New Features Bulletin
Mirror Activator™ 15.2
for Linux, Microsoft Windows, and UNIX

Document ID: DC00715-01-1520-01

Last revised: May 2009

This document describes features for Mirror Activator when Mirror Replication Agent™, Replication Server, and Enterprise Connect Data Access™ (ECDA) are used for replication. Features for Mirror Replication Agent are also included, and for information about the new features for Replication Server and ECDA, see the respective new features guides for these products.

Mirror Activator 15.2 software features

The following is a list of new features that are supported for Mirror Activator 15.2.

- ASE 15.0.3 SQL statement replication
- Oracle 11g support (except for SecureFiles, virtual columns, encrypted tablespace, and encrypted columns)
- Real Application Clusters (RAC) Oracle 11g
- Automatic Storage Management (ASM) Oracle 11g

The following is a limited list of features that are not supported for Sybase replication:

- Oracle index-organized tables
- Oracle materialized views
- Oracle packaged stored procedures and functions (stand-alone procedures and functions are supported)
- Oracle procedures and functions having a BOOLEAN or SIMPLE_INTEGER parameter
- Oracle Flashback, Recycle Bin, and Flashback Recovery Area
- Oracle SecureFile large objects (LOBs)
- Oracle virtual columns
- Oracle RMAN utility
- Oracle encrypted columns
- Oracle encrypted partitions
- Oracle encrypted schema objects in encrypted tablespaces

- Replication Server parallel DSI (for non-ASE databases)
- Replication Server warm standby (for non-ASE databases)
- Replication Server rs_init utility (for non-ASE databases)
- Replication Server rs_subcomp utility (for non-ASE databases)
- Replication Server automatic materialization (for non-ASE databases)
- Replication Server when replicating in an environment where other vendors are replicating (for non-ASE databases)

Note Only features and functionality covered in the Mirror Activator documentation are supported for that solution. If a feature or type of functionality is not documented, it is not supported.

Mirror Activator supported datatypes

The following identifies the datatypes that are supported or are not supported, depending on your ESD level for ECDA.

Support for replicating certain datatypes into Oracle datatypes

ECDA 15.0 ESD #1 or earlier does not support replicating these Sybase datatypes. However, as of ECDA 15.0 ESD #2, these datatypes are supported:

- bigint
- unsigned bigint
- unsigned integer
- unsigned smallint
- unsigned tinyint
- unichar
- univarchar
- unitext

ECDA 15.0 ESD #1 or earlier does not support replicating the Oracle nclob datatype. However, as of ECDA 15.0 ESD #2, this datatype is supported. For further information, see Appendix A, “Datatype Translation and Mapping” in the *Replication Server 15.2 Heterogeneous Replication Guide*.

None of the replication components (Mirror Replication Agent, Replication Server, or ECDA) supports replicating these Oracle datatypes:

- UROWID
- REF
- MLSLABEL
- VARRAY
- Nested Tables
- Associative arrays
- Oracle-supplied datatypes
  - “Any” Types (SYS.ANYTYPE, SYS.ANYDATA, SYS.ANYDATASET)
  - XML Types (XMLType, URIType, DBURIType, XDBURIType, HTTPURIType)
  - Spatial Types (MDSYS.SDO_GEOMETRY, SDO_TOPO_GEOMETRY, SDO_GEORASTER)
  - Media Types (ORDSYS.ORDAudio, ORDSYS.ORDImage, ORDSYS.ORDImageSignature, ORDSYS.ORDVideo, ORDSYS.ORDDoc, SI_StillImage, SI_Color, SI_AverageColor, SI_ColorHistogram, SI_PositionalColor, SI_Texture, SI_FeatureList)
  - Expression Filter Type
- User-defined datatypes (UDDs) that contain a LOB column.
- UDDs that are not final

Mirror Replication Agent 15.2 New Features

This section describes the new features that are available for Mirror Replication Agent 15.2 for Linux, Microsoft Windows, and UNIX

Device block read size

To improve Mirror Replication Agent performance when reading a transaction log these new configuration properties have been added:

- log_read_block_count – determines the number of blocks or pages that are read from the log for each read cycle.
- archive_log_read_block_count – determines the number of blocks that are read from an Oracle archive log for each read cycle. (For Oracle only)
- auto_adjust_block_count – determines whether the Replication Agent automatically adjusts the block count if any part of a read is discarded.

