

Oracle® GoldenGate

Release Notes for Oracle GoldenGate for Distributed Applications and Analytics



21c (21.15.0.0.0)

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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Preface

Oracle GoldenGate for Big Data 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 21c (21.0.0.0.0) release of Oracle GoldenGate for Big Data.

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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.
<i>italic</i> <i>italic</i>	Italic type indicates placeholder variables for which you supply particular values, such as in the parameter statement: <code>TABLE <i>table_name</i></code> . 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: <code>{<i>option1</i> <i>option2</i> <i>option3</i>}</code> .
[]	Brackets within syntax indicate an optional element. For example in this syntax, the <code>SAVE</code> clause is optional: <code>CLEANUP REPLICAT <i>group_name</i> [, <i>SAVE count</i>]</code> . Multiple options within an optional element are separated by a pipe symbol, for example: <code>[<i>option1</i> <i>option2</i>]</code> .

Related Information

- The Oracle GoldenGate Product Documentation Libraries are found at:<https://docs.oracle.com/en/middleware/goldengate/index.html>
- **Oracle GoldenGate Classic for Big Data** in [Using Oracle GoldenGate on Oracle Cloud Marketplace](#)

1

Introduction

This chapter introduces the Release Notes for Oracle GoldenGate for Distributed Analytics (GG for DAA).

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 Distributed Analytics and Applications (GG for DAA).

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 [GoldenGate Certifications](#).

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 <https://docs.oracle.com/en/middleware/goldengate/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 User Manual](#).

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.

1.9 Upgrade

For more information about how to upgrade to Oracle GoldenGate for Distributed Applications and Analytics, see <https://docs.oracle.com/en/middleware/goldengate/big-data/21.1/gadbd/upgrade-articles.html#GUID-9AE04DDF-66FF-41AF-85B2-D7A0C72537FA>

2

What's New in this Release

This chapter describes the features, enhancements, and changes made to Oracle GoldenGate for Distributed Applications and Analytics (GG for DAA). Oracle updates the release notes periodically after the software release. This document is accurate at the time of publication.

2.1 21.12.0.0.0 Release — October 2023

A new parameter `eventHandlerTimeoutMinutes` has been introduced to handle the event handler thread timeout in minutes. For more information, see [Configuring the File Writer Handler](#) in the *Oracle GoldenGate for Distributed Applications and Analytics* documentation.

2.2 21.10.0.0.0 Release — June 2023

The Elasticsearch Handler has been modified to support Elasticsearch 8.x.

For more information, see Using the Elasticsearch Handler with Elasticsearch 8 in *Oracle GoldenGate for Big Data articles*.

TRACKSCHEMACHANGES support to capture table level DDL changes for Cassandra Capture.

The `TRANLOGOPTIONS TRACKSCHEMACHANGES` enables Cassandra extract to capture table level DDL changes from the source at runtime. For more information, see *Cassandra Capture - Handling Schema Evolution* in *Oracle GoldenGate for Big Data articles*.

2.3 21.9.0.0.0 Release — March 2023

BigQuery Replication to Datasets in multiple Google Cloud Platform (GCP) projects

BigQuery Stage and Merge handler now supports replication to datasets that reside in multiple GCP projects. The table catalog name can be mapped to the GCP projectId. For more information, see *Google BigQuery Dataset and GCP ProjectId Mapping and Three-Part Table Names* in *Oracle GoldenGate for Big Data*.

Support multiple sources in a single deployment

Enhancements have been made to Cassandra, MongoDB, and Kafka parameters to support capture from multiple sources (JMS/Cassandra/MongoDB/Kafka) in a single deployment without the need to restart Microservices or configuration of the GLOBALS file.

2.4 21.8.0.0.0 Release — December 2022

Redis Handler

A Redis Handler handler that supports pushing data to Redis has been added. The handler supports Redis hashmaps, Redis streams, and Redis JSONs. For more information see the *Redis Handler - Using the Redis Handler* in the *Oracle GoldenGate for Big Data User Guide*.

INSERTALLRECORDS support for BigQuery

The `INSERTALLRECORDS` Oracle GoldenGate parameter is now supported for BigQuery target. For more information, see [Initial Load Configuration](#) in the *Oracle GoldenGate for Big Data User Guide*.

Snowflake Initial load COPY SQL support

Snowflake Initial load uses the COPY SQL statement to insert records into the target table. This improves the initial load throughput.

Support multiple sources in a single deployment

Oracle GoldenGate for Big Data now supports capture from multiple sources (JMS/Cassandra/MongoDB/Kafka) in a single deployment without the need to restart microservices or configuration of the GLOBALS file.

Support has been added for DSE Cassandra 6.x capture

You can now configure capture from DSE Cassandra 6.x versions. For more information, see [Using Change Data Capture Extract - DSE Cassandra SDK, compatible, compatible with DSE Cassandra 6.x versions](#) in the *Oracle GoldenGate for Big Data User Guide*.

2.5 21.7.0.0.0 Release — September 2022

Updated delimited text formatter

The delimited text formatter has been modified to allow file headers to be created. A file header is a delimited row which names each field in the delimited text output. For more information, see `gg.handler.name.format.metaColumnsTemplate` in [Delimited Text Formatter Configuration Properties \(gg.handler.name.format.metaColumnsTemplate\)](#) in the *Oracle GoldenGate for Big Data User Guide*.

