BMC originally issued these release notes on June 25, 2013. They are being reissued to reflect new support for the IBM® DB2® Version 11 system. Revision bars denote differences from the previous edition.

BMC Software is releasing version 11.1.00 of the Recovery Management for DB2 solution.

This solution includes the following components:

- RECOVERY MANAGER for DB2
- RECOVER PLUS for DB2
- R+/CHANGE ACCUM for DB2
- COPY PLUS for DB2
- Log Master for DB2
- SNAPSHOT UPGRADE FEATURE of EXTENDED BUFFER MANAGER (XBM) for DB2
- High-speed Apply Engine

**NOTE**
Before you begin installation, BMC recommends that you check the Support Central 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.

For a short demo describing what’s new in this release, see https://webapps.bmc.com/infocenter/index.jsp. In the BMC Documentation Center, you can access the demo library via BMC Quick Course Demo Library in the Contents pane on the left.

Recovery Management version 11.1.00

Version 11.1.00 of the Recovery Management solution includes the following features.

**DB2 Version 11 support**

With PTFs for the relevant components applied (all components except R+/CHANGE ACCUM), Recovery Management now supports the IBM DB2 Version 11 system.

For more information, see the “DB2 Version 11 support” topic for each component.

**End of support for DB2 Version 8**

Starting with this release, the Recovery Management solution does not support IBM® DB2 Version 8. Earlier releases will continue to support Version 8.
Data movement with a migration file

The Recovery Management solution can not transfer all types of COPY PLUS and IBM copies between DB2 subsystems. Through its COPY PLUS and RECOVER PLUS components, Recovery Management adds the following new command syntax to implement data migration:

- COPY PLUS EXPORT command
- RECOVER PLUS MIGRATE command
- RECOVER PLUS IMPORT command

For more information, see Chapter 11, “Moving data with a migration file,” in the Recovery Management for DB2 User Guide.

Recovery estimation improvements

Estimation has been improved to better account for current hardware and multitasking. Additionally, the following new RECOVER PLUS installation options accommodate estimation:

- DISKIORATE specifies the number of megabytes per second that RECOVER PLUS reads from disk. The default value is 100.
- CPUMIPS specifies the rate at which a CPU executes instructions, in millions of instructions per second (MIPS). The default value is 200.

Many of the performance factors used in estimation are derived from DISKIORATE and CPUMIPS. (The descriptions for the installation options are in the RECOVER PLUS for DB2 Reference Manual.)

For more information about estimation, see Chapter 8, “Recovery simulation and estimation,” in the Recovery Management for DB2 User Guide.

Transformation restrictions removed

Transformation restrictions have been removed from High-speed Structure Change, as follows:

- Multi-table table space transformations are now allowed. Previously, the source table space could contain only one table.
- Table space transformations from basic row format (BRF) to reordered row format (RRF) are now allowed, as are transformations from RRF to BRF. Previously, the source and target table space had to have the same row format.
Transformations to and from MEMBER CLUSTER are now allowed. Previously, Recovery Management was unable to handle transformations related to the MEMBER CLUSTER attribute.

For more information, see Chapter 10, “High-speed Structure Change,” in the Recovery Management for DB2 User Guide.

**Timestamp recovery for non-data-sharing environments**

Recovery to a timestamp (using RECOVERY MANAGER TOTIMESTAMP syntax) is now allowed for non-data-sharing subsystems. Previously, recovery to a timestamp was allowed only for data sharing subsystems.

**RESOLVE INFLIGHTS with TOLOGMARK recovery**

Recovery Management now supports TOLOGMARK recovery with Resolve Inflights No. Previously, in-flight resolution was required.

**Extended RBA/LRSN support**

Recovery Management now supports 10-byte RBAs and LRSNs.

**Documentation changes**

- All messages are now available in the BMC Documentation Center, which is accessible from the BMC Support Central site (http://www.bmc.com/support). A separate messages manual is no longer available.

- Installation and configuration information is now located in the following books:
  
  — *Installation System User Guide*
  — *BMC Products and Solutions for DB2 Configuration Guide*
RECOVERY MANAGER version 11.1.00

RECOVERY MANAGER version 11.1.00 includes the following features.

**DB2 Version 11 support**

RECOVERY MANAGER now supports the IBM DB2 Version 11 system in all modes (CM, ENFM, and NFM) and includes support for extended RBAs and LRSNs in the following items:

- BSDSs
- Logs
- Table spaces
- Index spaces

**End of support for DB2 Version 8**

Starting with this release, RECOVERY MANAGER does not support IBM DB2 Version 8. Earlier releases will continue to support Version 8.

**Extended RBA/LRSN support**

RECOVERY MANAGER now supports 10-byte RBAs and LRSNs.

**BMC DB2 Product Configuration technology**

RECOVERY MANAGER now uses DB2 Product Configuration (LGC) technology to set default values for control information (now called configuration options) and for the control file (now called the option set). To accommodate LGC, this release:

- Adds an option to the RECOVERY MANAGER Main Menu (5. Product Option Sets - Set RECOVERY MANAGEMENT Product options)
- Adds an Option Set field where you can enter the option set name. The default option set is ARM$OPTS.
- Adds the default option set name ARM$OPTS to EXEC PARM for batch jobs
- Uses ARMOPTS DD to override configuration option values at runtime
- Adds a configuration option to get the option set name for the PACLOG product
- Removes the ssid.DB2V option from Appendix A, “Option sets and configuration options.” This release obtains the DB2 version when connecting to DB2 (or, if not connecting to DB2, from the DSNHDECP module in the STEPLIB).
- Removes the following options that dealt with product versions, which were formerly listed in Appendix A, “Control file and installation” in the RECOVERY MANAGER for DB2 User Guide (now Appendix A, “Option sets and configuration options”):
  - ssid.ACKVRSN
  - ssidACPVRSN
  - ssid.AFRVRSN
  - ssid.ALMVRSN
  - ssid.ALPVRSN
  - ssid.XBMVRSN

RECOVERY MANAGER now checks the productCodeVRSN load module in the STEPLIB. If the productCodeVRSN module is found but the specified product version is not supported, RECOVERY MANAGER generates an informational message.