For additional information regarding the configuration properties, see Chapter 2, "Configuration Properties," in the *Mirror Replication Agent Reference Manual*.

Operating system and platform support

- On UNIX platforms, Mirror Replication Agent is now supported only on the 64-bit versions. However, Mirror Replication Agent continues to be supported on both 32-bit and 64-bit Linux and Microsoft Windows.
- The following platforms are no longer supported:
  - Solaris 9, 10 (SPARC) (32-bit only)
  - HP-UX PA-RISC
  - AIX 5.3 (32-bit only)

For detailed information regarding platforms and operating systems, see the *Mirror Replication Agent Release Bulletin 15.2*.

Real Application Cluster (RAC) Oracle 11g

Mirror Replication Agent now supports Oracle 11g RAC. A RAC environment supports multiple instances of Oracle that access one database. An instance is where an operating system process executes, performs the work required to satisfy requests, and contains information about the requests. Each instance in the cluster usually runs on a separate server or "node," maintains its own set of redo log files, and also maintains its own in-memory processes and in-memory storage.

For a detailed description of the RAC process, see the *Mirror Replication Agent Primary Database Guide*.

Support SQL Replication (ASE)

Mirror Replication Agent supports SQL statement replication for ASE 15.0.3 and later releases. Sybase recommends that you use SQL statement replication when:

- DML statements affect a large number of rows on replicated tables.
- You have difficulty altering the underlying application to enable stored procedure replication.

For a detailed description of SQL Replication for ASE, see the *Mirror Replication Agent Primary Database Guide*.

New features added in Mirror Replication Agent 15.1 EBFs

The following features have been added with EBFs after the initial Mirror Replication Agent 15.1 release and are included in the current 15.2 release.

Oracle 11g support

Oracle 11g is supported as of Mirror Replication Agent 15.1 ESD #1. These 11g features are not supported:

- SecureFiles – this feature is a redesign of the implementation of large object (LOB) storage in Oracle 11g. Tables containing these types of columns can be marked using the force option, but the LOB columns are not replicated.
- Virtual columns – Mirror Replication Agent supports the replication of tables containing computed (or virtual) columns in Oracle 11g. However, the replication of individual computed columns is not supported. Tables with virtual columns can be marked using the force option of the pdb_setreptable command, but these columns are not replicated.

- Encrypted table spaces – encrypted tables and columns in encrypted tables cannot be marked for replication.
- Encrypted columns – tables containing encrypted columns can be marked for replication using the force option of the pdb_setreptable command, but these columns are not replicated.

Partitioned tables Oracle 10g and 11g

Replication of Oracle partitioned tables is supported as of Mirror Replication Agent 15.1 ESD #1. Partitioning allows a table, index, or index-organized table to be subdivided into smaller pieces, where each piece of such a database object is called a partition. Each partition has its own name, and may optionally have its own storage characteristics. Any table can be partitioned into many separate partitions except those tables containing columns with LONG or LONG RAW datatypes.

Unstructured data (such as images and documents) which is stored in a LOB column in the database can also be partitioned. When a table is partitioned, all the columns reside in the tablespace for that partition, with the exception of LOB columns, which can be stored in their own tablespace. For additional information about Oracle partitioning, see the Oracle Database VLDB and Partitioning Guide
at http://download.oracle.com/docs/cd/B28359_01/server.111/b32024/toc.htm

Note Index Organized Tables (IOTs), whether partitioned or not, are not supported.

Automatic Storage Management (ASM) Oracle 11g

Oracle 11g ASM is supported as of Mirror Replication Agent 15.1 ESD #1. ASM provides file system and volume management support for an Oracle database environment. It can be used in both RAC and non-RAC environments. ASM allows definition of a single disk group from a collection of individual disk devices and attempts to balance loads across all of the devices defined to the disk group.

For more information, go to Oracle ASM information at
http://www.oracle.com/technology/products/database/asm/index.html

For more ASM information, see the *Mirror Activator Administration Guide* and the *Mirror Replication Agent Primary Database Guide*.

