BMC is releasing version 10.1.00 of the Administrative Assistant for DB2 solution. This solution includes the following components:

- ALTER for DB2
- CATALOG MANAGER for DB2

**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.

Administrative Assistant version 10.1.00

The following components and technologies have had a new release since the last version of this solution:

- ALTER
- CATALOG MANAGER
- JCL Generation and Execution
- RECOVER PLUS for DB2
- UNLOAD PLUS for DB2

ALTER version 10.1.00

Version 10.1.00 of the ALTER component includes the following changes.

DB2 support

ALTER supports various features of the IBM® DB2 Universal Database™ for z/OS® subsystem.

Features of DB2 Version 10

ALTER supports 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

ALTER also supports 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

ALTER now processes 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 supports 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>
</tbody>
</table>
In contrast, ALTER does 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

ALTER performs in the following manner when it encounters 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.

**Features of earlier versions of DB2**

ALTER also supports the following features of earlier versions of DB2:

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

**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, ALTER now allows you to use the IBM REORG utility to reorganize a LOB table space by performing either or 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 for DB2 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>
</tbody>
</table>
When reorganizing a table space that includes a table with one or more LOB columns, ALTER 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>Installation option</th>
<th>Option values</th>
<th>Corresponding ALUIN keyword</th>
<th>Keyword description</th>
</tr>
</thead>
<tbody>
<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, ALTER 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>
<tr>
<td>LOB table space</td>
<td>8</td>
<td>not applicable</td>
<td>No reorganization</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>IBM</td>
<td>The product generates commands to drop and re-create the table space.</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>IBM</td>
<td>REFERENCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The product can generate the REORG command with the AUX YES parameter on the base table space.</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 now sorts the limit key values so that ALTER TABLE ALTER PARTITION statements can be executed in the correct sequence.

ALTER also validates 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 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**

ALTER now supports 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 for DB2 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. ALTER supports this option on the Analysis Statistics Option panel and with the KEYCARD installation option.

OBIDs in a CREATE TABLE statement

ALTER now provides 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.

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 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**

ALTER now maintains the formatting of the text of a view, trigger, or materialized query table (MQT) in an ISPF Edit session, worklist, or report. ALTER uses 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 ALTER. You should change the -SQLT worklist command to -SQL.

**Global authorization IDs**

ALTER can now suppress authorization switching but allow a global authorization ID (GLID). When the AUTHSW installation option is set to G, ALTER generates the -GLID command in the worklist and switches 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 created outside the product.

**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 ALTER to use BMC RECOVER PLUS 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 NOIGNOREIMPLDEPS 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.

**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 for DB2 product installed. To initiate the feature, type `SSE` on the Command line.

**Changes to product tables**

The following ALTER product tables changed for this release:

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

The following ALTER product tables are new for this release:

- BL_TRIG_TEXT_AUX
- BL_VIEW_TEXT_AUX
- CD_TRIG_TEXT_AUX
- CD_VIEW_TEXT_AUX
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 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 cannot use the specified utility.
- R means ALTER 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>BMCFASTLOAD feature with UNLOAD PLUS and LOADPLUS</th>
<th>RECOVER PLUS REBUILD INDEX</th>
<th>BMCSTATS feature of DASD MANAGER PLUS</th>
<th>Space estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A base table includes a LOB column.</td>
<td>X</td>
<td>R&lt;sup&gt;a&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>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</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>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 is a range-partitioned universal table space.</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 is a simple table space.</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>
</tbody>
</table>
Additional restrictions are as follows:

- On DB2 Version 10 subsystems, the Analysis component has disabled the use of BMC REORG PLUS. ALTER uses the IBM REORG utility, instead.

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

- ALTER does 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 does not support this feature.

- The JCL Generation component constructs a JCL file for running the Analysis and Import components in batch. The batch JCL that you generated in ALTER 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.

Support status

BMC supports the following versions of ALTER:

<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(^a)</td>
</tr>
</tbody>
</table>

\(^a\) 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.

ALTER version 7.4.03

The ALTER version 7.4.03 component has not changed since version 9.2.00 of the Administrative Assistant solution. For a list of features and functions that were new in version 7.4.03 of ALTER, see the release notes for version 9.2.00 of the Administrative Assistant solution.

CATALOG MANAGER version 10.1.00

Version 10.1.00 of the CATALOG MANAGER component includes the following changes.

DB2 support and toleration

CATALOG MANAGER supports or tolerates various features of the IBM DB2 Universal Database for z/OS subsystem.
**Supported features**

CATALOG MANAGER supports the following features of DB2 Version 10:

- **INCLUDE clause with a CREATE, ALTER, or DDL command on a unique index**

  The INCLUDE clause specifies an additional index key column that does not enforce the uniqueness of the index.