- Removes ARMBSDR, ssid.ACAINST, ssid.APTLOAD, and ssid.APTPLAN from Appendix A, “Option sets and configuration options”

**Recovery Progress Report**

RECOVERY MANAGER now offers Recovery Progress Reports and a new batch program, ARMBRPR. They enable you to gauge the progress of recoveries by DATABASE.TABLESPACE pattern and the group level. For more information, see the following chapters in the RECOVERY MANAGER for DB2 User Guide:

- Chapter 10, “Accessing online Recovery Progress Reports”
- Chapter 23, “ARMBRPR — Recovery Progress Reports”

**Shared repository with DASD MANAGER PLUS**

RECOVERY MANAGER now shares the BMC Common DB2 repository (documented in Appendix B of the RECOVERY MANAGER for DB2 User Guide) with DASD MANAGER PLUS. You can use this repository to work with groups and object sets.

**BACKUP SYSTEM and RESTORE SYSTEM JCL generation**

RECOVERY MANAGER adds support for generating stand-alone JCL for the IBM BACKUP SYSTEM and RESTORE SYSTEM utilities.
TIMESTAMP recovery JCL

Recovery to a timestamp (using RECOVERY MANAGER TOTIMESTAMP syntax) is now allowed for non-data-sharing subsystems. Previously, recovery to a timestamp was allowed only for data sharing subsystems.

External security support

For opening and saving a group, RECOVERY MANAGER now supports use of external security packages such as IBM RACF® or CA Technologies CA-ACF2 or CA-Top Secret.

COPY NO indexes and TS STAT status

RECOVERY MANAGER now processes COPY NO indexes based on the status of the associated table space. If the table space has not changed, RECOVERY MANAGER shows the index status as TS STAT and bypasses recovery if the table space has not changed. TS STAT is shown on panel ARMOB001 (Object List).

New Group List panel options

The following new options on the Group List panel (ARMGP001) let you make changes without the overhead of opening the group:

- H to display group authorizations
- O to display group utility options
- G to generate ARMBGRP CREATE JCL based on the group definition of the selected group
- P to display the Recovery Progress Report panel

Deactivate/Destory/Restore function

A new panel (ARMSRBS—3.4.12 from the Main Menu) adds support for the Deactivate/Destory/Restore function for data sharing members. This feature requires DB2 Version 10 new-function mode (NFM) or higher. (IBM APAR PM42528 introduced this function.)

DSSNAP option

RECOVERY MANAGER adds DSSNAP, which is used to specify making a hardware-based Instant Snapshot copy of DB2 data, to the Output Options panel (ARMRO03D).
**Work prefix addition**

On the Update/Browse Work File Options panel (ARMRO002), the new **Work prefix** field lets you specify a work prefix in the group options.

RECOVERY MANAGER now reports the work prefix in REPORT GROUP output under WORK FILE OPTION DESCRIPTIONS. Also, this release includes WORKFILE_WORKPREFIX as a new option for ARMBGRP.

**ARMBSRR and ARMBTSI support of quiesced and deactivated data-sharing members**

ARMBSRR and ARMBTSI now handle quiesced and deactivated data-sharing members. This support includes the following additions:

- The ability to exclude data sharing members, bypass quiesced members, or bypass deactivated members (on panels ARMDR01A, ARMDR06A, and ARMUFS4)
- New supported syntax—EXCLUDE MEMBERS, BYPASS QUIESCED, and BYPASS DEACT—for ARMBSRR and ARMBTSI

**NOTE**

For ARMBSRR, EXCLUDE MEMBERS replaces QUIESCED MEMBERS and works the way QUIESCED MEMBERS worked.

**ARMBGRP changes**

This release includes the following changes for ARMBGRP:

- You can use multiple VIA statements when creating a group. Multiple VIA statements are allowed in CREATE GROUP syntax with the exception of VIA EXCEPTION and VIA VOLUMES, which are static groups.
- You can now use EXCLUDE and EXCLUDEIX for groups that are created with VIA VOLUMES.
- You can now specify the following options when creating a group:
  - VIA GROUP
  - VIA INDEXSPACE
  - VIA PACKAGE
  - VIA PLAN
— VIA STOGROUP

- You can now enter dynamic SQL inline in VIA SQL syntax by using #BEGINSQL and #ENDSQL for multiple SQL statements per group.
- You can now enter subselects in the SQL that you use to create groups.
- You can use ‘SG’ (meaning storage group) in dynamic SQL when creating groups.
- You can use the new QUERY OBJECTS report to provide the table spaces or indexes, based on object names.

ARMBGPS changes

When populating new groups, you can now include or exclude groups by specifying group name patterns:

- Panel ARMUFS1A includes the following new entry fields:
  - GROUP OWNER.NAME Include names or patterns
  - GROUP OWNER.NAME Exclude names or patterns (optional)

NOTE

You access panel ARMUFS1A via 2.10 on the RECOVERY MANAGER Main Menu and panel ARMUFS1.

- This release adds INCLUDE_GROUP and EXCLUDE_GROUP syntax to ARMBGPS.

ARMBSET changes

This release includes the following changes for ARMBSET:

- Adds the SET CURRENT SQLID command
- Adds the RESET_GRECP_LPL command for subsystems

NOTE

RECOVERY MANAGER issues the START command for each object that has LPL or GRECP status. This action affects the entire subsystem (not only the object set).
- Adds the following new commands for object sets:

  — QUIESCE WRITE
  — RUNSTATS

- Allows you to specify an alphabetic value associated with the numeric values for all ARMBSET options that previously accepted only numeric values

**NOTE**
A future release of RECOVERY MANAGER will accept only alphabetic values for these options.

**ARMBGPV changes**

ARMBGPV now writes SAMS RESTORE commands to the new ARMRSTOR DD. You can use the SAMS RESTORE commands as input to restore migrated data sets. You do not set an option to have RECOVERY MANAGER create the ARMRSTOR DD.

