

**Oracle® GoldenGate
11g Release 1 (11.1.1)
Release Notes**

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License Keys

The 'pw' file is no longer needed to use Oracle GoldenGate TDM. Once you have upgraded to OGG 11.1, you can safely remove this file from the installation directory.

New Features in 11.1.1

New supported databases

DB2 9.7: Oracle GoldenGate now supports capture and delivery on DB2 up to version 9.7.

DB2 for iSeries: Oracle GoldenGate supports the delivery of data changes from any database that is supported as a source by Oracle GoldenGate to a DB2 iSeries target using ODBC from an intermediate Windows system. IBM iSeries Access for Windows must be installed on the intermediary Windows system. See the new Oracle GoldenGate *DB2 for iSeries Installation and Setup Guide* for more information.

SQL Server 2008: Oracle GoldenGate now supports extraction from and replication to SQL Server 2008. For more information, see the *SQL Server Installation and Setup Guide*.

MySQL Capture: Oracle GoldenGate now supports log based capture from MySQL 5.1.15 or higher. For more information, see the *MySQL Installation and Setup Guide*.

Database-specific enhancements

DB2 z/OS

Oracle GoldenGate now supports delivery to a DB2 z/OS target by using a remote Replicat that is installed on any platform that can host a DB2 LUW instance and is supported by Oracle GoldenGate. Replicat connects to DB2 z/OS through DB2 Connect. For more information, see the Oracle GoldenGate DB2 z/OS Installation and Setup Guide.

MySQL

- Oracle GoldenGate now supports TEXT and BLOB data types.
- Dynamic SQL is now supported for MySQL through the DYNSQL parameter.
- Oracle GoldenGate now supports capture from MySQL 5.1.15 and later.

Oracle

- DDL support was enhanced to:
 - Support ANALYZE for TABLE, INDEX, and CLUSTER.
 - Allow WILDCARDRESOLVE IMMEDIATE to be used with DDL EXCLUDE ALL. Now, DDL that is read by Replicat can be ignored.
 - Support replication of passwords in DDL and their encryption by means of a new PASSWORD option of DDLOPTIONS.
 - Better handle unqualified objects names in DDL statements. Now, Replicat does the following:
 - If the unqualified object is of MAPPED scope (that is, its name satisfies a MAP specification), Replicat does one of the following: If the actual schema of the unqualified object is the same as the source session schema, Replicat sets the schema to the schema that is specified in the TARGET clause of the MAP statement. If the actual schema of the unqualified object is different from the source session schema, Replicat sets the schema to the source session schema.

- If the unqualified object is of UNMAPPED or OTHER scope, Replicat sets the schema to that of the source session schema.
 - Map a source session schema to a different target session schema. Session schema mapping might be required for some DDL to succeed on the target, such as CREATE TABLE AS SELECT. This mapping is global and will override any other mappings that involve the same schema names. To map session schemas, use the DDLOPTIONS parameter with the MAPSESSIONSCHEMA option.
 - Support DDL in an active-active bi-directional configuration. A new UPDATEMETADATA option of the DDLOPTIONS parameter notifies Replicat on the system where DDL originated that this DDL was propagated to the other system, and that Replicat should now update its object metadata cache to match the new metadata. This keeps Replicat's metadata cache synchronized with the current metadata of the local database. For more information, see the chapter on Oracle DDL replication in the Oracle GoldenGate Windows and UNIX Administrator's Guide.
- A new COMPLETEARCHIVELOGONLY option was added to TRANLOGOPTIONS to control when Extract starts processing an archived log: whether it starts immediately when the log becomes available or waits for the log to be written to disk first. This parameter applies when copying production (source) archive logs to a secondary database where they will serve as the data source. Some Oracle programs do not build the archive log from the first byte to the last byte in sequential order, but instead may copy the first 500MB, then the last 500MB, and finally the middle 1000MB, for example. If Extract begins reading at the first byte, it willabend when it reaches the break in the byte sequencing. Waiting for the whole file to be written prevents this problem.
- A new COMPLETEARCHIVEDLOGTIMEOUT option was added to TRANLOGOPTIONS to control the number of seconds that Extract waits, when in COMPLETEARCHIVEDLOGONLY mode, to try again if it cannot validate that a redo log is being completely written to disk.
- Oracle GoldenGate now supports direct-load INSERTs. The redo logs must have compatibility 10g or later. A new SKIPDIRLOADINSERT option of TRANLOGOPTIONS causes Extract to skip all Oracle direct-load INSERTs.
- Support for embedded XML in UDTs was added. A new LOBBUFSIZE option was added to DBOPTIONS to control the memory buffer size to allocate for each embedded LOB attribute.
- LOB support was enhanced so that for Oracle versions 10g and later, all LOBs are captured from the redo log, whether stored in-row or out-of-row. Fetching may occur in some circumstances. See the Oracle GoldenGate Oracle Installation and Setup Guide for more information.
- A new SUPPRESSTRIGGERS option was added to DBOPTIONS to prevent triggers from firing on target objects that are configured for replication with Oracle GoldenGate. You can use this parameter instead of manually disabling the triggers and constraints. For 10gR2, SUPPRESSTRIGGERS is only available in Oracle 10.2.0.5 and later patches to 10.2.0.5. It is not available in 11gR1. For 11gR2, it is available in 11.2.0.2 and beyond. The default is NOSUPPRESSTRIGGERS. To use [NO]SUPPRESSTRIGGERS, the Replicat user must be an Oracle Streams administrator, which can be granted by invoking the following grants:
 - For Oracle 10.2.0.5, use dbms_streams_auth.grant_admin_privilege.
 - For Oracle 11.2.0.2, use dbms_goldengate_auth.grant_admin_privilege.
- A new DEFERREFCONST option was added to DBOPTIONS to delay the checking and enforcement of referential integrity constraints on the target tables until the Replicat transaction commits. This avoids the need to disable those constraints on the target. This feature requires Oracle 10.1.0.1 or higher.
- A new Bounded Recovery feature was added that guarantees an efficient recovery after Extract stops for any reason, planned or unplanned, no matter how many open (uncommitted) transactions there were at the time that Extract stopped, nor how old they were. Bounded Recovery sets an upper boundary for the maximum amount of time that it would take for Extract to recover to the point where it stopped and then resume normal processing. A new parameter named BR was added to support this feature.