- **length of inline large object (LOB) columns**

  CATALOG MANAGER also supports LOB columns that are referenced in indexes on an expression and defaults for inline LOB columns that have a length defined.

- **DATE and TIMESTAMP data types in the AS SQL clause of an XML index**

- **enhancements to online reorganizations, including extending the PART parameter in the REORG TABLESPACE statement and adding the AUX keyword to the SHRLEVEL REFERENCE and SHRLEVEL CHANGE parameters**

  CATALOG MANAGER can use the IBM REORG utility to reorganize a LOB table space by performing an online reorganization with the SHRLEVEL CHANGE option.

- **hash access path for accessing rows by using a hash key**

- **MEMBER CLUSTER clause in a CREATE TABLESPACE and an ALTER TABLESPACE statement for a partition-by-growth or range-partitioned table space**

- **precision value for a TIMESTAMP data type**

- **TIMESTAMP WITH TIME ZONE data type**

- **temporal tables with the BUSINESS_TIME or SYSTEM_TIME period**

- **DEFINE NO LOB and XML table spaces (and their dependent indexes)**

- **pending definition changes for table spaces and indexes**

  CATALOG MANAGER also supports the DROP PENDING CHANGES clause on the ALTER TABLESPACE statement.

- **the following new or modified BIND and REBIND options for plans and packages:**

  - CONCURRENTACCESSRESOLUTION
  - EXPLAIN
  - EXTENDEDINDICATOR
  - SQLERROR

- **BIND QUERY and FREE QUERY commands**
the following SYSTEM privileges for the DCL, GRANT, HGRANT, and REVOKE commands:

— ACCESSCTRL
— CREATE_SECURE_OBJECT
— DATAACCESS
— DBADM
— EXPLAIN
— SQLADM

SECURED option in CREATE TRIGGER, ALTER TRIGGER, CREATE FUNCTION, and ALTER FUNCTION statements

row and column access control through row permissions and column masks, as follows:

— generates DDL and MDDL on permission (PM) and mask (MK) objects
— generates ALTER PERMISSION, CREATE PERMISSION, ALTER MASK, and CREATE MASK statements
— generates HDDL and enables the drop recovery function to generate DDL for the ALTER TABLE ACTIVATE ROW ACCESS CONTROL and ALTER TABLE ACTIVATE COLUMN ACCESS CONTROL statements

skip-level migration

CATALOG MANAGER supports 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>
</tbody>
</table>
For earlier versions of DB2, CATALOG MANAGER also supports the use of 128-byte object names in the DESCRIBE command for tables and views.

**Tolerated features**

CATALOG MANAGER tolerates the following features of DB2 Version 10:

- CATALOG MANAGER tolerates the definition of an XML-type modifier on an XML column definition to validate the XML schema feature of DB2 Version 10.

- For DB2 Version 10, the REVOKE_DEP_PRIVILEGES subsystem parameter controls whether revoking the privileges of one SQLID causes DB2 to revoke privileges of additional SQLIDs. How you set this DSNZPARM parameter affects your ability to modify the REVOKE statements that CATALOG MANAGER generates in the Confirm SQL for Revoke Reassign panel:
  
  - If REVOKE_DEP_PRIVILEGES = NO, DB2 does not assign the privileges that DB2 would revoke as the result of a REVOKE command to another SQLID. That is, on the Confirm SQL for Revoke Reassign panel, you cannot
    
    - type Y in the Reassign Grants field to reassign the privileges to the SQLID specified in the Reassign GRANTOR field
    
    - type the SQLID of a new grantor for the cascading authorizations in the Reassign GRANTOR field

    You can, however, issue the CASCADE command on an object to create a report that shows the hierarchy of authorizations for a DB2 object and the implications of issuing a REVOKE command.

  - If REVOKE_DEP_PRIVILEGES = SQLSTMT, you can assign the privileges that DB2 would revoke as the result of a REVOKE command to another SQLID. However, if CATALOG MANAGER encounters a DB2 Version 10 authorization feature, the product issues an error message.
If you are using a version of CATALOG MANAGER that does not tolerate or exploit features of the DB2 version that you are using, the product issues a message.

**Connection to a remote IBM DB2 subsystem from a location list**

To connect to a remote DB2 SSID from a location (LO) list, you can now use one of the following methods:

- Issue the CONNECT command from the **Cmd** field on a location list.
- Issue the CONNECT BATCH command on a location list.

You can also edit the SYSIN input stream and specify the CONNECT command.