**New ARMCOMM DD statement**

A new DD statement, ARMCOMM, accommodates a new method of communication between the ARMBSDR and ARMBCOR batch programs:

```plaintext
//ARMCOMM DD DISP=SHR,
//    DSN=PRODUCT.CNTL.LIBS(ARMBSDR)
```

Previously, ARMBSDR and ARMBCOR used the ARMBSDR option in ARMS$OPTS to communicate during Phase 1 execution of disaster recovery JCL for data sharing. With the conversion of ARMS$OPTS to use DB2 Product Configuration (LGC), this method of communication is no longer valid. This release adds ARMCOMM to ARMBSDR and ARMBCOR JCL.

As shown in the ARMCOMM DD statement, the communication now involves the ARMBSDR member in the CNTL data set.

**NOTE**
This change does not affect the way in which ARMBSDR or ARMBCOR works; only their communication method has changed.
**RACF authorization**

The RACF security administrator must define an Open Multiple Virtual Storage (OMVS) segment for each RECOVERY MANAGER user. The user ID assigned to the DBC started task must also have an OMVS segment defined.

The OMVS segment is required because DBC utilizes IBM z/OS UNIX System Services (USS) sockets for cross-address-space communication within an LPAR.

**Changes for COPY PLUS**

RECOVERY MANAGER now supports the following items for COPY PLUS:

- COPY PLUS SNAP option, which enables COPY PLUS to make VSAM copies, even if the data set is not on a snappable disk

- A second value, the maximum total tasks (MAX_TASK2), for MAXTASKS. MAXTASKS is now valued as MAXTASKS (maximumTapeTasks, maximumTotalTasks). In the RECOVERY MANAGER online interface, this value is accessible via the ARMCO023 panel.

- &UNIQ (or &UQ) symbolic variable to generate unique image copy data set names. If you use &UNIQ, COPY PLUS generates a 1- to 8-character value that is based on the system clock. The first character is always an uppercase letter. Each remaining character is either an uppercase letter or a numeral from 0 through 9.

**Changes for RECOVER PLUS**

RECOVERY MANAGER now supports the following items for RECOVER PLUS:

- RECOVER PLUS SNAP option, which enables RECOVER PLUS to make VSAM copies, even if the data set is not on a snappable disk

- &UNIQ (or &UQ) symbolic variable to generate unique image copy data set names. If you use &UNIQ, RECOVER PLUS generates a 1- to 8-character value that is based on the system clock. The first character is always an uppercase letter. Each remaining character is either an uppercase letter or a numeral from 0 through 9.

- TOTIMESTAMP recovery for non-data-sharing environments

- TOLOGMARK recovery with Resolve Inflights No

**Changes for Recovery Management**

The following changes in RECOVERY MANAGER affect the Recovery Management solution:
- TOTIMESTAMP recovery for non-data-sharing environments. Previously, TOTIMESTAMP recovery was allowed only for data sharing subsystems.

- TOLOGMARK recovery with Resolve Inflights No. Previously, in-flight resolution was required. For more information, see the Recovery Management for DB2 User Guide.

RECOVER PLUS version 11.1.00

RECOVER PLUS version 11.1.00 includes the following features.

DB2 Version 11 support

RECOVER PLUS now supports the following features of the IBM DB2 Version 11 system.

Mode and extended RBA and LRSN support

RECOVER PLUS supports DB2 Version 11 in all modes (CM, ENFM, and NFM) and includes support for extended RBAs and LRSNs in the following items:

- BSDSs
- Logs
- Table spaces
- Index spaces

Pseudo-deleted index support

RECOVER PLUS supports pseudo deletes and automatic cleanup of pseudo-deleted index entries for DB2 Version 11.

End of support for DB2 Version 8

Starting with this release, RECOVER PLUS does not support IBM DB2 Version 8. Earlier releases will continue to support Version 8.

Extended RBA and LRSN support

All RECOVER PLUS output (such as the output in Chapter 5, “Examples of RECOVER PLUS jobs” in the RECOVER PLUS for DB2 Reference Manual) has been converted to show 10-byte RBAs and LRSNs. The BMC utilities database has also changed to support extended RBAs and LRSNs.
New IMPORT and MIGRATE commands for migrating data

New IMPORT and MIGRATE commands allow you to move data from one or more table spaces to another via a migration file that the COPY PLUS EXPORT command creates. The IMPORT command uses copies as input; the MIGRATE command uses copies and log. For more information, see the IMPORT and MIGRATE command descriptions in the RECOVER PLUS for DB2 Reference Manual.

**NOTE**

This feature requires one of the following valid passwords:

- Recovery Management solution password
- Database Administration solution password

This release also includes the following changes:

- Adds new EXPSSID, EXPSLRSN, and EXPTLRSN columns to the BMCXCOPY table to accommodate the EXPORT, MIGRATE, and IMPORT commands
- Adds ICTYPE column value m, and COPY_TYPE column values X and I

In addition to the RECOVER PLUS for DB2 Reference Manual, see the following resources for more information:

- EXPORT command description in the COPY PLUS for DB2 Reference Manual
- Chapter 11, “Moving data with a migration file,” in Recovery Management for DB2 User Guide

Transformation restrictions removed

Transformation restrictions have been removed from High-speed Structure Change, as follows:

- Multi-table table space transformations are now allowed. Previously, the source table space could contain only one table.

- Table space transformations from basic row format (BRF) to reordered row format (RRF) are now allowed, as are transformations from RRF to BRF. Previously, the source and target table space had to have the same row format.
Transformations to and from MEMBER CLUSTER are now allowed. Previously, Recovery Management was unable to handle transformations related to the MEMBER CLUSTER attribute.