Updated JSON formatter

The JSON formatter has been modified to allow files created in JSON format to be represented as a JSON array. This allows the generated file to be represented as a single JSON document whereby the JSONs representing the operation data are elements within the JSON array. For more information, see [JSON Formatter Configuration](#) in the *Oracle GoldenGate for Big Data User Guide*.

Updated HBase Handler to support metacolumns.

The HBase Handler has added functionality whereby configurable metacolumn data can be propagated. For more information, see [HBase Handler Configuration](#) in the *Oracle GoldenGate for Big Data User Guide*.

Snowflake internal stage performance improvement settings

The following new parameters have been added to improve Snowflake initial load throughput when using internal stage: `gg.eventhandler.snowflake.putSQLThreads` and `gg.eventhandler.snowflake.putSQLAutoCompress`. For more information, see [Snowflake Event Handler Configuration](#) in the *Oracle GoldenGate for Big Data User Guide*.

INSERTALLRECORDS support for Snowflake, Synapse, Autonomous Datawarehouse, and Redshift

The `INSERTALLRECORDS` Oracle GoldenGate parameter is now supported for the following BigData targets:

- Snowflake
- Synapse

- Autonomous Datawarehouse
- Redshift

For more information, see Snowflake Event Handler Initial load, Microsoft Azure Synapse Analytics Event Handler Initial, ADW Event Handler Initial Load, and Redshift Event Handler Initial Load topics in the *Oracle GoldenGate for Big Data User Guide*.

Initial load support for stage and merge targets

Support for processing initial load trails using batch inserts has been added for the following targets:

- Autonomous Datawarehouse. See ADW Event Handler Initial Load
- AWS Redshift. See Redshift Event Handler Initial Load
- Snowflake. See Snowflake Event Handler Initial load
- Synapse. See Microsoft Azure Synapse Analytics Event Handler Initial load

While processing trails generated by OGG 21c extract processes, no additional configuration is required. To process initial load trails generated by older extract processes, use the `INSERTALLRECORDS` in the Replicat parameter file.

OCI Object Storage Auto configuration

Auto-configuration can be used to simplify configuration for the OCI Object Storage target. The parameter `gg.target` can be set to `oci` to enable this feature. For more information, see OCI Event Handler - Automatic Configuration in the *Oracle GoldenGate for Big Data User Guide*.

AWS S3 Transfer Acceleration

Amazon S3 Transfer Acceleration can be enabled to transfer files quickly and securely over long distances to an S3 bucket. For more information, see `gg.eventhandler.s3.enableAccelerateMode` in S3 Handler Configuration in the *Oracle GoldenGate for Big Data User Guide*.

Support has been added for Apache Cassandra 4.0 capture

You can now configure capture from Apache Cassandra 4.0. For more information, see Apache Cassandra 4x SDK, compatible with Apache Cassandra 4.0 version in the *Oracle GoldenGate for Big Data User Guide* in the *Oracle GoldenGate for Big Data User Guide*.

Support has been added for BigQuery Metadata provider.

Support has been added for Metadata Provider for Google BigQuery targets. It can be configured to work with BigQuery Handler and BigQuery Event Handler from a source to the BigQuery target using Replicat parameter file. For more information about the datatypes supported, see Supported BigQuery Datatypes in the *Oracle GoldenGate for Big Data User Guide*.

2.6 21.6.0.0.0 Release — May 2022

Support for Snowflake public/private key pair authentication

Support for Snowflake public/private key pair authentication has been added. For more information, see Snowflake Key Pair Authentication topic in the *Oracle GoldenGate for Big Data User Guide*.

Support has been added to set all fields as nullable in the generated Kafka Connect handler.

Support has been added to set all fields as nullable in the generated Kafka Connect handler. For more information, see `gg.handler.name.enableNonnullable` in Kafka Connect Handler Configuration in the *Oracle GoldenGate for Big Data User Guide*.

Support has been added to map the JSON and XML source column types in the Oracle GoldenGate trail to Snowflake VARIANT.

For more information, see Snowflake Event Handler Mapping Source JSON/XML to Snowflake VARIANT in the *Oracle GoldenGate for Big Data User Guide*.

Support has been added for replication of Synapse tables with IDENTITY columns.

For more information, see Troubleshooting and Diagnostics - Microsoft Azure Synapse Analytics Event Handler in the *Oracle GoldenGate for Big Data User Guide*.

BigQuery stage and merge now works with the Google BigQuery SDK 2.x

For more information, see Google BigQuery ClassPath Configuration in the *Oracle GoldenGate for Big Data User Guide*.

Support has been added for MongoDB Capture to connect to MongoDB databases.

For more information, see MongoDB Cassandra Capture Client Dependencies in the *Oracle GoldenGate for Big Data User Guide*.

2.7 21.5.0.0.0 Release — March 2022

Support for the BigQuery Bignumeric data type

The BigQuery Handler has added support for the BigQuery Bignumeric data type. The BigQuery Bignumeric data type provides support for larger scale and precision than the BigQuery Numeric data type.

BigQuery replication using Stage and Merge

Support has been added to replicate data into BigQuery using the Stage and Merge framework.

The change data records are staged into Google Cloud Storage and then merged into BigQuery tables. The BigQuery Event Handler uses the BigQuery Query Job and does not use the BigQuery Streaming API. For more information, see Using the Google BigQuery Event Handler in the *Oracle GoldenGate for Big Data User Guide*.