**DB2 commands on a remote DB2 SSID and in batch mode**

To issue DB2 commands to display, start, or stop objects, you can now use one of the following methods:

- Connect to a remote DB2 SSID and issue the DISPLAY, START, or STOP command from the **Cmd** field on an object list.

**NOTE**

Before you can issue DB2 commands on a remote DB2 SSID, the SYSPROC.ADMIN_COMMAND_DB2 stored procedure must be installed and available. Otherwise, the commands will fail.

- Issue the DISPLAY BATCH, START BATCH, or STOP BATCH command on an object list.

You can issue these commands from a remote DB2 SSID to which you have connected, or from a local DB2 SSID.

- Edit the SYSIN input stream and specify the DISPLAY, START, or STOP command.

**Commands table**

In previous releases, the COMD installation option enabled you to specify a user commands table name and optionally copy an existing user commands table module. CATALOG MANAGER no longer uses this installation option.
The commands that CATALOG MANAGER lists in the Commands List panel are defined in the primary commands table in the ACTCOMND member of the HLQ.DBCNTL library. This member contains all of the correct values for your installation. The contents vary among versions of CATALOG MANAGER.

Although you cannot modify the ACTCOMND member directly, you can create a user commands table. This table contains your modifications to existing commands and any new commands, and overrides the primary commands table. You specify your user commands table in the UCOMD installation option. When you invoke CATALOG MANAGER, the product merges the primary commands table with your user commands table.

**Enhancements to the Commands List panel**

CATALOG MANAGER now groups the commands on the Commands List panel in the following categories:

- CATALOG MANAGER commands
- DB2 action commands
- utility commands
- statistics commands
- list commands
- user commands

The panel now displays the command, the command type, and the list of the valid list types from which you can enter the command or the valid object types.

**Data in LOB columns**

You can now browse up to 2 MB of data in LOB columns.

**Drop tables with RESTRICT ON DROP**

When you specify to drop a database, table space, or table, CATALOG MANAGER can now analyze each DROP command to determine whether a table includes the DROP RESTRICT attribute. If the table contains the attribute, the product can generate an ALTER TABLE DROP RESTRICT ON DROP command before the DROP command. To enable this functionality, type Y in the Remove DROP RESTRICT field on the Confirm DROP panel.

**New option for TERSE/VERBOSE**

The General Options panel now provides an option to specify how much output you want CATALOG MANAGER to produce in the DDL process (terse or verbose). This option is supported only for partitioned table spaces and indexes.
SET CURRENT SQLID statement

In previous releases, CATALOG MANAGER did not generate a SET CURRENT SQLID = grantor statement before each GRANT statement. With this release, CATALOG MANAGER provides the Build SQLID before GRANT switch that enables generating the SET CURRENT SQLID statement before each GRANT statement. CATALOG MANAGER generates these GRANT statements for the following commands:

- HGRANT
- HDDL (with the HDDL Auths switch set to Y)
- REVOKE (with the Reassign Grants option)
- DCL
- COPYAUTHS

New lists

CATALOG MANAGER now provides the following lists:

<table>
<thead>
<tr>
<th>List command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APO</td>
<td>lists the audit policies from the SYSIBM.SYSAUDITPOLICIES table</td>
</tr>
<tr>
<td>ARH</td>
<td>lists historical information about autonomic stored procedures in the SYSIBM.SYSAUTORUNS_HIST table</td>
</tr>
<tr>
<td>ATS</td>
<td>lists statistics alerts from autonomic stored procedures in the SYSIBM.SYSAUTOALERTS table</td>
</tr>
<tr>
<td>ATW</td>
<td>lists time windows for running autonomic stored procedures in the SYSIBM.SYSAUTOTIMEWINDOWS table</td>
</tr>
<tr>
<td>MK</td>
<td>lists the column masks from the SYSIBM.SYSCONTROLS table</td>
</tr>
<tr>
<td>PDD</td>
<td>lists information about the objects that have pending changes to data definitions from the SYSIBM.SYSPENDINGDDL table</td>
</tr>
<tr>
<td>PGC</td>
<td>lists the package copies from the SYSIBM.SYSPACKCOPY table</td>
</tr>
<tr>
<td>PM</td>
<td>lists the row permissions from the SYSIBM.SYSCONTROLS table</td>
</tr>
<tr>
<td>QRO</td>
<td>lists the optimization parameters for queries from the SYSIBM.SYSQUERYOPTS table</td>
</tr>
<tr>
<td>QRP</td>
<td>lists the plan hint information for queries from the SYSIBM.SYSQUERYPLAN table</td>
</tr>
<tr>
<td>QRY</td>
<td>lists the queries from the SYSIBM.SYSQUERY table</td>
</tr>
<tr>
<td>TBP</td>
<td>lists the table profiles from the SYSIBM.SYSTABLES_PROFILES table</td>
</tr>
</tbody>
</table>
New commands