**Additional DSSIZE values**

The following values are now valid for DSSIZE:

- 128G
- 256G

**Estimation improvements**

Estimation has been improved to better account for current hardware and multitasking. Additionally, the following new installation options accommodate estimation:

- DISKIORATE specifies the number of megabytes per second that RECOVER PLUS reads from disk. The default value is 100.
- CPUMIPS specifies the rate at which a CPU executes instructions, in millions of instructions per second (MIPS). The default value is 200.

Many of the performance factors used in estimation are derived from DISKIORATE and CPUMIPS.

Estimation requires a Recovery Management for DB2 solution password. For more information, see Chapter 8, “Recovery simulation and estimation,” in the Recovery Management for DB2 User Guide.

**Use of symbolics in INCOPY MODEL dataSetName syntax**

The data set specified with INCOPY MODEL syntax supports the use of symbolics.
New symbolic variables

RECOVER PLUS adds the &UNIQ (or &UQ) symbolic variable to generate unique data set names. For example, you can use this variable with the DSNAME parameter on the OUTPUT command.

If you use &UNIQ, RECOVER PLUS generates a 1- to 8-character value that is based on the system clock. The first character is always an uppercase letter. Each remaining character is either an uppercase letter or a numeral from 0 through 9.

RECOVER PLUS also adds the &PART5 symbolic variable that you can use for any data set. RECOVER PLUS generates 5-character partition numbers as follows:

- Partition 1 = 00001
- Partition 10 = 00010
- Partition 100 = 00100
- Partition 1000 = 01000
- Nonpartitioned = 00000

Allow INCOPY with OBJECTSET

The restrictions that did not allow INCOPY with OBJECTSET have been removed.

Automatic sizing of dynamically allocated output copies on DASD

RECOVER PLUS now automatically sizes dynamically allocated output copies on DASD when the primary allocation quantity is not specified by the SPACE option.

To accomplish automatic sizing, RECOVER PLUS adds the MAXPRIM option to the OUTPUT command. MAXPRIM lets you set a maximum amount of disk space (in the units specified by SPACE) to allocate as primary space. Valid values are 0 through 65535. A nonzero value for MAXPRIM establishes an upper limit for primary space allocation; 0 specifies no limit.

New EXCLUDE clause for OBJECTSET

For the RECOVER and REBUILD INDEX commands, RECOVER PLUS adds the EXCLUDE option to the OBJECTSET specification.
Support for VSAM data sets on nonsnappable disks

When you use the new installation option SNAP, RECOVER PLUS can now recover VSAM copies, even if the data set is not on a snappable disk. SNAP is also available on the OPTIONS command.

When the SNAP=VSAM and the data set is not on a snappable disk, RECOVER PLUS uses the following syntax to read a VSAM data set:

```
INCOPY FULL SNAPSHOT DSNAME dataSetName
```

RECOVER PLUS can also recover by using a VSAM data set registered in BMCXCOPY or SYSCOPY.

Additionally, RECOVER PLUS adds the FCPPRC installation option. You can use FCPPRC to control what happens if you specify VSAM=SNAP and the data sets are on a disk that is capable of using IBM FlashCopy®.

New AFRPRnnn data sets to eliminate deferred messaging

This release removes deferred messaging for subtasks. Now, each execution phase has its own AFRPRnnn print file, and messages are displayed in the print file as soon as they are issued. The maximum number of print files allowed by RECOVER PLUS is calculated by the following formula:

```
value of MAXKSORT + value of MAXLSORT + 1 = maximum number of AFRPRnnn files
```

The print files are named AFRPR001, AFRPR002, AFRPR003, and so on. AFRPRINT now displays the name of the AFRPRnnn file used by each phase for each object.

New USELOGS installation option

The new USELOGS installation option lets you specify the order in which to read active and archive log files. USELOGS=(ACT1,ACT2,ARC1,ARC2) is the default value.

You can override this installation option by using the RESOURCE SELECTION LOGS syntax on the OPTION command.

Better handling of partition-by-growth migrations

This release provides better handling for partition-by-growth (PBG) migrations. This release removes the warning against PBG migrations that have a different number of source and target data sets.
Recovery of an individual space from a system-level volume backup

To recover an individual space from a system-level volume backup, you can use COPY IMAGECOPY in the BMC COPY PLUS product to make a standard copy of the space. Then use RECOVER PLUS to recover the space from the standard copy.

R+/CHANGE ACCUM version 11.1.00

Starting with this release, R+/CHANGE ACCUM does not support IBM DB2 Version 8. Earlier releases will continue to support Version 8.

COPY PLUS version 11.1.00

COPY PLUS version 11.1.00 includes the following features.

DB2 Version 11 support

COPY PLUS now supports the following features of the IBM DB2 Version 11 system.

Mode and extended RBA and LRSN support

COPY PLUS supports DB2 Version 11 in all modes (CM, ENFM, and NFM) and includes support for extended RBAs and LRSNs in the following items:

- BSDSs
- Logs
- Table spaces
- Index spaces

Pseudo-deleted index support

COPY PLUS supports pseudo deletes and automatic cleanup of pseudo-deleted index entries for DB2 Version 11.

End of support for DB2 Version 8

Starting with this release, COPY PLUS does not support IBM DB2 Version 8. Earlier releases will continue to support Version 8.
Extended RBA and LRSN support

All COPY PLUS output (such as the output in Chapter 5, “Examples of COPY PLUS jobs” in the *COPY PLUS for DB2 Reference Manual*) has been converted to show 10-byte RBAs and LRSNs. The BMC utilities database has also changed to support extended RBAs and LRSNs.

