDs in ascending order implicitly, position the cursor on a column heading and press Enter.

Above-the-bar memory

ALTER and CHANGE MANAGER can use above-the-bar memory in foreground or batch mode.
In z/OS versions earlier than 1.10, the default value for the System Management Facility (SMF) MEMLIMIT parameter is 0; a value of 0 means that no address space can use virtual storage above the bar. In z/OS versions 1.10 and later, the default value is 2 GB.

For most jobs, BMC recommends a value of at least 1 GB for the MEMLIMIT parameter. However, if you are operating on LOB or XML data, BMC recommends a value of at least 32 GB.

This value is set in member SMFPRMxx in SYS1.PARMLIB. Use any of the following methods if you need to override the default value:

- Specify the MEMLIMIT parameter in the JCL.
- Specify REGION=0M in the JCL.
- Use the SMF IEFUSI exit.

Conversion of VARCHAR and VARGRAPHIC columns

The products now support converting a VARCHAR column to a VARGRAPHIC column or VARGRAPHIC to VARCHAR when the following conditions exist:

- You define the CCSID of the table as UNICODE.
- You select the IBM UNLOAD utility to unload the data, and the IBM LOAD utility to load the data.

Conversion of a DECIMAL column to CHAR or VARCHAR

If you are converting from a DECIMAL column with a scale of 0 to a CHAR or VARCHAR column, Analysis includes the REMOVEDECIMAL parameter on the column in the -BMCL command. The REMOVEDECIMAL parameter instructs the BMC LOADPLUS utility to remove the fractional portion, including the decimal point, of the value that it loads. For example, if you convert a DECIMAL(1,0) column to a CHAR(2) column, the utility preserves the sign and the digit. The utility does not preserve the decimal point.

Ability to multitask adding or dropping partitions

When you specify to use the BMC UNLOAD PLUS and LOADPLUS utilities, they can use separate data sets for each table space partition. They can also multitask unloading and loading data, including when you add or drop partitions in a table-controlled partitioned table space.
KEYCARD statistics

When you take index statistics with the IBM RUNSTATS utility, you can now take cardinality statistics for the key columns of an index. The products support this option on the Analysis Statistics Option panel and with the KEYCARD installation option.

OBIDs in a CREATE TABLE statement

The products now provide an option to include the internal identifier of a table (OBID) in a CREATE TABLE statement. When the GENOBID installation option is set to Y, the Analysis component generates the OBID parameter in the CREATE TABLE statement. In addition, when you compare a file or DB2 catalog to a catalog baseline or a DB2 catalog, the OVERRIDE(GENOBID) keyword specifies the value of the OBID as a comment for a CREATE TABLE statement in the CDL and the baseline report.

Rebound packages for native SQL stored procedures

When you change a DB2 object to which a native SQL stored procedure refers, the package that is associated with the stored procedure might need to be rebound. ALTER and CHANGE MANAGER can accomplish this task in one of the following ways:

- by generating a REBIND PACKAGE command in the worklist (recommended)
- by generating an ALTER PROCEDURE statement with the REGENERATE clause

The new REGENNSP installation option specifies which command or statement to generate. You can override REGENNSP with the REBINDNATIVE or REGENNATIVE ALUIN keywords. REBINDNATIVE is the default.

Text formatting

The products now maintain the formatting of the text of a view, trigger, or materialized query table (MQT) in an ISPF Edit session, worklist, CDL, or report. The products use the new -SQLT worklist command to process the text and retain the embedded blanks and line-feed control characters.

The worklist that you generate in version 10.1.00 might not work with earlier versions of the products. You should change the -SQLT worklist command to -SQL.
Global authorization IDs

The products can now suppress authorization switching but allow a global authorization ID (GLID). When the AUTHSW installation option is set to G, the products generate the -GLID command in the worklist and switch the authorization ID to the GLID. You can override AUTHSW with the new AUTHSWGLID ALUIN keyword.

Creation of new work IDs in batch Analysis

You can now automate your batch job processes by creating new work IDs in batch. In previous releases, you could specify the NEWWORKID keyword either in the AEXIN input stream (to create a receive-type work ID in Execution in batch) or in the ALUIN input stream (to create an alter-type work ID in Import). In this release, you can specify the NEWWORKID keyword in the ALUIN input stream to create a new migrate-type work ID in the batch Analysis component. This ability allows you to create work IDs by editing the JCL that ALTER or CHANGE MANAGER created outside the products.