CATALOG MANAGER now provides the following commands:

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXCHANGE</td>
<td>exchanges data between two tables, one of which must be a clone of the other</td>
</tr>
<tr>
<td>TRUNCATE</td>
<td>deletes all rows for a base or global temporary table</td>
</tr>
<tr>
<td>TYPES</td>
<td>shows the available lists that CATALOG MANAGER can display</td>
</tr>
</tbody>
</table>

Enhanced commands

CATALOG MANAGER has enhanced the functionality of the HGRANT and HDDL commands:

- You can now issue the HGRANT command on views (VW). The HGRANT command enables you to grant privileges on a hierarchy of DB2 objects.
- You can now issue the HDDL command on procedures (PR) and native SQL procedures (NP). The HDDL command generates DDL to create a hierarchy of objects.

SQL area size

The SQL and Confirm Options panel no longer provides an option for you to specify the memory size for the work area that CATALOG MANAGER uses for processing SQL (SQL area size field). Now, CATALOG MANAGER always uses 2 MB for the memory size.

Display of packages for sequence objects

You can now issue the PG (package) command on a sequence object in a Sequences List. The dependency of the package on the sequence object must be specified in the SYSIBM.SYSPACKDEP catalog table.

Exclusion of MQTs from HDDL

In the Object Use Options panel, you can specify whether to include objects in the CREATE statements that the HDDL command produces. With this release, when you choose to exclude tables from the HDDL, CATALOG MANAGER also excludes materialized query tables (MQTs).
Ability to execute DDL generated in batch

In previous releases, when you used the BATCH keyword with the DDL command, CATALOG MANAGER generated comments at the top of the output file. These comments were preceded by an asterisk (*) in column 1. As a result, you could not execute the DDL without first manually deleting the comments. CATALOG MANAGER now precedes these comments with dashes (--) in columns 1 and 2. Thus, you no longer need to delete the comments before you execute the DDL.

Refreshed user options

The following installation options now include ,R in the variable syntax. ,R indicates that the specified value will refresh the existing value of the variable in the user’s ISPF profile data set:

- ADSN
- BDSN
- CUP
- JDSN
- LDSN
- PDSN
- TDSN
- WDSN

Expanded views list

In previous releases, when you issued a VW (view) command on a database or a table space, CATALOG MANAGER displayed only the views in the SYSIBM.SYSTABLES catalog table that were type V and that matched the database name or table space name. CATALOG MANAGER now displays all of the views that are associated with the database or table space.

Expanded Session Log

The Session Log captures information pertaining to actions invoked by users during a CATALOG MANAGER session. With this release, the Session Log also captures actions that are performed with the data browsing and data editing functions.
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.

HEX command

BMC is deprecating the HEX command in this release.

Support status

BMC supports the following versions of CATALOG 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>9.1.x</td>
<td>limited</td>
</tr>
</tbody>
</table>

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

BMCSORT version 2.3.01

The BMCSORT version 2.3.01 component has not changed since version 9.3.00 of the Administrative Assistant solution. For a list of features and functions that were new in version 2.3.01 of BMCSORT, see the release notes for version 9.3.00 of the Administrative Assistant solution.
JCL Generation and Execution version 10.1.00

Version 10.1.00 of the JCL Generation and Execution components include the following changes.

**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 for FlashCopies**

The JCL Generation component now offers the following POF keywords to support creating FlashCopies (point-in-time copies of a volume) with the IBM FlashCopy® feature:

- FCPY_DATACLASS
- FCPY_EXPDT
- FCPY_MGMTCLASS
- FCPY_PREFIX
- FCPY_PRIQTY
- FCPY_RETPD
- FCPY_SECQTY
- FCPY_STORCLASS
- FCPY_SUPPRESS_SUFF
- FCPY_UNIT
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.
RECOVER PLUS version 10.1.00

Version 10.1.00 of the RECOVER PLUS component includes the following changes.

DB2 Version 10 support

RECOVER PLUS supports the following DB2 Version 10 features and changes:

- auto-compression (compress on INSERT)
- catalog changes and restructuring
- DEFINE NO LOB and XML spaces
- new DBA authorities system DBADM and DATAACCESS

RECOVER PLUS now checks for system DBADM and DATAACCESS authorities prior to execution.

System DBADM and DATAACCESS are added to the list of accepted authorities.