New EXPORT command for the Copy Migration feature

For the Recovery Management Copy Migration feature, COPY PLUS adds the EXPORT command for use in migrating a copy or set of copies to another DB2 subsystem. The EXPORT command creates a sequential file that contains BMCXCOPY and SYSCOPY table information about all selected table spaces. The RECOVER PLUS MIGRATE and IMPORT commands use this file to move data from one or more table spaces to another.

**NOTE**

This feature requires one of the following valid passwords:

- Recovery Management solution password
- Database Administration solution password

This release also includes the following changes:

- Adds the EXPOUT option to the OUTPUT command
- Adds new EXPSSID, EXPSLRSN, and EXPTLRSN columns to the BMCXCOPY table to accommodate the EXPORT, MIGRATE, and IMPORT commands
- Adds ICTYPE column value m, and COPY_TYPE column values X and I

In addition to the *COPY PLUS for DB2 Reference Manual*, see the following resources for more information:

- MIGRATE and IMPORT command descriptions in the *RECOVER PLUS for DB2 Reference Manual*
- Chapter 11, “Moving data with a migration file,” in *Recovery Management for DB2 User Guide*

COPY IMAGECOPY support for system-level backups

COPY IMAGECOPY can now create the following types of copies from a system-level backup on disk:

- Standard image copies on disk or tape
- Cabinet copies if you have the Recovery Management solution
COPY PLUS can register these copies in the SYSCOPY or BMCXCOPY tables.

**COPY IMAGECOPY support for multitasking**

COPY PLUS now supports multitasking when you use COPY IMAGECOPY.

**Support for VSAM output on nonsnappable disks**

COPY PLUS can now make VSAM copies, even if the data set is not on a snappable disk. To provide this new functionality, COPY PLUS adds the new installation option SNAP. SNAP is also available on the OPTIONS command. When the SNAP value is VSAM, COPY PLUS uses conventional VSAM I/O to copy a VSAM data set.

Additionally, COPY PLUS adds the new FCPPRC installation option. You can use FCPPRC to control what happens if you specify SNAP=VSAM and the data sets are on a disk that is capable of IBM FlashCopy.

**New GENSYSYPAGES option**

COPY PLUS can now automatically materialize system pages before making a copy to use for migration. To accommodate this feature, this release adds GENSYSYPAGES as an installation option, and as an option for the COPY command. Valid values for GENSYSYPAGES are AUTO and NO.

**New SUMMARY value for HISTORY option**

You can now use SUMMARY as a value for the HISTORY installation option. HISTORY=SUMMARY provides summary information about each execution of COPY PLUS. In contrast, HISTORY=YES provides more detailed information, and HISTORY=NO (the default) provides no information.

**New MAXRECDAYS option**

The MAXRECDAYS option for the DELETE subcommand on the MODIFY command provides an alternative method for SYSCOPY or BMCXCOPY cleanup. You specify the number of whole calendar days for which you want to ensure recoverability, and COPY PLUS retains that recovery information in SYSCOPY or BMCXCOPY. COPY PLUS deletes SYSCOPY or BMCXCOPY rows that are not needed for recovery based on your specification.

**New symbolic variables**

COPY PLUS adds the &UNIQ (or &UQ) symbolic variable to generate unique names for image copy data sets. For example, you can use this variable with the DSNAME parameter on the OUTPUT command.
If you use &UNIQ, COPY PLUS generates a 1- to 8-character value that is based on the system clock. The first character is always an uppercase letter. Each remaining character is either an uppercase letter or a numeral from 0 through 9.

**NOTE**

Support for &UNIQ is available by PTF for COPY PLUS version 10.1 (BPU3449) and COPY PLUS version 9.2 (BPU3347).

COPY PLUS also adds the &PART5 symbolic variable that you can use for any data set. COPY PLUS generates 5-character partition numbers as follows:

- Partition 1 = 00001
- Partition 10 = 00010
- Partition 100 = 00100
- Partition 1000 = 01000
- Nonpartitioned = 00000

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**Log Master version 11.1.00**

Log Master version 11.1.00 includes the following features.

**DB2 Version 11 support**

Log Master now supports the following features of the IBM DB2 Version 11 system.

**Mode and extended RBA and LRSN support**

Log Master supports DB2 Version 11 in all modes (CM, ENFM, and NFM) and includes support for extended RBAs and LRSNs in the following items:

- BSDSs
- Logs
- Table spaces

**DDL syntax changes**

Log Master supports DDL syntax changes for new DB2 Version 11 functionality.
End of support for DB2 Version 8

Starting with this release, Log Master does not support IBM DB2 Version 8. Earlier releases will continue to support Version 8.

Extended RBA and LRSN support

Log Master has made changes to its repository to support 10-byte RBAs and LRSNs.

Logical log changes

This release includes formatting changes that enable the logical log to support extended RBAs and LRSNs, and extended timestamps. However, Log Master continues to process earlier versions of the logical log (back to version 7.3.00), performing normalization as needed to accommodate the new format.

The following records have been removed from the logical log because they are no longer used:

- Table space description record (DTSP)
- Table space description record part two (DTS2)
- Table description record (DTBL)
- Table RBA record (DTBR)
- DB2 column description record (DCOL)
- Logical log column description record (DLCO)
- Index description record (DIDX)
- Clustering index description record (DCDX)

Several tables in Chapter 4, “Logical log files,” in the Log Master for DB2 Reference Manual are now updated to reflect the logical log changes. Also, the following items were incorrect or missing in the previous edition of the documentation, but they are correct in the documentation for this release:

- The LUWINSTANCENO definition has been changed from CHAR(6) to BIN(6) in the Data change record (LLDF) table.
- The Table information record (DTBI) table now includes XMLINCLUDED and shows the correct total length.
Reuse of Log Master repository tables

You can now point to existing Log Master tables when installing a new version of the product in order to avoid unloading or loading tables. This release adds ALPVERSION to the following tables:

- ALPMRK
- ALPWHDR
- ALPURID

**NOTE**
The ALPVERSION field remains empty for records that were created before Log Master version 11.1.

For more information, see the installation and repository section in the *Log Master for DB2 Reference Manual*.