- A new DBLOGREADER option was added to TRANLOGOPTIONS to enable Extract to use a newer API for capturing from an Oracle ASM instance. This feature is available as of Oracle 10.2.0.5. The API enables Extract to use a read buffer size of up to 4 MB in size and uses the database server to access the redo and archive logs, so that they do not have to reside in ASM. A larger buffer may improve the performance of Extract when redo rate is high. You can use the new DBLOGREADERBUFSIZE option of TRANLOGOPTIONS to specify a buffer size. For more information, see the TRANLOGOPTIONS documentation.

SQL Server

- Oracle GoldenGate now supports SQL Server IDENTITY columns, VARDECIMAL, DATE, TIME, DATETIME2, and DATETIMEOFFSET.
- Oracle GoldenGate Replicat now uses OLE DB by default to connect to the target database, instead of ODBC. You can configure OLE DB to use the replication user by using the DBOPTIONS parameter with the USEREPLICATIONUSER option, which provides additional options for bypassing IDENTITY updates and certain integrity constraints to support a bi-directional configuration. You can override the default connection to use ODBC with the new USEODBC option of the DBOPTIONS parameter.
- Oracle GoldenGate now supports tables that use data compression and transparent data encryption. This includes row compressed format in both ROW and PAGE mode.
- Oracle GoldenGate now supports partitioned tables, but has limitations if there are different physical data layouts for individual table partitions (SQL Server 2005 and 2008 only). All table partitions are handled as if they had the same physical layout. This assumption is true in the vast majority of cases, but you should examine the definitions of the tables you want to replicate to detect any differences. If possible, you can rebuild the relevant partitions so that all match.
- Extract now logs a warning when a DDL operation is made to a source object for which Extract is capturing data, so the problem can be corrected. A new NODDLCHANGEWARNING option was added to TRANLOGOPTIONS to force Extract not to log this warning.
- Oracle GoldenGate now supports positioning by timestamp in the SQL Server transaction log. Limitations apply. For more information, see the ADD EXTRACT documentation.

Sybase

- Oracle GoldenGate now supports the capture and replication of Sybase user defined types, UNICHAR, and UNIVARCHAR.
- A new LOBSALWAYSNOINDEX option has been added to ADD TRANDATA for Sybase version 15 and later. The current LOBSALWAYS option will now, by default, supply the use_index parameter to the calls to sp_setreptable and sp_setrepcol. LOBSALWAYSNOINDEX (the new parameter) assumes the old behavior of LOBSALWAYS. The use_index parameter will only be supplied if the database is Sybase 15 or later. For versions earlier than 15, the behavior is unchanged.
- The replication of LOB columns to Sybase non-LOB columns (CHAR, VARCHAR, LONG VARCHAR, BINARY, LONGBINARY, VARBINARY) are now supported by the DYNSQL parameter. Formerly, NODYNSQL was required to support that configuration.
- Dynamic SQL is now supported for Sybase through the DYNSQL parameter.

Other enhancements

General

- The terminology that is used to describe the data format of the Oracle GoldenGate trail has been changed from universal data format to canonical format. This change is reflected in the Oracle GoldenGate documentation.