- IBM FlashCopy image copies

RECOVER PLUS can use IBM FlashCopy image copies as a recovery resource (similar to BMC Snapshot copies). RECOVER PLUS processes FlashCopy image copies during the RECOVER PLUS SNAP phase:

- processes a consistent FlashCopy in the same way as a BMC Online Consistent Copy
- processes an inconsistent FlashCopy as a SHRLEVEL CHANGE copy
- processes sequential copies created from a consistent FlashCopy in the same way as sequential BMC Online Consistent Copies
- processes sequential copies created from an inconsistent FlashCopy as SHRLEVEL CHANGE copies

The OPTION RESOURCE SELECTION COPIES FC syntax supports FlashCopy. FlashCopy is also supported in the installation options LOCCPSEL and REMCPSEL by using the FC parameter. The default processing order for local copies is FC, LP, LB. The default processing order for remote copies is RP, RB, FC.

This release adds the FLASHCOPY option to the non-registered copy or INLOG specification with INCOPY FULL. Also, updates to the DSNAME description of the INCOPY specification accommodate FlashCopy support.
hash access to data

RECOVER PLUS recovers table spaces with hashing access enabled and supports new log records and page types that are defined for hashing. When RECOVER PLUS recovers a hashed table space to a point-in-time prior to the point when hashing was enabled, the table space is placed in advisory REORG-pending (AREOR) status; the hash overflow index is placed in REBUILD-pending (RBDP) status. RECOVER PLUS also supports a REBUILD of the hash overflow index.

- include columns or additional non-key columns in unique indexes
- inline LOBs
- segmented MEMBER CLUSTER for universal table spaces (UTSs)
- pending definition changes (pending ALTERs)

RECOVER PLUS supports the new SYSIBM.SYSCOPY entries that this feature generates.

- 64-bit runtime

- skip-level migration

RECOVER PLUS supports 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>
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<tbody>
<tr>
<td>CM8</td>
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<td>conversion mode from DB2 Version 9</td>
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<tr>
<td>CM9*</td>
<td>conversion mode from DB2 Version 9</td>
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</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 BMC products in this mode, you must run the IBM job DSNTIJEN 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. BMC does not support DB2 catalogs that are not completely migrated.

- greater timestamp precision (extends microseconds to 12 places, but 6 remains the default)

- TIMESTAMP WITH TIME ZONE data type
RECOVER PLUS version 10.1.00

- Archive logs and sequential image copy data sets in the cylinder-managed portion of Extended Address Volumes (EAVs)

RECOVER PLUS can process archive logs and sequential image copy data sets that have been written to the cylinder-managed portion of EAVs.

RECOVER PLUS can also write output image copies with the EAV attribute. To support this capability, EATTR has been added to the OUTPUT command; EATTR, STORCLAS and DATAACLAS have been added to the installation options.

---

**NOTE**

For IBM z/OS versions earlier than 1.11, you must set the EATTR option to NONE.

If an image copy was written to the cylinder-managed portion of an EAV under z/OS Version 1.11, you cannot use that image copy on z/OS Version 1.10; Version 1.10 does not support sequential data sets in the cylinder-managed portion of an EAV.

- Last or currently committed data

RECOVER PLUS supports the new log records that this feature generates.

- Temporal tables

To support temporal tables, RECOVER PLUS adds the HISTORY keyword to the AUX installation option. Using this keyword includes history spaces when a table space with system-maintained temporal tables is specified in SYSIN. You can also specify AUX HISTORY at runtime (and override the installation option value) on the following RECOVER PLUS commands:

- OPTIONS
- RECOVER TABLESPACE
- RECOVER INDEX(ALL) TABLESPACE
- REBUILD INDEX(ALL) TABLESPACE
- LOGSCAN TABLESPACE
- LOGSCAN INDEX(ALL) TABLESPACE

Similar to DB2 RECOVER Version 10 VERIFYSET NO behavior, RECOVER PLUS does not determine whether

- the system-maintained temporal space and the history space are recovered as a set

- the system-maintained temporal space and the history space are recovered to the same log point

- all DSNUMs are recovered in the same SYSIN
■ XML multi-versioning

■ XML indexes that are created with DATE and TIMESTAMP data

RECOVER PLUS supports recovering and rebuilding of XML user-defined indexes that are created with the AS SQL DATE and AS SQL TIMESTAMP options.

**XBM zIIP redirection support**

RECOVER PLUS now provides the option to offload eligible processing to an IBM System z® Integrated Information Processor (zIIP). To enable and use zIIP processing, you must have an installed and authorized version of the BMC EXTENDED BUFFER MANAGER for DB2 (XBM) product or the BMC SNAPSHOT UPGRADE FEATURE for DB2 (SUF) technology.

**NOTE**

Note the following XBM or SUF requirements:

■ The minimum version of XBM or SUF is 5.6.00 with PTF BPE0313.
■ To enable DB2 Version 10 support, XBM and SUF require PTF BPE0311.