In the Log Master interface, this release adds the **Updated Version** field to the following panels. This field remains empty for records that were created before Log Master version 11.1.

- Filter Browser
- Filter Information
- Free Form Filter Maintenance
- Log Mark Information
- Ongoing Record History Information
- Overtime Object Information
- Structured Filter Maintenance
- Template Information
- Template Maintenance
- Work ID Information
- Work ID Maintenance

Repository considerations and changes

The following considerations and changes apply to the Log Master repository in this release:

- If you are reusing a version 10.1 or older repository, you should complete any OVERTIME LOGSCANS for dropped table objects before upgrading to version 11.1. After upgrading, refresh the Table Object (not Dictionary Objects) rows in the Old Object Table. Version 11.1 OVERTIME LOGSCANS will ignore version 10.1 or older Table Objects rows in the Old Object Table.
In the following repository tables, the specified fields now use format VARCHAR(10) to support the extended RBAs and LRSNs:

<table>
<thead>
<tr>
<th>Table name</th>
<th>Column name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPLOGF</td>
<td>STARTRBA</td>
</tr>
<tr>
<td></td>
<td>ENDRBA</td>
</tr>
<tr>
<td>ALPMARK</td>
<td>MARKRBA</td>
</tr>
<tr>
<td>ALPOLDO</td>
<td>BEGINRBA</td>
</tr>
<tr>
<td></td>
<td>ENDRBA</td>
</tr>
<tr>
<td>ALPURID</td>
<td>URID</td>
</tr>
<tr>
<td></td>
<td>URIDLRSN</td>
</tr>
<tr>
<td>ALPSQLF</td>
<td>REDORBA</td>
</tr>
<tr>
<td>ALPWHIS</td>
<td>START_RBA</td>
</tr>
<tr>
<td></td>
<td>END_RBA</td>
</tr>
<tr>
<td>ALPWLSH</td>
<td>ACTUAL_FROM_RBA</td>
</tr>
<tr>
<td></td>
<td>ACTUAL_TO_RBA</td>
</tr>
<tr>
<td></td>
<td>REDORBA</td>
</tr>
</tbody>
</table>

This release adds ALPVERSION to the ALPMARK, ALPURID, and ALPWHDR tables.

The ALPOLDO table description no longer includes references to record type H.

Tables no longer include references to DB2 Version 8.1.

Log Master version 10.1.00 repository

For Log Master version 10.1.00 to coexist with version 11.1.00, you must apply current maintenance for version 10.1.00.

LOGTAPES for DASD log files and a new TAPES installation option

This release ignores LOGTAPES if either of the following conditions exists:

- Log Master is reading DB2 log files that are DASD files.
- The number of tape units does not exceed the LOGTAPES value in a subsystem with a mixture of tapes and DASD log files.

To accommodate this behavior, a new TAPES installation option identifies which devices are tapes.
Automated drop recovery of clone tables

If a table space or table to be recovered has a clone table, Log Master now generates syntax that instructs RECOVER PLUS to use image copies to recover the clone table.

Data set names, symbolic variables, and the new DSNSYMPRE installation option

A new installation option, DSNSYMPRE, lets you control whether Log Master forces the prefix for &TABNAME and &WORKID in input and output data set names. With DSNSYMPRE=YES (the default), Log Master always adds the prefix. With DSNSYMPRE= NO, Log Master adds the prefix only if the first character of the node is not an alphabetic or national character.

This enhancement also:

- Removes the requirement for &TABOWN for SEPARATE DATASETS
- Updates the actions that Log Master performs to create a valid data set name

User-selection of image copy resources

Log Master adds the following installation options:

- LOCCPSEL=(FC,LP,LB)
- REMCPSEL=(RP,RB,FC)

These installation options allow you to select the order in which Log Master uses image copy resources at local and remote sites for both completion processing and compression dictionary access for data decompression.

To override the value of these installation options at runtime, you can use the new the OPTION RESOURCE SELECTION COPIES syntax.

USELOGS override

You can use the new LOGS option in the OPTION RESOURCE SELECTION syntax to override the USELOGS installation option.

Support for graphic data in predicate values

In predicate values, Log Master now supports UX for Unicode graphic data, GX for EBCDIC graphic data, and a string for Unicode graphic data.
Support for versioned rows with inline LOBs

Log Master now supports versioned rows with inline LOBs. Log Master no longer issues error message BMC397064E.

Support for REUSABLE striped data sets

Log Master now supports use of REUSABLE striped data sets, without restrictions. Log Master no longer issues error message BMC097197.

BMCXCOPY analysis for automated drop recovery

To support automated drop recovery of a table space, Log Master now uses the following copies that are registered in BMCXCOPY:

- Encrypted copies
- Snapshot copies
- Standard copies

**NOTE**

Cabinet copies are not supported.

Mass delete and exchange records in load outputs

Log Master now includes the mass delete and exchange records in load outputs.

Quiesce records for COPY YES indexes

When you specify QUIESCE with the LOGSCAN statement or in the LOGSCAN report definition, Log Master now inserts index quiesce records into SYSIBM.SYSCOPY for COPY YES indexes along with the table space. Log Master records the correct quiet point registration so that all recoverable objects have the proper QUIESCE entry in SYSCOPY.

In the Log Master interface, Log Master now inserts index quiesce records into SYSIBM.SYSCOPY for COPY YES indexes (along with the table space) when both of the following conditions exist:

- You request a Quiet Point report.
- You request inserting a quiesce record in SYSIBM.SYSCOPY at the same time that you generate the Quiet Point report.

Log Master includes information about the indexes in the Quiet Point report.
Enhanced messages for DB2 log processing

This release adds new messages, BMC397070 and BMC397071, that indicate the progress of log processing. For message descriptions, see the BMC Documentation Center (https://webapps.bmc.com/infocenter/index.jsp).