MongoDB Capture

Support has been added to capture operations from MongoDB and write them to trail using the Oracle GoldenGate extract process. See Using Oracle GoldenGate Capture for MongoDB in the *Oracle GoldenGate for Big Data User Guide*.

Support for AJD and ATP Databases

Support has been added to use the Mongo DB Handler replicate transactional data from Oracle GoldenGate to Autonomous JSON Databases (AJD and ATP Database) also. For more information, see Using the MongoDB Handler in the *Oracle GoldenGate for Big Data User Guide*.

2.8 21.4.0.0.0 Release — November 2021

Azure Blob Storage (ABS) Event Handler

Support has been added to store objects in Azure Data Lake using Azure Blob Storage (ABS). For more information, see *Using the Azure Blob Storage Event Handler in the Oracle GoldenGate for Big Data User Guide*.

Snowflake Event Handler.

Support has been added to replicate data into Snowflake using the Snowflake Event Handler. Oracle no longer recommends to use Command Event Handler and merge scripts for replication to the Snowflake target. For more information, see *Using the Snowflake Event Handler in the Oracle GoldenGate for Big Data User Guide*.

Google Cloud Storage Event Handler.

Support has been added to store objects in the Google Cloud Platform using the Google Cloud Storage Event Handler. For more information, see *Using the Google Cloud Storage Event Handler in the Oracle GoldenGate for Big Data User Guide*.

Oracle GoldenGate for Big Data has been certified to run with Java 11 Long-Term-Support (LTS) runtime.

For more information, see *Java Boot Options in the Oracle GoldenGate for Big Data User Guide*.

2.9 21.3.0.0.0 Release — September 2021

Kafka Capture

Support has been added to capture messages from Kafka and write them to trail using the GoldenGate extract process.

The Oracle NoSQL Handler has been changed to use the new NoSQL SDK client.

The new NoSQL SDK client supports connectivity to both on-premise and Oracle Cloud Infrastructure instances of Oracle NoSQL.

New target: Azure Synapse Analytics.

Oracle GoldenGate for Big Data can now natively deliver to Azure Synapse Analytics. Replication to Synapse uses stage and merge data flow. The changed data is staged in Azure Data Lake Storage (ADLS) Gen 2 and eventually merged to Synapse. For more information, see *Using the Microsoft Azure Synapse Analytics Event Handler in the Using Oracle GoldenGate for Big Data guide*.

Support for the Confluent Protobuf Converter which integrates with the Confluent Schema Registry.

The Kafka Connect Handler has been modified to support the Confluent Protobuf Converter which integrates with the Confluent Schema Registry.

2.10 21.1.0.0.0 Release — June 2021

Oracle GoldenGate Microservices Architecture.

Oracle GoldenGate Microservices Architecture is now available with Oracle GoldenGate for Big Data.

Support for partitioning had been added to the File Writer Handler. You can configure partitions based on templated strings. Additionally, partitioning functionality in the HDFS Handler has been changed to also use templated strings to control partitioning.

For more information, see Template Keywords in the *Using Oracle GoldenGate for Big Data* guide.

Conversion of char column to binary when its charset is set to PASSTHRU is supported.

If you do not specify `SOURCECHARSET PASSTHRU`, and specify `COLCHARSET (PASSTHRU)` for some columns, then each of those columns get written as binary data. For more information about `SOURCECHARSET` with `PASSTHRU` option, see `SOURCECHARSET` in *Oracle GoldenGate Reference for Oracle GoldenGate*.

Oracle wallet feature for JMS handlers is enabled.

For more information about `ORACLEWALLETUSERNAME` and `ORACLEWALLETPASSWORD`, see Configuring Properties to Access the Credential Store in the *Using Oracle GoldenGate for Big Data* guide.

Utility scripts have been added to download 3rd party dependency libraries for various integrations. Obtaining the correct 3rd party dependency libraries for a given type and version of integration was challenging. The Dependency Downloader utility scripts allow you to download 3rd party dependencies for a given integration providing the integration version as an argument.

Utility scripts are located in the `{OGGBD install}/DependencyDownloader` directory to download client dependency jars for the various supported Oracle GoldenGate for Big Data integrations. For more information, see Dependency Downloader in the *Installing and Upgrading Oracle GoldenGate for Big Data* guide.

Encryption support on OCI Object Storage has been provided.

A new property `gg.handler.name.SSEKey` now allows you to control the encryption of data files loaded to OCI. For more information, see Configuring the Oracle Cloud Infrastructure Event Handler in *Using Oracle GoldenGate for Big Data* guide.

2.11 Deprecated Items

The following features and properties have been deprecated in these releases of Oracle GoldenGate for Distributed Applications and Analytics (GG for DAA):

2.11.1 Release 21.3.0.0.0 — August 2021

Oracle GoldenGate Classic Architecture is deprecated

Oracle GoldenGate Classic Architecture for Big Data platforms are deprecated and may be desupported and unavailable in a future release. Oracle recommends using the Oracle GoldenGate Microservices Architecture.