Migration of data from image copy data sets

In the previous release, all partitions in a table space had to be in reordered row format (RRF) for the products to use the BMC RECOVER PLUS for DB2 product to migrate data from image copy data sets. In this release, you can use the FORCERESMAX ALUIN keyword to force RECOVER PLUS to migrate the data.

ALUIN input stream defaults

In previous releases, Analysis inserted the following keywords into the ALUIN input stream by default:

- NOTCPROTATE, which instructs Analysis not to create an ALTER TABLE ROTATE PARTITION statement in a worklist (even if you specified a value for the Rotate Parts field on the Tablespace Parts List panel for the work ID)
- NOIGNOREIMPLDEPS, which instructs Analysis to ignore the changes that cause the following objects to be dropped and created, or migrated:
  - table spaces
  - auxiliary objects
  - enforcing indexes that are defined as ROWID GENERATED BY DEFAULT
In this release, Analysis inserts the TCPROTATE and IGNOREIMPLDEPS keywords into the ALUIN input stream by default.

**ENV ALUIN keyword**

The ENV ALUIN keyword now includes the values for the DSNZPARM parameters in the Analysis diagnostic output.

**Exclusion of primary key constraints in scope rules**

When you exclude a unique constraint as a dependency of an object, CHANGE MANAGER excludes the unique key constraint and the primary key constraint. To include the primary key constraint in the scope, you can now manually add the OVERRIDE( KEEP-ALL-PRIMARY ) keyword to the ALUIN input stream.

**Ability to ignore limit keys in comparisons**

You can now add the OVERRIDE( NOLIMITKEYS ) keyword to the ALUIN input stream. The keyword tells CHANGE MANAGER to ignore the LIMITKEY attribute of a partitioned table space in a comparison.

**Space estimates**

You can use the BMC Simple Space Estimation (SSE) feature to determine the amount of space that a table space or index will require based on data structure definitions and their estimated usages. This feature does not require you to have the BMCSTATS component of the BMC DASD MANAGER PLUS product installed. To initiate the feature, type SSE on the Command line.

**Support of triggers in DML**

The CM/PILOT component of CHANGE MANAGER now supports creating, migrating, updating, and deleting triggers by using data manipulation language (DML).
Migration of parent objects

With the CM/PILOT component of CHANGE MANAGER, you can easily migrate dependent objects. With this release, CM/PILOT enables you to migrate the parent objects of table spaces, tables, columns, indexes, and index key columns. To include the parent objects, specify the INCLUDE PARENTS clause in the MIGRATE DML statement.

New sample DML statements

With CHANGE MANAGER, you can import files that contain CM/PILOT DML statements. CHANGE MANAGER can process these files, whether they were received from the same or another subsystem, and apply the changes. Sample DML statements that you can import with CHANGE MANAGER are provided in several members in the HLQ.CNTL data set.

The following members are new for this release:

<table>
<thead>
<tr>
<th>Member</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACMDMLUA</td>
<td>converts index-controlled partitioned table spaces to range-partitioned table spaces</td>
</tr>
<tr>
<td>ACMDMLUB</td>
<td>converts table-controlled partitioned table spaces to range-partitioned table spaces</td>
</tr>
<tr>
<td>ACMDMLUC</td>
<td>converts table-controlled partitioned table spaces, index-controlled partitioned table spaces, and nonpartitioned simple or segmented table spaces to partition-by-growth table spaces</td>
</tr>
<tr>
<td>ACMDMLUD</td>
<td>converts explicit databases and implicit table spaces to implicit databases and table spaces</td>
</tr>
<tr>
<td>ACMDMLU9</td>
<td>converts index-controlled partitioned table spaces to table-controlled partitioned table spaces</td>
</tr>
<tr>
<td>ACMDMLT1</td>
<td>modifies and migrates objects for the SHRLEVEL REFERENCE process for the BMC Recovery Management for DB2 High Speed Structure Change (HSSC) feature</td>
</tr>
<tr>
<td>ACMDMLT2</td>
<td>creates objects for the SHRLEVEL CHANGE process for the Recovery Management HSSC feature</td>
</tr>
</tbody>
</table>
Changes to product tables

The following ALTER and CHANGE MANAGER product tables changed for this release:

- CD_COLUMN
- CD_INDEX
- CD_KEY
- CD_TABLE
- CD_TRIG_TEXT
- CD_VIEW_TEXT

The following CHANGE MANAGER product tables changed for this release:

- BL_COLUMN
- BL_INDEX
- BL_KEY
- BL_TABLE
- BL_TRIG_TEXT
- BL_VIEW_TEXT

The following ALTER and CHANGE MANAGER product tables are new for this release:

- BL_TRIG_TEXT_AUX
- BL_VIEW_TEXT_AUX
- CD_TRIG_TEXT_AUX
- CD_VIEW_TEXT_AUX

Automatic restarts for work IDs

Execution now automatically restarts executing a work ID when all of the following conditions exist:

- Execution updated the status of the work ID to Exec Strt (Execution started).
- An error occurred or Execution encountered a -STOP command.
- You submitted the initial Execution JCL again, instead of submitting restart JCL.
- The AEXIN input stream does not include the RESTART keyword.
MEMLIMIT system parameter

The JCL Generation component now supports the MEMLIMIT system parameter, which limits above-the-bar memory for an address space. You can specify a MEMLIMIT value in the JCL Generation Jobcard Options panel, or in the MEMLIMIT keyword in the product options file (POF).

POF keywords to suppress the DD name for copy data sets

The JCL Generation component offers the following POF keywords to suppress adding DD names to prefixes for the copy data sets:

- FCPY_SUPPRESS_SUFF
- PCPY1_SUPPRESS_SUFF
- PCPY2_SUPPRESS_SUFF
- RCPY1_SUPPRESS_SUFF
- RCPY2_SUPPRESS_SUFF

RUNTIME_HLQ

The RUNTIME_HLQ POF keyword supports the following symbolic variables:

- &DB2V2 and &DB2V3, which resolve to the version of DB2
- &SSID, which resolves to the DB2 subsystem ID

When you include the &SSID symbolic variable, the product can use a single POF with multiple subsystems.

Maximum number of tape volumes

You can now specify 0 for the maximum number of tape volumes. BMC recommends specifying 0 when you are using any of the following items:

- BMC UNLOAD PLUS utility
- dynamically allocated data sets
- IBM Storage Management Subsystem (SMS) to manage tape allocations

You can set this value on the JCL Generation Tape Options Update panel or with the TAPE_VOLCNT POF keyword.
Known DB2 problems

Two problems occur when you use DB2 Version 10:

- IBM REORG fails when a specific table space does not include an index.

  When one of the following partitioned table spaces does not include an index, the IBM REORG utility issues a system S04E abend:
  - table controlled
  - range partitioned
  - partition by growth

  This problem will be fixed with IBM APAR PM33671, which is not yet available. In the interim, you can perform one of the following workarounds:
  - Add an index.
  - Add a SYSUT1 DD card to the JCL, and restart the utility.
  - Terminate the utility, change the REORG command to SHRLEVEL REFERENCE or SHRLEVEL NONE, and restart the utility.

- IBM LOAD fails when loading a Unicode table with a TIMESTAMP column.

  When the IBM UNLOAD utility unloads Unicode data into a TIMESTAMP column and the size of the data is smaller than the length of the column, the IBM LOAD utility fails. The problem occurs because the IBM UNLOAD utility pads the column with binary zeros instead of spaces.

  This problem will be fixed with IBM APAR PM32764, which is not yet available.

Restrictions

In some situations, ALTER and CHANGE MANAGER cannot use BMC utilities to complete specific tasks. The following table summarizes the situations that BMC has identified to date and indicates the restrictions as follows:

- For a given situation, X means ALTER and CHANGE MANAGER cannot use the specified utility.
- R means ALTER and CHANGE MANAGER can use the utility in the given situation on a restricted basis (that is, under certain circumstances, as explained by the table footnotes).
- Blank (gray) cells indicate that the situation is not relevant to the specified utility.
<table>
<thead>
<tr>
<th>Situation</th>
<th>BASIC UNLOAD</th>
<th>UNLOAD PLUS</th>
<th>UNLOAD PLUS from image copies</th>
<th>RECOVER PLUS from image copies</th>
<th>LOADPLUS</th>
<th>RECOVER PLUS LOADPLUS</th>
<th>RECOVER PLUS REBUILD INDEX</th>
<th>Space estimation</th>
<th>BMCSTATS feature of DASD MANAGER PLUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A base table includes a LOB column.</td>
<td>X</td>
<td>R&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>X</td>
<td>X</td>
<td>R&lt;sup&gt;a&lt;/sup&gt;</td>
<td>X</td>
<td>X</td>
<td>R&lt;sup&gt;c&lt;/sup&gt;</td>
<td>R&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td>A table contains an inline LOB.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>The size of the LOB column was decreased.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>You are converting a LOB column from NULL to NOT NULL.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A LOB or an XML auxiliary object is defined as DEFINE NO.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A base table includes an XML column.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>An index is defined on an XML column.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>An XML column is defined with an XML type modifier.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>An XML index contains the DATE and TIMESTAMP data types.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A table contains a TIMESTAMP WITH TIME ZONE (TIMESTZ) data type.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A table contains a precision value for a TIMESTAMP (TIMESTAMP) data type.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>The encoding scheme is defined as Unicode, and a new GRAPHIC column that is being loaded is defined as NOT NULL and NO DEFAULT.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>You are converting a Unicode GRAPHIC or VARGRAPHIC data type from or to another data type.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>You are converting from a VARCHAR data type to BLOB or DBCLOB.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A table includes an index that is created on an expression.</td>
<td>X&lt;sup&gt;e&lt;/sup&gt;</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A table that is being loaded includes an index with a key stored in random order.</td>
<td>X&lt;sup&gt;e&lt;/sup&gt;</td>
<td>X&lt;sup&gt;f&lt;/sup&gt;</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>An index contains an INCLUDE column.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A temporal table defines a BUSINESS_TIME period.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>The MEMBER CLUSTER attribute of a universal table space (UTS) is set to YES.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A table space exists in an implicitly created database.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>A table space is a range-partitioned universal table space.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>A table space is a simple table space.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Restrictions

Additional restrictions are as follows:

- On DB2 Version 10 subsystems, the Analysis component of ALTER and CHANGE MANAGER has disabled the use of the BMC REORG PLUS for DB2 utility. The products use the IBM REORG utility, instead.

- On DB2 Version 8 or later subsystems, the Analysis component of ALTER and CHANGE MANAGER has disabled the use of the BMC CHECK PLUS for DB2 utility. The products use the IBM CHECK utility, instead.

- You cannot use the LOB DATA MOVER to unload and load tables that include an XML column.

- The CM/PILOT component of CHANGE MANAGER does not allow you to estimate space if DB2 created the table space implicitly in a Version 9 or later subsystem.

- ALTER and CHANGE MANAGER do not support INSTEAD OF triggers.

- With APAR PK51752, IBM modified the CREATE TABLE statement to support implicitly creating table spaces for range-partitioned tables. However, ALTER and CHANGE MANAGER do not support this feature.
The JCL Generation component of the products constructs a JCL file for running the Analysis, Import, Compare, Baseline, Baseline Report, and CM/PILOT components in batch. The batch JCL that you generated in product version 9.1.01 or earlier might not work with version 10.1.00. You should regenerate the JCL by using version 10.1.00.

Documentation changes

Revision bars in the documentation denote differences from earlier editions. To view the documentation, see the Customer Support website at http://www.bmc.com/support.

Installation

Download the latest version of ALTER or CHANGE MANAGER by using the Electronic Product Distribution (EPD) facility. You can navigate to the EPD page from the Customer Support website at http://www.bmc.com/support.

NOTE

To request physical shipments, contact your BMC sales representative. Contact information is available on the BMC website.

ALTER and CHANGE MANAGER are installed by using the BMC Installation System. This section contains installation information that supplements or supersedes the information in the installation guide.

Installation System changes

The Installation System includes the following changes:

- The Product Customization menus accommodate new features, such as the DB2 Product Configuration technology, the DB2 Component Services (DBC), and the Next Generation Logger (NGL). Some BMC MainView for DB2, BMC System Performance for DB2, and BMC SQL Performance for DB2 products use this technology.
You can use a new feature, BMC Internet Service Retrieval (ISR). BMC ISR identifies and applies fixes to all products that you install via the Installation System. For more information, see the installation guide.

ALTER and CHANGE MANAGER now use the following conventions for synonym qualifiers, collection IDs, and plan names:

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Convention</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>synonym qualifier</td>
<td>prdrvry</td>
<td>ACMorD</td>
</tr>
<tr>
<td>collection ID</td>
<td>prdrv_y_MAIN</td>
<td>ACMor_D_MAIN</td>
</tr>
<tr>
<td>plan name</td>
<td>prdrvryz</td>
<td>ACMovyA</td>
</tr>
</tbody>
</table>

The variables represent the following items:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Represents</th>
</tr>
</thead>
<tbody>
<tr>
<td>v</td>
<td>version level</td>
</tr>
<tr>
<td>r</td>
<td>release level</td>
</tr>
<tr>
<td>y</td>
<td>access type (D=direct, I=indirect)</td>
</tr>
<tr>
<td>z</td>
<td>the plan’s function or the unique plan identifier</td>
</tr>
</tbody>
</table>