Support for optional column names in SQL INSERT

Log Master now lets you omit the column name list clause for INSERT statements in SQL output. This release adds INCLUDE or EXCLUDE INSERT COLUMN NAMES syntax to the LOGSCAN SQL file definition. The table in “LINEDATA2 field: SQL file type” also includes additional columns.

In the Log Master interface, this release adds the field **Exclude INSERT COLUMN NAMES**. . . . . . . . N (Y=Yes, N=No) to the SQL Options panel.

XML installation options

Because the XML installation options are duplicates of the LOB installation options, Log Master now supports only the LOB installation options for use with both LOB and XML VSAM files. Log Master no longer supports the following installation options:

- XMLALLOC
- XMLDATA
- XMLDUPD
- XMLLIMIT
- XMLMGMT
- XMLSPACE
- XMLSTOR
- XMLVOLS

**NOTE**

Continue to use the following syntax:

- Use the LOBOPTS syntax to override installation option settings for LOB data.
- Use the XMLOPTS syntax to override installation option settings for XML data.

Enhanced report templates

Log Master now provides sample report templates for Summary, Audit, and Detail reports with control breaks on Table Name and Create Timestamp.
SNAPSHOT UPGRADE FEATURE of XBM version 6.1.00

Version 6.1.00 of the EXTENDED BUFFER MANAGER for DB2 (XBM) product and its associated SNAPSHOT UPGRADE FEATURE technology includes the following changes.

DB2 Version 11 support

XBM now supports the IBM DB2 Version 11 system.

Changes to snapshot support for EMC devices

XBM now includes the following changes in its support of EMC devices:

- XBM now supports IBM FlashCopy® for EMC devices, depending on the availability of the EMC SYMMETRIX CONTROL FACILITY (EMCSCF) and FlashCopy-enabled EMC devices in the environment.
  
  — If EMCSCF software is enabled, XBM uses the EMC TimeFinder functionality for snapshot processing.
  
  — If EMCSCF software is not enabled and the EMC devices support FlashCopy, XBM uses the FlashCopy functionality for snapshot processing.

- If a snapshot initially fails on an EMC storage device in an environment where the EXTENTALLOCATION parameter is set to AUTO, XBM now automatically retries the snapshot with the EXTENTALLOCATION parameter set to Y (yes).

Coupling Facility (CF) statistics

XBM was enhanced to update the Coupling Facility (CF) statistics (including the HWM — High Water Mark for Storage and Directories value) whenever a snapshot fails due to the coupling facility being full. When a CF full error occurs, XBM now generates an error with reason code 2128.

The following new message is displayed in the DISPLAY XBM output:

**BMC73833ICF**

Structure structureName storage: used = amountUsed K, HWM = highWaterMarkUsed K, total allocation = totalAlloc K.

Explanation: This message summarizes usage information for the Coupling Facility (CF) cache. The message indicates the name of the structure, how much storage is currently being used, the highest historical usage, and the total space allocated for the cache.

User Response: No response is required.
Additional DISPLAY COMPONENT output

When you issue the DISPLAY COMPONENT command, the output now displays a message if the component is not active. XBM also checks the status of component hooks and issues a message if any are disabled.

| BMC730701 | 15.19.09 XBMN ROU * DIS COMP VSAM |
| BMC730701 | 15.19.09 XBMN DIS COMP VSAM |
| BMC730701 | 15.19.09 XBMN VSAM component not active |
| BMC730701 | 15.19.09 ACP3 DIS COMP VSAM |
| BMC730701 | 15.19.09 ACP3 VSAM component not active |
| BMC730701 | 15.19.09 ACP2 DIS COMP VSAM |

Incorporation of SPEs

This release incorporates changes that were introduced in the following small programming enhancements (SPEs):

<table>
<thead>
<tr>
<th>Original SPE date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2010</td>
<td>Provided a new XBM component that enables use of IBM System z® Integrated Information Processors (zIIPs) The new component gives supported BMC products the option to use enclave service request blocks (SRBs) to enable zIIP processing while running jobs.</td>
</tr>
<tr>
<td>August 2009</td>
<td>Enabled support of EMC virtual devices To use virtual volumes, you must configure XBM and set Storage Systems Integration (SSI) options to recognize these devices.</td>
</tr>
</tbody>
</table>

Removal of obsolete functionality

This release streamlines the XBM product and interface by removing obsolete functionality.

High-speed Apply Engine version 11.1.00

High-speed Apply Engine version 11.1.00 includes the following features.

DB2 Version 11 support

High-speed Apply Engine now supports the IBM DB2 Version 11 system in all modes (CM, ENFM, and NFM).
End of support for DB2 Version 8

Starting with this release, High-speed Apply Engine does not support IBM DB2 Version 8. Earlier releases will continue to support Version 8.

Extended RBA/LRSN support

High-speed Apply Engine now supports extended RBAs and LRSNs. All output and repository tables have been changed to provide this support.

Distributed systems changes

The following changes apply to Microsoft Windows and UNIX® installations.