2.11.2 Release 21.3.0.0.0 — June 2021

The following features and properties have been deprecated in the Oracle GoldenGate for Big Data 21.1.0.0.0 release:

- Support for connectivity to Elasticsearch 2.x and 5.x has been removed as those versions are end of life.
- Support for Hive handler has been removed.
- The following properties have been deprecated on the Delimited Text Formatter:

- `gg.handler.name.format.includeOpTimestamp`
- `gg.handler.name.format.includeCurrentTimestamp`
- `gg.handler.name.format.includeOpType`
- `gg.handler.name.format.includeTableName`
- `gg.handler.name.format.includePosition`

If you want to use any of these deprecated properties in any of your use cases, then you may use the following property:

`gg.handler.name.format.metaColumnsTemplate`

- The following configuration properties have been deprecated from the Kafka Connect Handler:

- `gg.handler.name.includePrimaryKeys`
- `gg.handler.name.includeTableName`
- `gg.handler.name.includeOpType`
- `gg.handler.name.includeOpTimestamp`
- `gg.handler.name.includeCurrentTimestamp`
- `gg.handler.name.includePosition`
- `gg.handler.name.iso8601Format`

Use the following property to control metacolumn data in the output:

`gg.handler.name.metaColumnsTemplate`

- The following configuration properties have been deprecated from the JSON Formatter:

- `gg.handler.name.format.includeTableName`
- `gg.handler.name.format.includeOpType`
- `gg.handler.name.format.includeOpTimestamp`
- `gg.handler.name.format.includeCurrentTimestamp`
- `gg.handler.name.format.includePosition`
- `gg.handler.name.format.includePrimaryKeys`
- `gg.handler.name.format.iso8601Format`

Use the following property to control metacolumn data in the output:

`gg.handler.name.format.metaColumnsTemplate.`

3

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.

3.1 Release 21.15.0.0.0 — September 2024

Bug 36873413 - Replicat throws the following error: java.lang.NoClassDefFoundError: javax/xml/bind/DatatypeConverter

This issue has been fixed.

Bug 36859827 - Snowflake | Enable FIPS compliant JDBC Driver

This issue has been fixed.

Bug 36836497 - Changes to S3 Event Handler to support different credential scenarios

This issue has been fixed.

Bug 36836411 - Upgrade Jipher to latest version

This issue has been fixed.

Bug 36832778 - Redshift - Enable case sensitive object names

This issue has been fixed.

Bug 36821361 - Security issue found in Parquet dependency.

The following security bug was fixed:

- CVE-2024-36114 found in aircompressor-0.21.jar dependency

Bug 36781503 - HTTP clients jar files are missing for OCI-SDK handler in the third-party folder

This bug has been fixed.

Bug 36732531 - RestartAbend event handling is not handled properly.

This bug has been fixed.

Bug 36731720 - OCI Event Handler - Does not work with 3.x versions of the OCI client

This issue has been fixed.

Bug 36716265 - Redis Handler - Fix setting of socket timeout

This issue has been fixed.

Bug 36619828 - UserExitDataSource::hasMissingColumns is not set in the operation record for some cases

This issue has been fixed.

Bug 36607305 - Changes to AWS versions for risk mitigation.

The following security bug was fixed:

- CVE-2024-21634: Changes to AWS version.

Bug 36603708 - Changes to Hadoop version.

The following security bug was fixed:

- CVE-2023-5685: reported in hadoop dependency xnio-api

Bug 36573783 - Stage/Merge | Additional check for pk update batching

This issue has been fixed.

Bug 36563658 - Unable to download Goldengate Bigdata Dependency Libraries, Maven is not accessible.

This issue has been fixed.

Bug 36525134 - Filter part of message string while delivering to Kafka

This issue has been fixed.

Bug 36504292 - Kafka Extract is missing to capture the messages from the Kafka Topics

This issue has been fixed.

Bug 36496342 - Oracle GoldenGate for Big Data Numeric Overflow to BigQuery

This issue has been fixed.

Bug 36466018 - JMS Rep: JMS-00191 JMS Headers are not supported in transactional mode

This issue has been fixed.

Bug 36460624 - Rows missing after initial load replicate completes processing

This issue has been fixed.

- MongoDB Capture - Fix ClassCastException: org.bson.BsonString cannot be cast to org.bson.Bson

This issue has been fixed.

Bug 36442602 - BigQuery MDP error when dataset and the BigQuery reside in different GCP projects

This issue has been fixed.

Bug 36429973 - DELETE is not replicated in bi-directional

This issue has been fixed.

Bug 36420985 - Not able to generate Partition Key at the Message header while delivering message to Solace using JMS

This issue has been fixed.

Bug 36379293 - CVEs in 21.13.0.0.0_240301.0927_feature-GGS-11916_Uptake_BigData_2

This issue has been fixed.

3.2 Release 21.14.0.0.0 — April 2024

Enh 36307168 - If the Avro formatter property `enableTimestampLogicalType` is set to true, then it is required that `gg.format.timestamp` also be configured to a timestamp mask such as `yyyy-MM-dd HH:mm:ss.SSS` in order for the feature to work.

The behavior has been changed to abend if `enableTimestampLogicalType` is set to true on the Avro formatter and `gg.format.timestamp` is unset.

Bug 36422079 - Added parameter to control the processing of backlog staged files by the File Writer Handler: `gg.handler.name.processBacklogOnShutdown`

For more information, see [Configuring the File Writer Handler](#) in the *Oracle GoldenGate for Big Data* Documentation.

Enh 36242318 - Support for Datastax DSE Capture with version 6.8.31

Enh 36253307 - BigQuery Streaming Handler - Add support for JSON types

The BigQuery Streaming Handler has been modified to support the BigQuery column type JSON. Source data must be a valid JSON else a runtime exception will result. For more information, see [Google BigQuery Datatypes](#) in the *Oracle GoldenGate for Big Data* Documentation.

