Oracle® Fusion Middleware

Release Notes for Oracle GoldenGate for Big Data

12c (12.3.2.1)
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Oracle Fusion Middleware Release Notes for Oracle GoldenGate for Big Data, 12c (12.3.2.1)

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Preface

Oracle GoldenGate for Big Data 12*c* streams transactional data into big data systems in real time, raising the quality and timeliness of business insights. This document contains the release notes for the 12*c* (12.3.2.1) release of Oracle GoldenGate for Big Data.

Documentation Accessibility

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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, such as "From the File menu, select **Save**." Boldface also is used for terms defined in text or in the glossary.
italic *`italic`*	Italic type indicates placeholder variables for which you supply particular values, such as in the parameter statement: `TABLE` *`table_name`*. Italic type also is used for book titles and emphasis.
`monospace` `MONOSPACE`	Monospace type indicates code components such as user exits and scripts; the names of files and database objects; URL paths; and input and output text that appears on the screen. Uppercase monospace type is generally used to represent the names of Oracle GoldenGate parameters, commands, and user-configurable functions, as well as SQL commands and keywords.
UPPERCASE	Uppercase in the regular text font indicates the name of a utility unless the name is intended to be a specific case.
`{ }`	Braces within syntax enclose a set of options that are separated by pipe symbols, one of which must be selected, for example: `{`*`option1`* `|` *`option2`* `|` *`option3`*`}`.

Convention	Meaning
[ ]	Brackets within syntax indicate an optional element. For example in this syntax, the `SAVE` clause is optional: `CLEANUP REPLICAT` *`group_name`* `[, SAVE` *`count`*`]`. Multiple options within an optional element are separated by a pipe symbol, for example: `[`*`option1`* `|` *`option2`*`]`.

1
Introduction

This chapter introduces the Release Notes for Oracle GoldenGate for Big Data12*c* (12.3.0.1).

Topics:

1.1 Latest Release Information

This document is accurate at the time of publication. Oracle will update the release notes periodically after the software release. You can access the latest information and additions to these release notes on the Oracle Technology Network at:

http://www.oracle.com/technetwork/indexes/documentation/index.html

1.2 Purpose of this Document

This document contains the release information for Oracle Fusion Middleware Release for Oracle GoldenGate for Big Data.

Oracle recommends you review its contents before installing, or working with the product.

1.3 System Requirements and Specifications

Oracle GoldenGate follows the Fusion Middleware system requirements and certifications for production environments. For more information, see http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-certification-100350.html.

1.4 Bugs Fixed and Enhancements

This chapter describes the bugs fixed and enhancements at the time of release.

The Bug number is the number of the BugDB ticket. For questions on specific tickets or issues, consult Oracle Support.

1.5 Product Documentation

For complete documentation on Oracle GoldenGate, go to http://docs.oracle.com/goldengate/c1230/gg-winux/index.html.

1.6 Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support at https://support.oracle.com

1.7 Licensing Information

Licensing information for Oracle Fusion Middleware is available at:

https://shop.oracle.com

Detailed information regarding license compliance for Oracle Fusion Middleware is available at:

Licensing Information

1.8 Downloading and Applying Required Patches

Downloading Patches

Go to My Oracle Support to download the latest software patches.

https://support.oracle.com

See the `README` file in the patch distribution for up-to-date information on the software fixes provided by the patch.

To download and install the latest software patch:

1. Login to My Oracle Support.
2. Click the **Patches & Updates** tab.
3. Under the Patch Search tab, select **Product or Family (Advanced Search)**, and select the **Include all patches in a product family** check box.
4. Enter **Oracle GoldenGate** as the product, select the platform and release, and click **Search**.

The list of currently available patches for Oracle GoldenGate is returned.

For SQL Server CDC Extract you may need these software patches:

- For SQL Server 2012, 2014, and 2016, Microsoft has identified and fixed an issue where some `UPDATE` operations may be written incorrectly to a CDC staging table as an `INSERT` followed by a `DELETE`, rather than a `DELETE/INSERT` pair. This may cause downstream replication issues, such as a primary key violation, therefore Oracle recommends that you apply the Microsoft fix for this issue: https://support.microsoft.com/en-us/help/3030352
- For SQL Server 2016, prior to enabling supplemental logging, ensure that you have patched the SQL Server instance based on the following bug fix from Microsoft: https://support.microsoft.com/en-us/help/3166120/fix-could-not-find-stored-procedure-sys.sp-cdc-parse-captured-column-list-error-in-sql-server-2016 If the instance is not correctly patched with the Microsoft fix, issuing `ADD TRANDATA` against a table for the database may incorrectly report that supplemental logging succeeded when it may not have; therefore no records are captured for that table.