The following installation and command options apply to this feature:

■ The new ZIIP command on the OPTIONS statement and the ZIIP installation option enable this functionality.

■ You can also use the existing XBMID installation or command option to specify an XBM subsystem through which to access this functionality.

For more information about the XBM component that enables the use of zIIPs, see the EXTENDED BUFFER MANAGER and SNAPSHOT UPGRADE FEATURE User Guide.

**Versioned, compressed indexes support**

For versioned, compressed indexes, you must recover all of the data sets in the same step.

**COMPRESSED option**

RECOVER PLUS adds the COMPRESSED option to the INCOPY clause of the RECOVER command. The COMPRESSED option allows you to indicate whether image copies of compressed indexes are compressed copies.
Indexes on expression

RECOVER PLUS provides native support for some indexes on expression with REBUILD INDEX.

Log sort estimates

RECOVER PLUS improves log sort estimates for multitasking.

OBIDXLAT improvements

RECOVER PLUS has improved OBIDXLAT processing for recovering one data set of a multi-data-set, nonpartitioned space.

RECOVER PLUS now translates to the target OBID, regardless of the source OBID, when the following conditions exist:

- The header page is not available.
- The object is an index or a single-table table space.
- No OBIDs are specified.

In earlier versions, OBIDXLAT processing failed.

Also, RECOVER PLUS no longer attempts to read the header pages from the 2nd - n data sets of multi-data-set, nonpartitioned spaces.

OBIDXLAT with OBJECTSET

RECOVER PLUS now allows OBIDXLAT with OBJECTSET.

USEHRDOBIDS option

RECOVER PLUS adds the USEHRDOBIDS option on the OPTIONS command and as an installation option. USEHRDOBIDS indicates whether to use the OBIDs in the header page for MERGE phase optimization and checking (comparing the source image copy header page OBIDs to the data page OBIDs). The default value is YES.

NOCOPYPEND option

RECOVER PLUS adds the NOCOPYPEND option to REBUILD INDEX to reset the ICOPY status on COPY YES indexes.
**DSNUM `begin:end` and PART `begin:end`**

RECOVER PLUS removes the requirement for spaces on either side of the colon for DSNUM `begin:end` and PART `begin:end` syntax.

**NUMREC changes for key sorts**

For key sorts only, RECOVER PLUS has changed some NUMREC parameters for REBUILD INDEX and RECOVER UNLOADKEYS:

- For NUMREC CALC, RECOVER PLUS uses a minimum estimate of 400,000 for each index key sort (or 200,000 if the key length is greater than 1000 characters).
- For NUMREC NOEST, RECOVER PLUS passes an estimate of 400,000 to each index key sort (or 200,000 if the key length is greater than 1000 characters).
- For NUMREC EST `integer`, if the specified estimate is less than 400,000 (200,000 for keys with a length greater than 1000 characters), RECOVER PLUS uses an estimate of 400,000 (or 200,000 if the key length is greater than 1000 characters).

**Real-time statistics for index keys**

RECOVER PLUS uses real-time statistics (RTS) to estimate the number of keys for each index. When the following conditions are met, RECOVER PLUS uses the TOTALROWS value from table SYSIBM.SYSTABLESPACESTATS for single-table table spaces:

- You are using DB2 Version 9 or later.
- UTSORTAL is set to YES.

**NOTE**

If you perform a migration, TOTALROWS might not be accurate. If it is not accurate after the migration, you must reset TOTALROWS to NULL. However, resetting TOTALROWS is usually unnecessary in the following situations:

- if you migrate data daily and the size of the space does not change significantly
- if you include the real-time statistics tables in your migration

**OBJECTSET syntax diagram correction**

OBJECTSET syntax diagrams throughout the *RECOVER PLUS for DB2 Reference Manual* have been corrected. The recursive arrow and the comma that indicated that multiple OBJECTSET `creator.name` specifications are valid in a single clause have been removed. Only one OBJECTSET `creator.name` specification is valid in a single clause.
**BMCDSN**

BMC no longer supports the BMCDSN Command Processor and will not provide additional fixes or enhancements for existing versions of BMCDSN. The current version of BMCDSN (version 2.4.00) is available on the BMC product installation tapes and ESD files that are released with this version of RECOVER PLUS. However, installation media dated later than April 2011 will not include BMCDSN.

You can choose from the following alternatives to obtain some of the functionality that BMCDSN currently performs:

- Continue to use your existing version of BMCDSN.
- Use a sample customizable REXX program that BMC is providing.
- In an online environment, use BMC CATALOG MANAGER.

For more information about these alternatives, see the BMCDSN technical bulletin dated April 8, 2011.