Enh 36206718 - BigQuery MDP - Google API Support for private endpoint access

Support has been added to allow the user to configure the URL for connecting to Google BigQuery. The default is `https://googleapis.com`. For more information, see [Google BigQuery Metadata Provider](#) Documentation.

Enh 36196617 - BigQuery Stage & Merge - Google API Support for private endpoint access

Support has been added to allow the user to configure the URL for connecting to Google BigQuery. The default is `https://googleapis.com`. For more information, see [Google BigQuery Stage and Merge Event Handler Configuration](#) in the *Oracle GoldenGate for Big Data* Documentation.

Enh 36196570 - GCS Event Handler - Google API Support for private endpoint access

Support has been added to allow the user to configure a URL for a private endpoint to connect to Google Cloud Storage. The default is `https://storage.googleapis.com`. For more information, see [Google Cloud Storage - Configuration](#) in the *Oracle GoldenGate for Big Data* Documentation.

Enh 36100355 - BigQuery Streaming Handler - Google API Support for private endpoint access

Support has been added to allow the user to configure the URL for connecting to Google BigQuery. The default is `https://googleapis.com`. For more information, see [Understanding the BigQuery Handler Configuration](#) in the *Oracle GoldenGate for Big Data* Documentation.

Bug 36124720 - Change behavior to call `system.exit` if the Stage & Merge event handlers are identified in a hung state.

This issue has been fixed.

Bug 36220438 - Mongo Bi Cap: Mongo replicat is abending with Updating the path 'oggApply' would create a conflict at 'oggApply' error

This issue has been fixed.

Bug 36194483 - Log the Oracle Doc ID number when encountering the exception: Unable to deserialize table metadata so user has the reference explaining how to fix.

This issue has been fixed.

Bug 36166314 - Mongo Bi Cap: Extract timeouts upon issuing STOP command

This issue has been fixed.

Bug 36193831 - Mongo 6x: java.lang.IllegalArgumentException: Field names in a replacement document can not start with '\$' but '\$unset' does

This issue has been fixed.

Bug 36185493 - OGGBD | Address CVEs from OSGS scan on OGGADP_21.13.0.0.0_20240111190312

This issue has been fixed.

Bug 36183618 - Upgrade GCS and BigQuery Versions to latest

This issue has been fixed.

Bug 36179230 - CVE-2023-35116 in jackson-databind

This issue has been fixed.

Bug 36179042 - CVE-2023-42503 in commons-compress

This issue has been fixed.

Bug 36167143 - Mongo Bi Cap: org.bson.BsonInvalidOperationException: Value expected to be of type BOOLEAN is of unexpected type STRING

This issue has been fixed.

3.3 Release 21.13.0.0.1 — March 2024

Bug 36395858 - REPLACEBADNUM fix in Oracle GoldenGate for Big Data.

This issue has been fixed.

Bug 36395887 - Positioning to RBA other than 0 leading to ignoring the metadata provider.

This issue has been fixed.

Bug 36375145 - CVEs in 21.13.0.0.0_240301.0927_feature-GGS-11916_Uptake_BigData_2

This security vulnerability has been fixed. Oracle recommends that you upgrade to this patch to include this security fix.

3.4 Release 21.13.0.0.0 — February 2024

Bug 36124956 - MongoDB Bi-Directional Replication -- Extract and Replicat Java side changes

This issue has been fixed.

Bug 36206718 - BigQuery MDP - Google API Support for private endpoint access

This issue has been fixed.

Bug 36196617 - BigQuery Stage & Merge - Google API Support for private endpoint access

This issue has been fixed.

Bug 36196570 - GCS Event Handler - Google API Support for private endpoint access

This issue has been fixed.

Bug 36100355 - BigQuery Handler - Google API Support for private endpoint access

This issue has been fixed.

Bug 36010156 - Additional property for NoSQL GGS default properties

This issue has been fixed.

Bug 36048423 - Oracle NoSQL JSON Type

This issue has been fixed.

Bug 36022907 - snappy*.so files filling up /tmp in OCI GoldenGate Big Data Deployment

This issue has been fixed.

Bug 36083206 - GoldenGate Replicat for Bigdata Classic on Redshift database ABEND Randomly

This issue has been fixed.

The following security vulnerabilities have been fixed:

- **36179042 (80) - CVE-2023-42503 in commons-compress**
- **36179230 (80) - CVE-2023-35116 in jackson-databind**
- **36029140 (80) - GGS Packaged Elasticsearch 8.7.0 client contains CVE-2023-31417**
- **36034071 (80) - CVEs in NoSQL client 5.3.7**

Oracle recommends that you upgrade to this patch to include these security fixes.

3.5 Release 21.12.0.0.1 — December 2023

Bug 36083631 - Stage and merge | Optimize MERGE CASE statement for full images

This issue has been fixed.

Bug 36063054 - Not able to login adminclient using USER Role in microservices

This issue has been fixed.

Bug 36060019 - Snowflake Performance improvement | Internal storage Merge Query

This issue has been fixed.

Bug 36060017 - Snowflake | Remove override parameter to run operation aggregation with SQL without full images

This issue has been fixed.

Bug 36050573 - Fixes for CVEs from OSCS scan on OGGADP_21.12.0.0.0BP_PLATFORMS_231117.1408

This issue has been fixed.

Bug 36037945 - Upgrade Avro dependency in Hadoop

This issue has been fixed.