Parameters

- A MAPEXCEPTION option was added to the MAP parameter to allow the mapping of processing anomalies (known as exceptions) to a file. When REPERROR is set to EXCEPTION, the errant operations are written to the file.
- A SYSLOG parameter was added to control the types of messages that GoldenGate sends to the system logs on a Windows or UNIX system. You can include all GoldenGate messages, suppress all GoldenGate messages, filter to include information, warning, or error messages, or any combination of those types. You can use SYSLOG as a GLOBALS or Manager parameter, or both. When present in the GLOBALS parameter file, it controls message filtering for all of the GoldenGate processes on the system. When present in the Manager parameter file, it controls message filtering only for the Manager process. If used in both the GLOBALS and Manager parameter files, the Manager setting overrides the GLOBALS setting for the Manager process.
- A new OUTPUTFILEUMASK parameter for GLOBALS was added to specify an octal umask that will be used by GoldenGate processes to create trail files and discard files. This parameter is not valid for WIN32 systems.
- A new TRANSACTIONTIMEOUT parameter was added to prevent an uncommitted Replicat target transaction from holding locks on the target database and consuming its resources unnecessarily. You can change the value of this parameter so that Replicat can work within existing application timeouts and other database requirements on the target.
- A new UNLOCKEDTRAILFILES parameter was added for GLOBALS as a workaround for problems with trail files that remain locked by Collector if there is a network outage that affects the target system. As of GoldenGate version 10.4, Collector began locking a trail file when writing data to it, to prevent corruption from other processes that may attempt to write to the same trail. UNLOCKEDTRAILFILES prevents Collector from locking the trail files. A new -UL parameter for Collector has the same functionality.
- A new VAMCOMPATIBILITY option of the TRANLOGOPTIONS parameter for c-tree, MySQL, SQL M/X, SQL Server, Sybase, and Teradata was added to allow different metadata structures to be passed across the Vendor Access Module (VAM), depending on the needs of the individual VAM implementation: A value of 1 specifies that the original VAM API metadata structure is being used. A value of 2 specifies the use of an enhanced VAM API metadata structure, based on the original but with additional fields. For more information, see the TRANLOGOPTIONS documentation.

Commands

- A new ALLOWNESTED command enables the use of nested OBEY files. A nested OBEY file is one that contains another OBEY file. The maximum number of nested levels is 16.

New Parameters

All new parameters in the 11.1 initial GA release are included in the Oracle GoldenGate Reference Guide for 11.1.1. The parameters listed here have been added to the Oracle GoldenGate 11.1.1 product release after the initial GA release, and are therefore not yet documented.

<This section is left intentionally blank. >

Deprecated/Discontinued Parameters or Features in 11.1.1

The following items have been deprecated in the OGG 11.1 release. Any parameter that has been deprecated or discontinued will cause EXTRACT, or REPLICAT to abend with an appropriate error message.

VARWIDTHNCHAR

VARWIDTHNCHAR parameter has been deprecated. The product will now automatically detect if this parameter is necessary and internally write all NCHAR and NVARCHAR data to the trail with the 2 byte length information.

TRANLOGOPTIONS CONVERTUCS2CLOB

It is no longer necessary to set this parameter in any Oracle GoldenGate configurations.

USETHREADS / NOUSETHREADS

This parameter has been deprecated and should not be used.

DDLGEN

DDLGEN utility will be discontinued in Oracle GoldenGate release 11.1 for open system environments. This includes all databases on Windows, Unix and IBM Mainframe. It will still be included and supported in the Oracle GoldenGate for HP Nonstop platform, and can be used to convert DDL from those environments to open system databases.

Documentation Addendum

This section serves as an addendum to the Oracle GoldenGate for Windows and UNIX Administration Guide and Reference Guide. It includes items that have not been covered in the manuals due to changes made to the product or the documentation after the documentation has been published.

Improving capture performance in Oracle RAC while reading from ASM

When Extract is running locally to an ASM instance, you can improve its performance in Oracle RAC by creating a bequeathed (BEQ) connection to the ASM instance instead of using TCP. Below is a sample entry in the tnsnames.ora file for this configuration:

```
GG_ASM =
  (DESCRIPTION=
    (ADDRESS=
      (PROTOCOL=beq)
      (PROGRAM=/u01/oracle/product/11.1.0.7/asm/bin/oracle)
      (ARGV0=+ASM1)
      (ARGS='(DESCRIPTION=
        (LOCAL=YES)
        (ADDRESS=(PROTOCOL=beq))
      )'
    )
  )
(CONNECT_DATA=(SID=+ASM1))
```

Positioning Extract in a Sybase transaction log

This section sets expectations as to how Extract positions to a record in a Sybase transaction log when the ADD EXTRACT or ALTER EXTRACT command is used to position to a timestamp or page number.

