New Features Bulletin
Replication Agent™ 15.1

Document ID: DC00503-01-1510-02

Last revised: March 2009

This document describes the new features that are available for Replication Agent 15.1 for Linux, Microsoft Windows, and UNIX as of ESD #3.

Creating Replication Agent instances using resource files

The Replication Agent ra_admin utility now provides two additional parameters that support creating a Replication Agent instance using a resource file and validating resource files.

For more information, see the *Replication Agent Administration Guide*.

Oracle support

Replication Agent 15.1 ESD #3 has added support for:

- Oracle 11g
- Partitioned Tables (Oracle 9i, 10g, and 11g)
- Real Application Cluster (RAC) (Oracle10g) (This feature was supported in the Replication Agent 15.1 release)
- Automated Storage Management (ASM) (Oracle 10g and 11g)
- Oracle connectivity to support RAC and ASM
- New Select privileges
- New configuration property lr_send_trunc_partition_ddl
- Skipping an operation (For Oracle only)

Oracle 11g support

The Oracle 11g feature SIMPLE_INTEGER parameter datatype is supported as of Replication Agent 15.1 ESD #3. However, the following features are not supported:

- SecureFiles – a redesign of the implementation of large object (LOB) storage in Oracle 11g.
- Virtual Columns – columns that appear to be normal table columns, but their values are derived rather than stored on disk.

Tables containing these types of columns can be marked. However, these columns will not be replicated.

Partitioned tables Oracle 9i, 10g, and 11g

As of Replication Agent 15.1 ESD #3, partitioned tables is supported. This 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) that 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.

Real Application Cluster (RAC) Oracle 10g

Oracle 10g RAC environments support 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 *Replication Agent Primary Database Guide*.

Automated Storage Management (ASM) Oracle 10g and 11g

Oracle 10g and 11g 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 ASM information, see the *Replication Agent Administration Guide* and the *Replication Agent Primary Database Guide*.

Oracle connectivity to support RAC and ASM

Replication Agent supports gathering necessary connection property information by reading an Oracle *tnsnames.ora* file.

If you use Oracle's RAC or ASM, you must use the *tnsnames.ora* file that contains the desired connection details for the RAC or ASM instance that you want to connect to. If you are *not* using RAC or ASM, you can continue to use the existing configuration properties.

Configuration Parameters

These new configuration parameters have been added to Replication Agent:

- pds_tns_connection – identifies the connection name in the *tnsnames.ora* file to be used for the Oracle primary data server connection.
- pds_tns_filename – identifies the file name, including the path, to the *tnsnames.ora* file to be used to obtain connection information.
- asm_tns_connection – identifies the connection name in the *tnsnames.ora* file to be used for the Oracle ASM connection.

- asm_tns_filename – identifies the file name, including the path, to the *tnsnames.ora* file to be used to obtain connection information for the Oracle ASM connection.
- asm_username – identifies the user name to be used for the Oracle ASM connection.
- asm_password – identifies the password for the user specified by asm_username.

For more information regarding the configuration parameters, see the *Replication Agent Reference Manual*.

New Select Privileges required

The select privileges for the following Oracle system tables in the primary database server must be granted to the Replication Agent pds_user_name/user:

- 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

New configuration property (lr_send_trunc_partition_ddl)

A new configuration property has been added: lr_send_trunc_partition_ddl. It is used to determine whether truncate partition commands are sent as DDL or DML to the replicate database. The configuration can be:

- true (default) – the truncate partition command is sent as a DDL command (alter table). Use this 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. Microsoft SQL Server is an example.

Skipping an operation (For Oracle only)

Updates the interface to the pdb_skip_op command to allow you to specify the SUBSCN field values for skipping an operation.

Replication Server support

To support Replication Server, Replication Agent supports the rs_ticket command. This new Replication Agent command works with the Replication Server to measure the amount of time it takes for an operation to move from the primary database to the replicate database.

For a complete definition of this new command, see the *Replication Agent Reference Manual*.

Automatically resuming replication when Replication Server becomes unavailable

Support for retrying a connection to Replication Server if it becomes unavailable. If Replication Server is not available during data replication, Replication Agent changes its state to "ADMIN - Reconnecting to Replication Server," and 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.

Universal Database version 9.1 support

Replication Agent has added support for the IBM DB2 Universal Database (UDB) version 9.1. For more information, see the *Replication Agent Primary Database Guide*.

Truncating archive logs (UDB)

Replication Agent for UDB has been enhanced to read and truncate (remove) archive log files that are no longer needed for replication. After you have configured UDB to archive logs to a second location, you can configure Replication Agent to automatically remove the processed archive log files from that location. The two new Replication Agent configuration parameters are pdb_archive_path and pdb_archive_remove.

For more information regarding the archive log files, see the *Replication Agent Primary Database Guide* and the *Replication Agent Reference Manual*.

Log-based replication from Microsoft SQL Server 2005

Replication Agent now reads operations and transactions directly from the Microsoft SQL Server transaction log instead of placing triggers on tables marked for replication. Using this log-based replication, Replication Agent now also supports replicating DDL. This new capability requires that Replication Agent use a repository (RASD) and adds a number of new configuration parameters.

Replication Agent for Microsoft SQL Server must be installed on a Windows host from which it can directly access the primary SQL Server transaction logs. Replication Agent for Microsoft SQL Server can no longer be installed on a UNIX or Linux host.

For more information regarding the support of Microsoft SQL Server 2005, see the *Replication Agent Primary Database Guide* and the *Replication Agent Administration Guide*.

New features added in Replication Agent 15.0 EBFs

The following features were added with EBFs after the initial Replication Agent 15.0 release and are included in the current 15.1 release.

Generating replication definitions

Replication Agent provides a new property 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 command, see the *Replication Agent Reference Manual*.

Automatic back-up of the system database (For Oracle and Microsoft SQL Server only)

Sybase automatically backs up the Replication Agent System Database when the transaction log is re-initialized. The most recent database backup is now saved in a repository backup directory with a time-stamped name. In addition, two new 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 *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 change allows the 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 usage of this command, see the *Replication Agent Reference Manual*.

Configuring UNITEXT data byte order

Replication Agent provides a new property ltl_big_endian_unitext that controls whether unitext data should be converted from *little endian* to *big endian* before sending LTL to Replication Server.

For more information, see the *Replication Agent Reference Manual*.

Formatting the LTL *before* image for update and delete actions

Replicating Agent provides a new property ltl_send_only_primary_keys that controls whether or not Replication Agent includes all table columns or only primary key columns when formatting the LTL *before* image in update and delete operations. This property is used only when the use_rssd configuration property is set to true and a table replication definition exists for the table being replicated.

For more information, see the *Replication Agent Reference Manual*.

Change in truncate replication (Oracle only)

Replication Agent has been enhanced to support the Replication Server "subscribe to truncate table" option. Previously, the truncate table command was only replicated from Oracle when DDL replication was enabled. Now, the truncate table command can be replicated whether DDL replication is enabled or not. With this change, the truncate table command is replicated to databases that explicitly subscribe to truncate table.

For more information, see the *Replication Agent Administration Guide*.

Multidimensional clustered tables (UDB only)

Replication Agent has been enhanced to support replication of inserts, updates, and deletes from Multidimensional clustered tables.

For more information, see the *Replication Agent Primary Database Guide*.