Bug 36029828 - Fix vulnerabilities identified in GGS Bigdata Docker images due December 2023

This issue has been fixed.

Bug 36022907 - snappy*.so files filling up /tmp in OCI GoldenGate Bigdata Deployment

This issue has been fixed.

Bug 35961696 - Fix vulnerabilities identified in GGS Bigdata | GGS-10588 | Due November 2023

This issue has been fixed.

3.6 Release 21.12.0.0.0 — October 2023

Bug 35757262 - Log an actionable error message on Event handler timeout

This issue has been fixed.

Bug 35752685 - Event handler timeout should be configurable

This issue has been fixed.

Bug 35728712 - REP: DT: Wrong date format replicating from DB2

This issue has been fixed.

Bug 35552414 - MONGO REP: org.bson.codecs.configuration.CodecConfigurationException: The uuidRepresentation has not been specified, so the UUID cannot be encoded

This issue has been fixed.

Bug 35871344 - REG:MONGO REP: java.lang.IllegalArgumentException: The connection string contains options without trailing slash

This issue has been fixed.

Bug 35805937 - Pick better MongoDB error codes for not-found and duplicate errors

This issue has been fixed.

Bug 35805441 - Handle upsert mode behavior where it does not report rows affected

This issue has been fixed.

Bug 35900576 - Change Event Handler configuration back to strict

This issue has been fixed.

Bug 35606570 - MicroServices Snowflake - unable to restart replicat | java.io.InvalidClassException: oracle.goldengate.datasource.meta.TableMetaData; local class incompatible

This issue has been fixed.

Bug 35746970 - Redis ERROR 2023-08-25 20:06:37.000168 [main] - An exception occurred creating index [idx:TCUSTMER] description [Hash index [idx:TCUSTMER] using prefix [TCUSTMER:] with the following fields: Field [CUST_CODE] Type [TEXT] Sortable

This issue has been fixed.

3.7 Release 21.11.0.0.0 — August 2023

Bug 35702310 - Update operation is performed as DELETE at snowflake target Oracle GoldenGate for Big Data 21.10

This issue has been fixed.

Bug 35409483 - Snowflake Replicat restart/recovery when INSERTALLRECORDS is enabled results in Duplicate row error

This issue has been fixed.

Bug 34948936 - Memory leak in Oracle GoldenGate for Big Data Replicat processes

This issue has been fixed.

Bug 35294514 - Mongo: REG: java.nio.charset.MalformedInputException: Input length = 1

This issue has been fixed.

Bug 35608372 - Snowflake initial load failure with additional unmapped target columns

This issue has been fixed.

Bug 35688039 - SNOWFLAKE and BIGQUERY template changes

This issue has been fixed.

Bug 35692758 - Revert changes related to masking the password fields for JMS and Kafka in credentials page.

This issue has been fixed.

Enh 35132820 - Big Data Replicat Abended With java.net.SocketTimeoutException: connect timed out

This issue has been fixed. The Oracle GoldenGate replication to Kinesis is now working.

3.8 Release 21.10.0.0.0 — June 2023

Enh 35276440 - Snowflake | Stage and Merge | SQL optimisation | Remove CAST function on key columns that are not nullable

This is a performance fix for the Snowflake `MERGE` statement. The `ON`-clause used in the `MERGE` statement will not use `CAST` functions in case the key columns are nullable.

Enh 35288885 - The functionality of the File Writer Handler has been changed to roll over any open data files upon restart of the replicat process and not to append to them.

If files are appended, then it can result in duplicate operations in the same data file if operations are replayed which does not work with stage and merge integrations.

Enh 35275115 - Monitoring functionality has been added on the event handler functionality.

If the event handler hangs, then the monitor thread will interrupt the event handler thread after a timeout period and the replicat process will abend.

Enh 35269457 - A configuration property has been added to enable info level logging of successfully executed event handles for troubleshooting purposes.

The `gg.handler.name.logEventHandlerStatus` has been added to enable info level logging of successfully executed event handles for troubleshooting purposes.

Enh 35308593 - Operation Aggregator | Improve diagnostic messages for inline LOB processing

Improve error messages related to LOB processing. For more information, see Snowflake Event Handler Troubleshooting and Diagnostics in *Oracle GoldenGate for Big Data* articles.

Enh 35286599 - Operation Aggregator | Validate Primary Key UpdatesParameter: `gg.operation.aggregator.validate.keyupdate`. The default value is set to false.

A parameter to validate a primary key update record. In case the record does not modify key column values, the primary key update record is converted to a non-primary key update record. This check and conversion is done during Operation Aggregation, used by all the stage and merge targets. The primary key update operations cannot be batched during stage and merge replication. Enabling this parameter will improve performance of the Replicat process. For more information, see Snowflake Event Handler Configuration - Configuration Table in *Oracle GoldenGate for Big Data* articles.

Bug 35136302 - The Google Cloud Storage event handler can hang when loading files to GCS.

This issue has been fixed.

Bug 35192087 - The block to wait for a task manager task to complete could result in a hang.

This issue has been fixed.

Bug 35207499 - ABEND handlers/Event handlers if the Java system property `GROUPNAME` is unset

This issue has been fixed.

Bug 35142393 - Snowflake | Stage and Merge | Abend if Replicat name is not set.

Oracle GoldenGate for Big Data Replicat will ABEND if the `GROUPNAME` Java system property is not set.