**Support status**

BMC supports the following versions of RECOVER PLUS:

<table>
<thead>
<tr>
<th>Version</th>
<th>Level of support</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1.00</td>
<td>full</td>
</tr>
<tr>
<td>9.2.00</td>
<td>full</td>
</tr>
<tr>
<td>9.1.00</td>
<td>limited</td>
</tr>
<tr>
<td>8.1.00</td>
<td>none</td>
</tr>
</tbody>
</table>

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

**UNLOAD PLUS version 10.1.00**

Version 10.1.00 of the UNLOAD PLUS component includes the following changes.

**DB2 Version 10 support**

UNLOAD PLUS supports the following features of DB2 Version 10 based on the DIRECT option that is in effect.
**DIRECT YES or DIRECT NO**

When either DIRECT YES or DIRECT NO is in effect, UNLOAD PLUS supports the following features:

- catalog and directory changes and restructuring
- new system and database authorities
- migration to DB2 Version 10 from either DB2 Version 8 or DB2 Version 9
- table spaces that contain pending DDL changes

   UNLOAD PLUS does not materialize the DDL changes.

- XML columns that support XML versions
- LOB and XML table spaces and index spaces that are defined with DEFINE NO
- objects that contain compression dictionaries that were created during DB2 SQL INSERT processing

   UNLOAD PLUS does not unload copies that contain these compression dictionaries if the copies were created with the DSN1COPY utility or with the SYSTEMPAGES NO option.

**DIRECT YES**

When DIRECT YES is in effect, UNLOAD PLUS supports unloading from an IBM FlashCopy image copy. Specify INFILE VSAMDD to unload from a FlashCopy.

**DIRECT NO**

When DIRECT NO is in effect, UNLOAD PLUS supports the following features:

- row- and column-level security when performing SELECT processing
- tables that are defined as ORGANIZE BY HASH
- universal table spaces that are defined with MEMBER CLUSTER
- inline LOB data

   When unloading inline LOB data, generated control cards do not include DDL that is specific to inline LOB columns.
Temporal table support has the following limitations:

— UNLOAD PLUS does not unload history tables.
— Generated control cards do not include DDL that is specific to temporal tables.

Timestamp columns that are defined with a precision other than 6

The only supported CNTLCARDS options are DB2, DB2LOAD, and DB2DDL.

Timestamp columns that are defined as TIMESTAMP WITH TIME ZONE

Timestamp with time zone support has the following limitations:

— You cannot include TIMESTAMP WITH TIME ZONE on your field specification.
— The only supported CNTLCARDS options are DB2, DB2LOAD, and DB2DDL.

zIIP processing

UNLOAD PLUS now provides the option to offload eligible processing to an IBM System z Integrated Information Processor (zIIP). To enable and use zIIP processing, you must have an installed and authorized version of the EXTENDED BUFFER MANAGER (XBM) product or the SNAPSHOT UPGRADE FEATURE (SUF) technology.

The following installation and command options apply to this feature:

— The new ZIIP installation and command options enable this functionality.
— You can also use the existing XBMID installation or command option to specify an XBM subsystem to use to access this functionality.

For more information about these options, see the UNLOAD PLUS for DB2 Reference Manual. For more information about the XBM component that enables the use of zIIPs, see the EXTENDED BUFFER MANAGER and SNAPSHOT UPGRADE FEATURE User Guide.
Buffer options

Enhancements to I/O handling routines have changed the way that UNLOAD PLUS uses the values that you specify for the buffer installation options. For information about these changes, see descriptions for the following options in Appendix A of the UNLOAD PLUS for DB2 Reference Manual:

- **IBUFFS**
- **UBUFFS**

**NOTE**

If, in an earlier version, you changed the values for either of these options from the values that were shipped with UNLOAD PLUS, review the new information for these options carefully to ensure that you obtain the intended results for this version.

DECFLOAT data type

UNLOAD PLUS now supports the DECFLOAT data type. UNLOAD PLUS has added the following new keywords to support this feature:

- **DECFLOAT data type**
- **DECFLOAT_ROUNDMODE option**, which enables you to override your subsystem’s default rounding mode for DECFLOAT values

Clone tables

When DIRECT NO is in effect, UNLOAD PLUS unloads clone tables and base tables that participate (or have participated) in a clone relationship.

SELECT statements

You can now specify SELECT statements up to 2 MB long.

EAV data sets

UNLOAD PLUS now supports extended address volume (EAV) data sets.