Applying this Patch

You must follow the existing upgrade procedures to overlay the old binaries with the new binaries. In addition, you must rerun `ADD TRANDATA` for each table that is already enabled for `TRANDATA` using these steps:

1. Stop all Oracle GoldenGate processes
2. Follow normal upgrade procedures for binary replacement though do not start any Oracle GoldenGate processes, see Upgrading to Release 12c (12.3.0.1) for Heterogeneous Databases in *Using Oracle GoldenGate for Heterogeneous Databases*.
3. Manually stop the SQL Server CDC Capture job for the database. If the job is processing a large transaction, it may take some time before it actually stops.
4. Ensure that the Extract is stopped.
5. Using GGSCI, run `ADD TRANDATA` again for every table hat you previously enabled it for.

   > **Important:**
   >
   > Do *not* run the `DELETE TRANDATA` command.

6. Manually restart the SQL Server CDC Capture job.
7. Manually restart the Oracle GoldenGate processes (Extract, Replicat, MGR, and so on.)

1.9 Upgrade

There are two upgrade paths that you can choose from to upgrade to Oracle GoldenGate for Big Data 12*c* (12.3.1.1) and both are described in *Installing and Upgrading Oracle GoldenGate for Big Data*.

2
What's New in this Release

This chapter describes the features, enhancements, and changes made to Oracle GoldenGate. Oracle updates the release notes periodically after the software release. This document is accurate at the time of publication.

2.1 12.3.2.1.1 Release — August 2018

- These major features are introduced for the corresponding targets:

  BigQuery Handler
  Use the Google BigQuery Handler, which streams change data capture data from source trail files into Google BigQuery.

  Oracle Cloud Infrastructure Event Handler
  Use the Oracle Cloud Infrastructure Event Handler to load files generated by the File Writer Handler into an Oracle Cloud Infrastructure Object Store.

  Oracle Cloud Infrastructure Classic Event Handler
  Use the Oracle Cloud Infrastructure Classic Event Handler to load files generated by the File Writer Handler into an Oracle Cloud Infrastructure Classic Object Store.

  Connecting to Microsoft Azure Data Lake
  You can connect to Microsoft Azure Data Lake to process big data jobs with Oracle GoldenGate for Big Data.

  Length Delimited Value Formatter
  The Length Delimited Value Formatter is a row-based formatter. It formats database operations from the source trail file into a length delimited value output.

- These changes and enhancements were implemented:

  Cassandra Capture
  Support or SSL configuration and authentication was added.

- The following properties are introduced:

  HBase Handler
  You can omit null fields from being written with `gg.handler.name.omitNullValues=true`.

  Avro Formatters

  – You can write the Avro decimal logical type (per the Avro specification) using `gg.handler.name.format.enableDecimalLogicalType=true`.

  – To handle the Oracle `NUMBER` type, use `gg.handler.name.format.oracleNumberScale=scale`.

– To write the Avro timestamp logical type (per the Avro specification), use `gg.handler.name.format.enableTimestampLogicalType=formatter_spec`.

S3 Event Handler

For Dell ECS, you can set the URL to connect to cloud storage with `gg.eventhandler.name.url`.

All Handlers

– You can consolidate the format of timestamp with this time zone property, `gg.format.timestampWithTimeZone=formatter spec`.

– . For the template name property, `${primaryKey}`, the syntax is extended to allow configuration of key column separator, `${primaryKey[separator_string]}` where the desired separator string is specified within the square brackets].

> **Note:**
>
> Review Understanding What is Supported for more information about support for these new features, as well as existing features.

2.2 Initial Release 12.3.1.1.0 — May 2018

- Theses major features are introduced for the corresponding targets:

  Capture for Cassandra

  Use Oracle GoldenGate capture (Extract) to get changes from Apache Cassandra databases.

  File Writer Handler

  The File Writer Handler allows you to write data to a local file system. Additionally, the File Writer employs event handlers to post process data after it is staged to files on the local file system. The event handlers are:

  HDFS Event Handler

  Uploads staged files to HDFS.

  Optimized Row Columnar Event (ORC) Handler

  Converts staged files to ORC format and writes either to a local file system or to HDFS.

  Parquet Event Handle

  Converts staged files to Parquet format and either write to a local file system or to HDFS.

  S3 Event Handler

  Loads staged files to Amazon S3.

  Kafka REST Proxy Handler

  Streams change data capture to Kafka via the Confluent Kafka REST Proxy. The Confluent Kafka REST Proxy provides and HTTPS interface for ingest into Kafka.

Oracle NoSQL Handler

Streams change data capture into Oracle NoSQL.

- All Oracle GoldenGate for Big Data Handlers are stateless and only maintain state in the context of the Replicat process that it was running. The File Writer Handler introduces the ability of maintaining state between invocations off the Replicat process.
- The HBase byte fields support was changed so that binary source data is moved into HBase as binary data. It is no longer converted to Base64.
- The `duration` data type was added in Cassandra 3.10. The Cassandra Handler now supports delivery to `duration` data type column. The `duration` value needs to be encoded as a string in your trail.