Bug 35157005 - REPLICAT to Snowflake Handler - `net.snowflake.client.jdbc.SnowflakeSQLException: Error parsing JSON`

This issue has been fixed. Use conversion function `TO_VARIANT()` during processing of primary key update operations if the target Snowflake column is a `VARIANT` type.

Bug 35310840 - Replicat should shutdown immediately when there are exceptions in the `EventHandler execute` call

The issue has been fixed.

Bug 35282535 - Operation Aggregator | Flushed operations are not ordered as per operation position

The issue has been fixed.

Bug 35242541 - Snowflake | Changes to prevent Security issue SNOW-770796 in the JDBC driver

The issue has been fixed.

Bug 35266699 - Stage and Merge | Target controlled checkpoint (.cpj) update was incorrect

The issue has been fixed.

Bug 35425203 - Problem with data file naming not unique when coordinated apply is used with Redshift stage and merge.

This issue has been fixed.

Bug 35089651 - Allow users to encrypt credentials inside of the Kafka producer properties file using Oracle Wallet.

This bug has been

3.9 Release 21.9.0.0.3 — April 2023

Bug 35181750 - Kafka Capture Error on restart

This issue has been fixed.

Bug 35065416 - Oracle Goldengate for Bigdata to Synapse is missing some updates and therefore impacting many tables

This issue has been fixed.

3.10 Release 21.9.0.0.1 — March 2023

Bug 35187763: Oracle GoldenGate for Big Data snowflake key pair replicat log file is displaying password

This issue has been fixed to prevent any sensitive data used in the Snowflake JDBC URL to be visible to the user.

 **Note:**

For Snowflake key pair authentication configuration, use Oracle GoldenGate for Big Data 21.9.0.0.0. For more information, see [Oracle GoldenGate for Big Data Documentation](#).

Enh 33235178 - Support XAG Integration

Support has been added for enabling XAG for Non-Oracle databases with Microservices builds.

3.11 Release 21.9.0.0.0 — March 2023

Bug 34798902 - File Writer Handler may generate duplicate data file names when file rolling on primary key updates is enabled.

This issue has been fixed.

Enh 34816133 - The Avro formatter has been modified to allow the user to configure maximum precision for decimal logical types.

For more information, see `gg.handler.format.name.maxPrecision` in Avro Row Configuration Properties in *Oracle GoldenGate for Big Data*.

Enh 34974951 - The template mapper functionality has been enhanced.

The keyword `${uuid}` was added to resolve a universally unique identifier. This is useful when naming uniqueness is absolutely required. For more information, see Template Keywords in *Oracle GoldenGate for Big Data*.

Enh 34855804 - OGGBD | Synapse | Enable MERGE statement as the default setting.

The enhancement has been implemented.

Bug 35107919 - The file handle to the state file is not closed immediately after the corresponding data file is rolled. The result could be file handle exhaustion in the case where data file generation is occurring much more quickly than the event handlers can process the data files.

This issue has been fixed.

Bug 35078942 - Replicat startup fails because of inconsistent state in the File Writer Handler. This is generally caused by force stop or killing the replicat process.

This scenario has been downgraded to a warning.

Enh 34964443 - BigQuery Stage and Merge: Replication to Datasets in multiple Google Cloud Platform (GCP) projects

BigQuery Stage and Merge handler now supports replication to datasets that reside in multiple GCP projects. The table catalog name can be mapped to the GCP projectId.

3.12 Release 21.8.0.0.0 — December 2022

MongoDB driver upgraded to version 4.6.0

The MongoDB driver version was upgraded to 4.6.0 from 3.x. For more information, see MongoDB Handler Dependencies the *Oracle GoldenGate for Big Data Documentation*.

Enh 34765203 - The metacolumn functionality has been enhanced.

The keyword `${groupname}` was added to resolve the replicat group name and inject it into output. See Metacolumn Keywords in the *Oracle GoldenGate for Big Data User Guide*.

Bug 34572611 - The BigQuery Handler was incorrectly creating Date typed columns in the source trail as columns typed as Timestamp in BigQuery. This was causing problems when the data was loaded.

This issue has been fixed to create Date source types as columns typed as Date in BigQuery.

Bug 34703823 - The BigQuery Handler was incorrectly creating Time typed columns in the source trail as columns typed as Timestamp in BigQuery. The result was an exception when data was loaded.

This issue has been fixed to create Time source types as columns typed as Time in BigQuery.

Enh 34061024 - Snowflake: Stage and Merge: Initial load throughput improvement using COPY SQL

Snowflake Initial load uses the COPY SQL statement to insert records into the target table. This improves the initial load throughput.

Enh 34472509 - BigQuery Stage and Merge INSERTALLRECORDS support

The `INSERTALLRECORDS` Oracle GoldenGate parameter is now supported for BigQuery target.

Enh 34097475 - OGGBD: Support multiple sources in a single deployment

Oracle GoldenGate for BigData now supports capture from multiple sources (JMS/Cassandra/MongoDB/Kafka) in a single deployment without the need to restart microservices or configuration of the GLOBALS file.

Bug 34665273 - Snowflake internal stage | Primary key update | 'FileNotFoundException'Fix for primary key update operation when using Snowflake internal stage.

This issue has been fixed to provide a correction for primary key update operation when using Snowflake internal stage.

Bug 34609774 - Restarting JMS extract after processing records leads to ABEND.

This issue has been fixed.