Migration considerations

Consider the following items when you migrate from an earlier version of DB2 to DB2 Version 10:

When either of the following sets of conditions exists, DB2 cannot run DDL that CATALOG MANAGER generates:

— After migrating a DB2 Version 8 or 9 NFM subsystem to DB2 Version 10 NFM, you create an object that is associated with a Version 10 feature (for example, a temporal table). Then, you fall back to Version 10 CM8*, ENFM8*, CM9*, or ENFM9*.

— After migrating a DB2 Version 8 NFM subsystem to DB2 Version 10 NFM, you create an object that is associated with a Version 9 feature. Then, you fall back to Version 10 CM8* or ENFM8.

Because a DB2 Version 10 NFM catalog now exists on the subsystem to which you fell back, that subsystem considers the newly created object to be valid. CATALOG MANAGER generates valid DDL for the object as it exists in the Version 10 NFM catalog; however, CATALOG MANAGER will not be able to recover the object or to include it in the Drop Recovery Log if dropped.
ALTER or CHANGE MANAGER issues an error message upon encountering the new object.

- When you migrate a DB2 Version 9 NFM subsystem to a DB2 Version 10 NFM subsystem, BMC recommends issuing the REBIND command and specifying EXPLAIN YES on all packages.

### Known installation issues

This section describes installation issues that remain open in this release.

#### DB2 Version 10 security parameter

If both of the following conditions exist at your site, contact BMC Customer Support before attempting to use the Installation System to customize your BMC products:

- Your subsystem is using DB2 Version 10.
- The DSNZPARM SEPARATE_SECURITY subsystem parameter is set to YES.

#### DB2 Product Configuration component

The name of the BMC Product Management (BPM) component is changing to the DB2 Product Configuration component (FMID ZLGCxxx). Documentation for the April 2011 release reflects the name change. A future release of the Installation System will replace BPM with DB2 Product Configuration in the installation panels and associated Help.

#### FMIDSETs

For products that contain the ZDIG190 FMID as part of an FMIDSET, attempting to run an apply check job ($B75APCF or $B80APCP) or an apply job ($B76APLF or $B81APLP) might result in the following errors:

GIM24801S ** NO SYSMODS SATISFIED THE OPERANDS SPECIFIED ON THE APPLY COMMAND.  
GIM20501I  APPLY PROCESSING IS COMPLETE. THE HIGHEST RETURN CODE WAS 12.

To address this issue, take the appropriate action as follows:

- **If you have not yet generated the installation ($B) jobs**, ensure that the Create FMIDSETs field on the Data Set Options panel is set to No (the default) before proceeding.

- **If you have already generated the installation jobs and received the specified error**, run the #D9 jobs to delete the data sets, and regenerate the JCL by using FMIDs instead of FMIDSETs.
BMC plans to correct this issue in the next release of the Installation System.

**Version and FMID information**

This release of ALTER and CHANGE MANAGER uses the following versions of the Installation System and installation media:

- version 2.3.10 or later of the Installation System
- version 2.3.10 or later of the C-series installation media

**NOTE**

If you have a later version of the Installation System or the installation media, use that version to install the solution, product, or component.

During installation, the following versions and SMP/E FMIDs are installed:

<table>
<thead>
<tr>
<th>Product or component</th>
<th>Version</th>
<th>FMID</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTER or CHANGE MANAGER</td>
<td>10.1.00</td>
<td>ZACMA10</td>
</tr>
<tr>
<td>BMC Password Security System</td>
<td>3.2.00</td>
<td>BBAPW32</td>
</tr>
<tr>
<td>BMC Space Estimation Common Code (ASH)</td>
<td>10.1.00</td>
<td>ZASHA10</td>
</tr>
<tr>
<td>BMCSORT</td>
<td>2.3.01</td>
<td>ZAUP231</td>
</tr>
<tr>
<td>Common SQL (ACS)</td>
<td>10.1.00</td>
<td>ZACSA10</td>
</tr>
<tr>
<td>DB2 Solution Common Code (SCC)</td>
<td>10.1.00</td>
<td>ZSCCA10</td>
</tr>
<tr>
<td>DB2 Utilities Common Code (D2U)</td>
<td>10.1.00</td>
<td>ZD2UA10</td>
</tr>
<tr>
<td>Dignus C runtimes and C++ objects</td>
<td>1.9.01</td>
<td>ZDIG190</td>
</tr>
<tr>
<td></td>
<td>1.9.00</td>
<td>ZDIG018</td>
</tr>
<tr>
<td>Install Execution Code (AIN)</td>
<td>3.1.00</td>
<td>ZAIN031</td>
</tr>
<tr>
<td>JCL Generation and Execution</td>
<td>10.1.00</td>
<td>ZAEXA10</td>
</tr>
<tr>
<td>Option value migration (ZIO)</td>
<td>1.5.00</td>
<td>ZZI0150</td>
</tr>
<tr>
<td>RECOVER PLUS for DB2</td>
<td>10.1.00</td>
<td>ZAFRA10</td>
</tr>
<tr>
<td>SAS/C Resident Library</td>
<td>7.1.00</td>
<td>ASAR71C</td>
</tr>
<tr>
<td>SAS/C Transient Library</td>
<td>7.1.00</td>
<td>BBASC70</td>
</tr>
<tr>
<td>UNLOAD PLUS</td>
<td>10.1.00</td>
<td>ZADUA10</td>
</tr>
</tbody>
</table>

The preceding table contains the FMIDs for ALTER and CHANGE MANAGER only. During installation, view one of the following generated JCL members to see a list of FMIDs for all of the products that you are installing:

- Express installation (JES2): $B90SMPE
- Express installation (JES3): $B91SMPE
- Custom installation: $B76APLF
To search the file, search on the word *FMID*.

**Maintenance**

After you install ALTER or CHANGE MANAGER, you can download any additional SMP/E maintenance by using either BMC Internet Service Retrieval (ISR) or eFix PTF Distribution Services ([http://apps.bmc.com/support/efix.cgi](http://apps.bmc.com/support/efix.cgi)). BMC ISR is available for all products that you install via the Installation System. For more information, see your installation guide.

---

**NOTE**

Before applying maintenance, ensure that you have completed the appropriate jobs (based on your installation method) to set up your maintenance environment, as follows:

- Custom installation: $B78ACPF and $B83ACCP
- Express installation (JES2): $B90SMPE
- Express installation (JES3): $B90SMPE and $B91SMPE

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**PUT maintenance schedule**

BMC did not deliver first-quarter 2011 PUT maintenance (PUT1101A). Instead, BMC will deliver that maintenance as part of the second-quarter cumulative maintenance in PUT1101B. For information about the PUT delivery schedule, see [http://www.bmc.com/support/put-availability-schedule.html](http://www.bmc.com/support/put-availability-schedule.html).

In the interim, you can use the new BMC Internet Service Retrieval (ISR) feature to identify and apply fixes to all products that you installed via the Installation System. BMC ISR simplifies ordering and retrieving service updates, either on demand or through your scheduler. You can use BMC ISR to inventory your target zones and generate a single request, or schedule a request on a recurring basis to retrieve maintenance updates. For more information, see the maintenance section of your installation guide.

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**NOTE**

If you prefer, you can continue to use eFix PTF Distribution Services to obtain fixes on demand.
Support status

BMC supports the following versions of ALTER and CHANGE MANAGER:

<table>
<thead>
<tr>
<th>Version</th>
<th>Level of support</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1.x</td>
<td>full</td>
</tr>
<tr>
<td>9.3.x</td>
<td>full</td>
</tr>
<tr>
<td>9.2.x</td>
<td>limited</td>
</tr>
<tr>
<td>7.4.03</td>
<td>limited&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> Limited support is provided if the product is installed on a DB2 Version 8 subsystem in compatibility mode. No support is provided if the product is installed on a DB2 Version 7 subsystem.

For more information about the latest support policies, see the Customer Support website at [http://www.bmc.com/support](http://www.bmc.com/support).

Product documentation

BMC provides a documentation CD in product shipments and offers a link to the CD image on the EPD page of the Customer Support website. Individual product documents (books and notices) are also available on the website. You can order hardcopy documentation from your BMC sales representative or from the website. You can also subscribe to proactive alerts to receive e-mail messages when notices are issued or updated.

Customer support

If you have problems with or questions about a BMC product, see the Customer Support website at [http://www.bmc.com/support](http://www.bmc.com/support). You can view or download product documents, find answers to frequently asked questions, and download products and maintenance. If you do not have access to the web and you are in the United States or Canada, contact Customer Support at 800 537 1813. Outside the United States or Canada, contact your local BMC office or agent.