> **Note:**
>
> Review Understanding What is Supported for more information about support for these new features, as well as existing features.

2.3 Deprecated Items

This section lists all items that were deprecated in each release.

3
Known Issues

This section describes the known issues, with any available workarounds, identified in each release . The Bug *number* is the number of the BugDB ticket. For questions on specific tickets or issues, consult Oracle Support.

3.1 Initial Release 12.3.2.1.0— April 2018

Bug 26856080 — Oracle: Admin Client AUTORESTART help commands are not working

In the Admin Client, the help commands for the `AUTORESTART` parameter are missing.

Workaround
None

Bug 22826452 — Extract does not capture records if WILDCARDRESOLVE IMMEDIATE is used

Do not use `WILDCARDRESOLVE IMMEDIATE` in a multitenant environment if performing DDL on that system. Extract may fail to capture records after the DDL operations.

Workaround
None

Bug 26104564 — Oracle: Deleting AUTORESTART task is killing ER, which was brought up by an AUTORESTART task

When an `execute` task is deleted, the associated `ER` process is killed. This is because the task owns the running state of the ER process.

Workaround
The correct method of creating an “execute” task is as follows:

1. Create the ER process in stopped state.
2. Create the task.
3. Start the task.

Bug 22826452 — Extract does not capture records if WILDCARDRESOLVE IMMEDIATE is used

Do not use `WILDCARDRESOLVE IMMEDIATE` in a multitenant environment if performing DDL on that system. Extract may fail to capture records after the DDL operations.

Workaround
None

Bug 22739872 — Oracle: START MGR can hang for XAGENABLEd setup if the MGR process has abended

When using `XAGENABLE`, if you start manager from `GGSCI` and it immediately abends the command may hang.

Workaround
None

Bug 22967088 — Oracle: IR abends with 3117-ORA-03117: two-task save area overflow

If Integrated Replicat abends with `OGG-00665OCI Error Flushing database inbound server, '..' (status = 3117-: two-task save area overflow)`, disabling `ENABLEMONITORING`.

Workaround
Restart the Replicat.

Bug 19512704 — Oracle: Wrong results with @BINTOHEX and @STRCAT functions

Using `STRCAT` to concatenate a string that has used `BINTOHEX` returns the wrong information.

Workaround
None

Bug 22854712 — Oracle: NOUSERID should force downstream mode

The `NOUSERID` parameter is only supported with downstream Integrated Extract.

Workaround
None

Bug 25043127 — Honor MAPINVISIBLECOLUMNS and NOMAPINVISIBLECOLUMNS in user exit

The `MAPINVISIBLECOLUMNS` and `NOMAPINVISIBLECOLUMNS` parameters do not function properly with user exits.

Workaround
None

XL C++ runtime environment on AIX

You must install the XL C++ runtime environment (RTE) version 13.1 on the AIX systems that you want to use Oracle GoldenGate because it cannot run with older RTE versions.

Workaround
Ensure that the RTE version 13.1 is installed before you install Oracle GoldenGate.

Bug 26564428 — Replicat doesn't map derived objects when schema name is specified with it

When a source schema name is appended to the derived object (indexes and triggers) during DDL (like `CREATE TRIGGER tkggu1.mytrigger1`), then the derived object is not mapped correctly by the Replicat. Since `mapderived` is default for Replicat, the statement should map per the map statements.

Workaround
Do not append a source schema name to the derived object name in DDL statement so that the statement is executed on the correct schema.

Bug 26020817 - Oracle: Extract will have actual LAG + 1 hour during DST transition from DST to Non-DST

Oracle GoldenGate Extract timestamp does not adjust after DST change. An Extract has an actual lag value + 3600 seconds (1 hour) when there is a time transition from DST to non-DST (in November of every year). This recurs during 1 AM to 2 AM non-DST.

Workaround
None

Bug 26812463 - Oracle: GRANT ... TO ... IDENTIFIED BY DDL operation

Combination DDL operations that create a user at the same that as granting permissions to that user are not supported in DDL replication for Classic Extract. For example, `GRANT DBA TO scott IDENTIFIED BY tiger;` is not a supported DDL operation, and Replicat will abend when it encounters these types of operations.

Workaround
You can workaround this by splitting the DDL operation into two separate commands. The first DDL to create the user, and a second DDL to grant the permissions to the new user.

4
Bugs Fixed and Enhancements

This chapter describes the bugs fixed and enhancements at the time of release.

The Bug number is the number of the BugDB ticket. For questions on specific tickets or issues, consult Oracle Support.