Image copies and DDLIN data sets

When both of the following conditions exist, you no longer need to specify an OBID when providing a DDLIN data set for unloading an image copy:

- You specify a single SELECT statement.
- You are unloading a single-table table space.
FILTERPART and partition-by-growth table spaces

When unloading a partition-by-growth table space and you specify FILTERPART, UNLOAD PLUS now ignores the FILTERPART option instead of terminating.

System and software requirements

This version of UNLOAD PLUS has the following changes to minimum requirements. For full requirement information, see Chapter 2 of the UNLOAD PLUS for DB2 Reference Manual.

- z/OS Version 1.10
- DB2 Solution Common Code (SCC) version 10.1.00
- DB2 Utilities Common Code (D2U) version 10.1.00
- for SHRLEVEL CHANGE, XBM or SUF version 5.6.00

NOTE
To enable DB2 Version 10 support, XBM and SUF also require PTF BPE0311.

Documentation

The dynamic allocation information for specific data set types that was in Chapter 2 in the UNLOAD PLUS for DB2 Reference Manual has been moved to the relevant data set sections in Chapter 4.

BMCDSN

BMC no longer supports the BMCDSN Command Processor and will not provide additional fixes or enhancements for existing versions of BMCDSN. The current version of BMCDSN (version 2.4.00) is available on the BMC product installation tapes and ESD files that are released with this version of UNLOAD PLUS. However, installation media dated later than April 2011 will not include BMCDSN.

You can choose from the following alternatives to obtain some of the functionality that BMCDSN currently performs:

- Continue to use your existing version of BMCDSN.
- Use a sample customizable REXX program that BMC is providing.
- In an online environment, use BMC CATALOG MANAGER.

For more information about these alternatives, see the BMCDSN technical bulletin dated April 8, 2011.
Support status

BMC supports the following versions of UNLOAD PLUS:

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</thead>
<tbody>
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<tr>
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</tr>
<tr>
<td>9.2.00</td>
<td>limited</td>
</tr>
<tr>
<td>9.1.00</td>
<td>none</td>
</tr>
</tbody>
</table>

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

Installation


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

Administrative Assistant is installed by using the BMC Installation System. This section contains installation information that supplements or supersedes the information in the *Administrative Assistant for DB2 Installation Guide*.

Installation 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 CATALOG 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>prdvry</td>
<td>ACTvrD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACMvrD</td>
</tr>
<tr>
<td>collection ID</td>
<td>prdv_y_MAIN</td>
<td>ACTvr_D_MAIN</td>
</tr>
<tr>
<td></td>
<td>prdv_y_#_MAIN</td>
<td>ACTvr_I_#_MAIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACMvr_D_MAIN</td>
</tr>
<tr>
<td>plan name</td>
<td>prdvryz</td>
<td>ACTvrDB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACMvryA</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>

- During installation, you can either use CATALOG MANAGER product tables from an earlier version or create new product tables. For example, you can use the product tables for version 9.3 with version 10.1. Thus, you can deploy a new version of CATALOG MANAGER in one member of a data sharing group while using an earlier version in other members.

- The CATALOG MANAGER installation options module now includes the following options:
  - AUDPOL=DYNAMIC
  - CONTRL=DYNAMIC
  - KEYTDST=DYNAMIC
  - KEYTGDD=DYNAMIC
  - KEYTGDDH=DYNAMIC
  - KEYTGHSD=DYNAMIC
  - KEYTGST=DYNAMIC
  - KEYTGT=DYNAMIC
  - OBJROL=DYNAMIC
  - PACKCPY=DYNAMIC
  - PENDDDL=DYNAMIC
  - QUEROPT=DYNAMIC
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 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 8 compatibility mode**

If you intend to install version 10.1.00 of the UNLOAD PLUS component on a DB2 Version 8 subsystem that is in compatibility mode, contact BMC Customer Support before you begin your installation.

**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 ZLGxxxx). 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 SYMDS 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 Administrative Assistant 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>Component</th>
<th>Version</th>
<th>FMID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALTER</td>
<td>10.1.00</td>
<td>ZACMA10</td>
</tr>
<tr>
<td>ALTER</td>
<td>7.4.03</td>
<td>ZACM074</td>
</tr>
<tr>
<td>CATALOG MANAGER</td>
<td>10.1.00</td>
<td>ZACTA10</td>
</tr>
<tr>
<td>Technology components</td>
<td></td>
<td></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>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</td>
<td>1.5.00</td>
<td>ZZIO150</td>
</tr>
<tr>
<td>RECOVER PLUS</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>
Maintenance

The preceding table contains the FMIDs for the Administrative Assistant 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 Administrative Assistant, 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

BMC provides fixes for Administrative Assistant at the component level. To apply fixes for this solution, you must apply fixes for each component of the solution.

**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.
NOTE

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

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. 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.