New configuration property

A new configuration property has been added: lr_send_trunc_partition_ddl. This property determines whether truncate partition commands are sent as DDL or DML to the replicate database.

- true (default) – the truncate partition command is sent as a DDL command (alter table). Normally setting to replicate to Oracle.
- false – the truncate partition is sent as a DML operation.Use this setting when replicating to databases that treat truncate partition commands as DML, for example, ASE.

For additional information regarding the configuration property, see Chapter 2, "Configuration Properties," in the *Mirror Replication Agent Reference Manual*.

New Oracle select privileges required

The Mirror Replication Agent pds_username user requires select privileges to the following Oracle system tables:

- SYS.OBJ$ – required for processing procedure DDL commands in the repository.
- SYS.LOB$ – required for LOB replication support.
- SYS.COLLECTION$ – required for VARRAY replication support.
- SYS.COL$ – required for table (column info) replication support.
- SYS.CON$ – required for table (constraint info) replication support.

  Note The permissions for SYS.CON$ and SYS.CDEF$ are required to handle the constraint information in the CREATE and ALTER TABLE DDL operations.

- SYS.CDEF$ – required for table (constraint info) replication support.
- SYS.USER$ – required for Oracle user identification.

- SYS.SEQ$ – required for Sequence objects.
- SYS.COLTYPE$ – required for table (column type info).
- SYS.TAB$ – required to support table replication.
- SYS.MLOG$ – required to filter out materialized view log tables.
- SYS.TABPART$ – required to support partitioned table replication.
- SYS.TABCOMPART$ – required to support partitioned table replication.
- SYS.TABSUBPART$ – required to support partitioned table replication.
- SYS.NTAB$ – required to support table replication.
- SYS.IND$ – required to identify indexes.
- SYS.INDPART$ – required to identify indexes.
- SYS.INDCOMPART$ – required to identify indexes.
- SYS.INDSUBPART$ – required to identify indexes.
- SYS.LOBCOMPPART$ – required to support partitioned LOB replication.
- SYS.LOBFRAG$ – required to support partitioned LOB replication.
- SYS.TS$ – required to identify tablespace encryption in Oracle 11g.
- SYS.SNAP$ – required to filter out materialized view tables.
- SYS.PROCEDUREINFO$ – required for procedure replication support.
- SYS.ARGUMENT$ – required for procedure (argument info).
- SYS.TYPE$ – required for Oracle predefined Type and UDD.
- SYS.ATTRIBUTE$ – required for Oracle type (type attribute info).
- SYS.CCOL$ – required for table (column constraint info).

Skipping an operation (for Oracle only)

The pdb_skip_op command has been changed to allow you to specify the SUBSCN field values for skipping an operation.

Generating replication definitions

Mirror Replication Agent provides a new parameter, rs_replicate_owner_required, that allows Replication Agent to always supply the owner in the replicate table name when the replication definition is generated.

For more information on the new parameter, see the *Mirror Replication Agent Reference Manual*.

Automatic backup of the RASD (For Oracle only)

Sybase automatically backs up the Replication Agent System Database when the transaction log is reinitialized. The most recent database backup is saved in a repository backup directory with a time stamped name. In addition, two new Mirror Replication Agent commands, rasd_helpbackup and rasd_removebackup, are available for managing the Replication Agent System Database backups.

For more information on the new command, see the *Mirror Replication Agent Reference Manual*.

Marking tables for replication (For Oracle only)

Changes in the Replication Agent command pdb_setreptable allows marking of tables that contain column datatypes that are not supported for replication. This allows supported column data to be replicated, instead of excluding the entire table from replication. To force the Replication Agent to mark the table for replication, the force keyword option has been added to the command syntax for any pdb_setreptable command mark request.

For more information on the new command, see the *Mirror Replication Agent Reference Manual*.

Resuming replication when Replication Server becomes unavailable

Support has been added for Replication Server connection retry. If Replication Server is unavailable during data replicating, Replication Agent changes its state to “ADMIN - Reconnecting to Replication Server,” then tests the connectivity to Replication Server. If Replication Server becomes available, Replication Agent resumes, which makes replication start again. In the “ADMIN - Reconnecting to Replication Server” state, users can issue suspend commands to send Replication Agent to “ADMIN” state, or issue a resume command to start replication manually.