4.1 Release 12.3.2.1.1 — August 2018

Bug 28215602 - Automatically create streams in Kinesis

Two new properties added to the Kinesis Handler to auto create Kinesis streams, `gg.handler.name.enableStreamCreation` and `gg.handler.name.shardCount`.

Bug 28195145 - Initial load process JVM crashes on Linux x86-64

Replicat was changed to handle NULL CSN and XID values.

Bug 28079597 - PURGEOLDEXTRACTS not working correctly

Changed how `PURGEOLDEXTRACTS` operates so that all rules are added to the trail to process when there is no checkpoint in the installation.

Bug 27804821 - Update before image token not showing up in Kafka

The Kafka Handler was changed to use the mapped and target before record to populate the before values.

4.2 Initial Release 12.3.2.1.0 — May 2018

Bug 27525525 - Replicat issues with trail checkpoint and 9-digit trail sequence

Replicat was changed to correct an abend leading to an inconsistent checkpoint file, which caused a problem positioning upon restart. One of the symptoms of this issue is that the Replicat mistakenly assumes that it should reposition to a 6-digit sequence number rather than 9-digit.

Bug 27299518 - SQL is replicated as binary (base64) instead of string

The Kafka Handler was corrected so that a `uniqueidentifier` column is replicated to the target as a base64 string.

Bug 26957243 - CVE-2017-5645: APACHE LOG4J UPGRADE TO 2.9.1

Due to security issues in log4j component, the log4j version was upgraded to log4j 2.9.1.

Bug 26851391 - File Writer Handler - Target data missing Operation counts

The File Writer Handler was changed to count of operations be provided on data files written to HDFS to provide assurance that all records are processed. This is for an ELT scenario.

Enh 25677977 - Enhancement request to correct the DateString format from operation.getTimestamp

Enh 25289618 - Change the HDFS Handler's timestamp format to `yyyy-mm-dd hh:mm¿

Enh 24704644 - Where does "op_ts" milliseconds in time stamp value comes from?

With the HDFS Handler, the timestamp data output format is exactly how it is represented in the trail record. The handler was changed so that you can consolidate all of the timestamp output format using the `gg.format.timestamp property`. The value of this property must follow the specification described in:

https://docs.oracle.com/javase/8/docs/api/java/time/format/DateTimeFormatter.html.

Bug 27012878 — ReverseProxySettings application has two new parameters

The `ReverseProxySettings` application has two new parameters in Oracle GoldenGate version 12.3.0.1 and later:

- `-P`: Password for Service Manager account
- `-u`: Name of Service Manager account to use

Doc 27033479 — New option, SQLMODE, is added for the DBOPTIONS parameter

The `SQLMODE` option is added for the `DBOPTIONS` parameter. When this option is enabled, the `sql_mode` variable is set to `'ANSI_QUOTES'`.

Doc 27061717 — Oracle: Replicat issues replicating TIMESTAMP (6) with TIMEZONE

The daylight saving time adjustment issue when UTC timestamp value converted from local timestamp hits daylight saving time transition period was fixed. From standard time to daylight saving time 1 hour window. Replicat applies timestamp value 1 hour off from expected value.

Bug 26742447 — SQL Server: Replicat abends with OGG-10124 parsing error for REPERROR value

The `REPERROR` option allowed 1-7 digits of error code only, whereas the SQL Server error code contains 10 digits. To fix this, the regular expression was modified to accumulate 10 digits of SQL Server error code.

Bug 27964981 — Oracle: Extract writes number of bytes > max length for the column to the trail file

An issue with Extract data in the trail file was incorrect when the `VARCHAR` size is more than 32767 bytes was fixed.

Bug 27078084 — Oracle: Integrated Extract captures all columns for delete operations

Fixed as issue where Replicat fails with errors like `OGG-01163 Bad column length (nnnn) specified for colum xxxx`. This issue occurs because the database `NLS_CHARACTERSET` is `AL32UFT8` and `NLS_NCHAR_CHARACTERSET` is `UTF8`. `NVARCHAR2` has a byte limit of 4000 bytes. For `UTF8`, 4000 chars is equal to 4000 bytes. However, Oracle GoldenGate stores `NVARCHAR2` in the trail as `UTF16`, which causes it to expand it to 8000 bytes.

Bug 28043789 — Oracle: @DATE function with @COMPUTE does not work

An issue where the `DATE()` failed if used as an argument of another column mapping function was fixed.

Bug 26869744 — Oracle: Extract Truncating The Column Data When Used with Coltest

An issue with mapping functions truncating numbers that have more digits than the number of bytes needed to store the target number was fixed

Bug 27701581 - Increase the upper limit of the DBOPTIONS parameter options LOBBUFSIZE and XMLBUFSIZE

The upper limit for `LOBBUFSIZE` and `XMLBUFSIZE` was increased from 10485760 to 104857600.