High-speed Apply Engine supports the following databases and operating systems:

- **Databases:**
  - IBM DB2 Universal Database™ Version 9.7, 9.8, and 10 (for Windows, IBM AIX®, and Oracle® Solaris systems only)
  - Oracle 11g Release 1 (11.1) and 11g Release 2 (11.2)

- **Operating systems:**
  - AIX 6.1 and 7.1
  - Oracle Solaris 10 and 11
  - Hewlett-Packard HP-UX 11.23 (11i v2) and 11.31 (11i v3)
  - Windows 2007 and 2008

High-speed Apply Engine without binds

You can now pre-generate and bind an application plan and base package to use in subsequent runs of High-speed Apply Engine. High-speed Apply Engine can then run without any binds, but all statements will be executed dynamically. To accommodate this feature, this release adds **PackageName** to the Bind configuration parameters.
Enhanced retry conflict resolution

The apply job can now terminate or abort so that you can resolve a timeout conflict and restart the apply job when appropriate. To expand the action set that you can define after a failed retry, this release:

- Adds Defer and Skip to the RetryFail configuration parameter
- Adds MaxFailedRetries to the Conflict configuration parameters to define the maximum number of retries allowed
- Adds MaxRetryFail to the Conflict configuration parameters to define the action that High-speed Apply Engine takes when the value of MaxFailedRetries is exceeded

Aliases for distribution of work

Distribution by object is now based on the base table when an alias or single table view is used to identify the table_name in the SQL statement. An example follows:

```
INSERT INTO table_name (col1, col2) values ("xxx", "yyy");
```

LOADPLUS APMULTIROW option

High-speed Apply Engine now supports the LOADPLUS option APMULTIROW with the configuration parameters MultiRowInsert and MaxRows.

Installation


**NOTE**

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

Recovery Management is installed by using the BMC Installation System. This section contains installation information that supplements or supersedes the information in the Installation System User Guide and the BMC Products and Solutions for DB2 Configuration Guide.
Requirements

For software, hardware, and other requirements, see the Installation System User Guide.

Installation changes

For information about installation changes, see the Installation System release notes.

FMID and version information

This release of Recovery Management uses version 2.3.60 of the Installation System and 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>FMID</th>
<th>Product or component</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASAR71C</td>
<td>SAS_C and SAS_C++ V71</td>
<td>7.1.00</td>
</tr>
<tr>
<td>BBAPW32</td>
<td>BMC Password Security System</td>
<td>3.2.00</td>
</tr>
<tr>
<td>LOSZ120</td>
<td>RTCS C Library</td>
<td>2.0</td>
</tr>
<tr>
<td>ZACPB10</td>
<td>COPY PLUS for DB2</td>
<td>11.1.00</td>
</tr>
<tr>
<td>ZAFRB10</td>
<td>RECOVER PLUS for DB2</td>
<td>11.1.00</td>
</tr>
<tr>
<td>ZAIN031</td>
<td>Install Execution Code</td>
<td>3.1.00</td>
</tr>
<tr>
<td>ZALPB10</td>
<td>Log Master for DB2</td>
<td>11.1.00</td>
</tr>
<tr>
<td>ZAPTB10</td>
<td>High-Speed Apply Engine</td>
<td>11.1.00</td>
</tr>
<tr>
<td>ZARMB10</td>
<td>RECOVERY MANAGER for DB2</td>
<td>11.1.00</td>
</tr>
<tr>
<td>ZAUP241</td>
<td>BMCSORT</td>
<td>2.4.01</td>
</tr>
<tr>
<td>ZBMR15E</td>
<td>ISR External Routines</td>
<td>1.5.00</td>
</tr>
<tr>
<td>ZDBCA10</td>
<td>DB2 Component Services</td>
<td>10.1.00</td>
</tr>
<tr>
<td>ZDIG190</td>
<td>Dignus C runtimes and c++ objects</td>
<td>1.9</td>
</tr>
<tr>
<td>ZLGC10</td>
<td>DB2 Product Configuration</td>
<td>10.1.00</td>
</tr>
<tr>
<td>ZOSZ120</td>
<td>RTCS Kernel</td>
<td>2.0</td>
</tr>
<tr>
<td>ZSCCB10</td>
<td>DB2 Solution Common Code (SCC)</td>
<td>11.1.00</td>
</tr>
<tr>
<td>ZUSC540</td>
<td>UIM Common Services</td>
<td>5.4.00</td>
</tr>
</tbody>
</table>
The preceding table contains the FMIDs for Recovery Management only. You can also obtain product, solution, and component information (FMIDs, codes, and versions) in the following ways:

- View the $B76APLF JCL member.

  To search the file, search on the word FORFMID.

- View one of the following reports:
  - bxx_ozi_tape_product_list.txt lists products and components for the B-series installation (shared and infrastructure products).
  - cxx_ozi_tape_product_list.txt lists products and components for the C-series installation (BMC products for IBM DB2).
  - ixx_ozi_tape_product_list.txt lists products and components for the I-series installation (BMC products for IBM IMS™).
  - mxx_ozi_tape_product_list.txt lists products and components for the M-series installation (MainView products).

To access the reports on the BMC electronic software distribution (ESD) site, take the following steps:


2. Click Electronic Downloads.

3. Click readme.

4. In the “Before you begin” section, click a product media listing.
After you install Recovery Management, BMC strongly recommends that you apply all available maintenance for the product and for the components and associated products that you installed with it. 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). BMC ISR is available for all products that you install by using the Installation System. For more information, see the Installation System User Guide.

**NOTE**

Before applying maintenance, ensure that you have completed the $B76APLF job to set up your maintenance environment.

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

### Support status

You can find the support status for specific product versions on the Support Central website. Selecting a product from the “A – Z Supported Product List” shows:

- All versions of the product and their current support levels (full or limited)
- Dates on which support ends

For more information about the latest support policies, see the Support Central website at http://www.bmc.com/support.

### Product documentation

From the Support Central website (http://www.bmc.com/support), you can:

- Link to the BMC Documentation Center (https://webapps.bmc.com/infocenter/index.jsp) to browse documentation sets
- View BMC Quick Course Demos (short overviews of selected product concepts, tasks, or features), which are included in the BMC Documentation Center
- View individual product documents (books and notices) within the “A – Z Supported Product List”
You can order hardcopy documentation from your BMC sales representative or from the support site. You can also subscribe to proactive alerts to receive e-mail messages when notices are issued.

**Customer support**

If you have problems with or questions about a BMC product, see the 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 1 800 537 1813. Outside the United States or Canada, contact your local BMC office or agent.

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