Positioning to a timestamp

```
ADD EXTRACT <group name>, BEGIN {NOW | yyyy-mm-dd [hh:mi:[ss[.cccc]]]}
```

Sybase only records timestamps in BEGIN and COMMIT records. Regardless of the actual timestamp that is specified, the start position will be the first record of the transaction that starts closest to, or at, the specified timestamp. The Extract report will display the following positions:

Positioning To: This is the specified begin time, for example:

```
Positioning to begin time Jun 7, 2010 12:13:33 PM.
```

Positioned To: If the specified timestamp is less than, or equal to, the timestamp of the transaction log that contains the BEGIN or COMMIT record, "Positioned To Page" is displayed as in this example:

```
2010-06-07 12:13:39 INFO OGG-01516 Positioned to
Page #: 0004460243
Row #: 00111, Jun 7, 2010 12:13:38 PM.
```

First Record Position: This is the position of the first valid record at, or after, the **Positioned To** position, as in this example:

```
010-06-07 12:13:39 INFO OGG-01517 Position of first record processed
Page #: 0004460243
Row #: 00111, Jun 7, 2010 12:13:38 PM.
```

Positioning to a page number

```
ADD EXTRACT <group name>, PAGE <data page>, ROW <row>
```

Specifies a data page and row that together define a start position in a Sybase transaction log. Because the start position must be the first record of the transaction that starts closest to, or at, the specified PAGE and ROW, the Extract report will display the following positions:

Positioning To is the position of the record that is specified with PAGE and ROW.

Positioned To is the position where the first BEGIN record is found at, or after, the Positioning To position.

First Record Position is the position of the first valid record at, or after, the Positioned To position.

Documentation Errata

This section contains corrections to errors in the documentation that were found after this version of the documentation was published.

DBOPTIONS SUPPRESSTRIGGERS parameter

The Oracle GoldenGate for Windows and UNIX Reference Guide incorrectly states that:

"To use this option, the Replicat user must be an Oracle Streams administrator, which can be granted by invoking dbms_goldengate_auth.grant_admin_privilege." The correct grants are the following, depending on the Oracle version:

- For Oracle 10.2.0.5, use dbms_streams_auth.grant_admin_privilege.
- For Oracle 11.2.0.2, use dbms_goldengate_auth.grant_admin_privilege.

Open Issues

Open Issues have been moved to the Oracle GoldenGate README file.

Installation and Upgrades

The installation file downloaded from Oracle is not compressed using gzip, instead it is a standard .zip file. To uncompress the download, please use the following methods:

- Windows – Please use winzip or other method that can support files with the .zip extension.
- Unix / Linux – Please use the ‘unzip’ command utility to uncompress the downloaded file.
- Mainframe – Please use the ‘unzip’ command utility to uncompress the downloaded file.

If you do not have any of these utilities on the server, you can download them from Oracle’s website at <http://updates.oracle.com/unzips/unzips.html>

For upgrade instructions, see the separate *Oracle GoldenGate for Windows and UNIX Upgrade Instructions*.

Corrected Problems

For questions on specific bugs or ticket numbers, please consult Oracle Customer Support. SR is the Oracle Support SR number, and BugDB is the bug identification number.

Version 11.1.1.0.0 build 78 – 6 August 2010

Initial GA release of 11.1

DB2 LUW

SR: 3-1593324191 / BugDB 9534426 – Fixed a problem with initial load extract when a LOB column was the second to last column in a table.

Generic

- SR: 3-1906497979 / BugDB 9878627– Added a new GLOBALS parameter `_SINGLETHREADED_ACTIVITYLOGGING`, causes the Activity Logging subsystem to run without background threads. For production environments with minimal logging requirements, this option can be used to possibly reduce CPU utilization further.
- SR: 3-1595247911 / BugDB 9523317 – Fixed a bug in LOGDUMP that was causing searches using LOGCSN to return incorrect results.
- BugDB 9429084 – REPORTCOUNT on an Extract pump using PASSTHRU now functions correctly.
- BugDB 9428109 – Increase the single process limit from 300 to 5000 with the use of a new internal GLOBALS parameter named MAXGROUPS.

MySQL

SR: 3-1185947451 / BugDB 9198918 – The Replicat for MySQL now handles LOBs larger than 4kb.

Version 11.1.1.0.1 build 4 – 1 September 2010

Oracle

- SR: 3-2037351261 / BugDB 10048019 – Fixed issue where an array insert on a table is skipped if the preceding operation is one of an insert/update/delete record on a clustered table.
- SR: 3-2042986681 / BugDB 10048189 – Fixed a parsing error on IOT records that was causing the reverse operation to be captured.