3.13 Release 21.7.0.0.0 — September 2022

Bug 34265778: Upgrade Maven version to 3.8.5

The packaged version of Maven for the dependency downloader utility has been upgraded to version 3.8.5 to resolve CVE-2021-37714.

Bug 34014027: File Writer Handler may generate the following error if pluggable operation filtering is enabled: GGBD- java.lang.IllegalArgumentException: Cannot set target checkpoint to null or GGTranID.UNSET

This issue has been fixed.

Bug 33964720 - Oracle to Snowflake Golden gate slow replication - data overflow error for data type number(23).

This issue has been fixed by providing a JDBC Metadata Provider fix for BIGINT.

Bug 34366687: Stage and Merge targets - Missing deletes.

This issue has been fixed for a scenario where the same row is deleted and inserted multiple times within a 30 seconds window.

Bug 34332954: Initial load from Oracle to Snowflake using Oracle GoldenGate for Big Data doesn't load complete data.

This issue has been fixed.

Bug 34477194: Case of object name is not preserved when using fully qualified table name.

This issue can be fixed by adding `gg.schema.preserveObjectName=true` in the corresponding properties file.

Bug 34481377: When mapping a target column from a constant value or a return value from column functions, that corresponding target column is not propagated downstream.

This issue has been fixed

Enh 31771160: HBase Handler - Added support for metacolumns

The HBase Handler has added functionality whereby configurable metacolumn data can be propagated.

Enh 29610404: Delimited text formatter has been modified.

The delimited text formatter has been modified to allow file headers to be created. A file header is a delimited row which names each field in the delimited text output.

Enh 2941786: JSON formatter has been modified to allow files created in JSON format to be represented as a JSON array.

The JSON formatter has been modified to allow files created in JSON format to be represented as a JSON array. This allows the generated file to be represented as a single JSON document whereby the JSONs representing the operation data are elements within the JSON array.

Enh 33969301 - Auto-detect "insert-only" load to avoid having to configure the Java module.

Stage and merge targets automatically detect initial load trail files to perform batch insert operation. The automatic detection requires trail files generated by the Oracle GoldenGate 21c extract processes.

Enh 34392764 - OGGBD | Snowflake | Internal Stage | PUT SQL | customisation of compression settings

Snowflake compression settings can be tuned to improve initial load performance.

Enh 33571654 - Batch Insert support for Redshift.

INSERTALLRECORDS support has been added for Redshift target.

Enh 33457599 - ADW support Batch INSERT.

INSERTALLRECORDS support has been added for Autonomous Data warehouse target.

Enh 34191410 - Simplify OCI Object Storage configuration

Auto-configuration can be used to simplify configuration for the OCI Object Storage target.

Enh 34226598 - Use S3-Transfer acceleration while replicating to AWS S3

Amazon S3 Transfer Acceleration can be enabled to transfer files quickly and securely over long distances to an S3 bucket.

Enh 33969301 - INSERTALLRECORDS support

INSERTALLRECORDS support has been added for Synapse and Snowflake targets.

3.14 Release 21.6.0.0.0 — May 2022

Bug 34028430: Snowflake - Truncate Operation Locks table

This issue has been fixed.

Bug 33980860: Parquet Event handler failing with "Can't get Kerberos realm" when configured to write to local file system.

This issue has been fixed.

Bug 34009442: DDL changes/Table metadata changes lead to issue in Stage and Merge processing

This issue has been fixed.

Bug 33964720: Oracle to Snowflake Golden gate slow replication - data overflow error for data type number (23).

This issue has been fixed.

Bug 33979013: BigQuery: Stage and Merge: Replication Issue with solitary DELETE operation

This issue has been fixed.

Bug 33107284: Azure Synapse handler replicat gives sqlserver.jdbc.SQLServerException: on identity column

This issue has been fixed.

Bug 33817426: Big Query stage and merge replicat gives error on latest Bigquery dep of version 2.x

This issue has been fixed.

Enh 33894309: Snowflake: Support for Snowflake key pair authentication

This issue has been fixed. Support for Snowflake public/private key pair authentication has been added.

Enh 34012817 - Certify OGG 21c for Confluent version 7.0 (Apache Kafka Version 3.0)

Avro version has been upgraded to 1.10.2. This fixes the following runtime error when integrating with the Confluent schema registry in Confluent 6.2 and higher:

```
java.lang.NoSuchMethodError: org.apache.avro.Schema.toString(Ljava/util/Collection;Z)Ljava/lang/String;
```

Enh 34023340 - Kafka Connect Handler add support to propagate non-nullable fields.

Support has been added to set all fields as nullable in the generated Kafka Connect handler. For more information, see `gg.handler.name.enableNonnullable` in Kafka Connect Handler Configuration in the *Oracle GoldenGate for Big Data User Guide*.

Enh 34071624 - Snowflake - Ingest CLOB-JSON data directly into VARIANT data type instead of VARCHAR

Support has been added to map the JSON and XML source column types in the Oracle GoldenGate trail to Snowflake `VARIANT`. For more information, see Snowflake Event Handler Mapping Source JSON/XML to Snowflake `VARIANT` in the *Oracle GoldenGate for Big Data User Guide*.

3.15 Release 21.5.0.0.0 — March 2022

Bug 33665694 - In the Microservices configuration, the Redshift integration incorrectly contained additional properties which were not relevant to Redshift.

This issue has been fixed.

Bug 33546820 - In certain scenarios, configured Event Handlers can fail on initialization but processing continues.

This issue has been fixed.

Enh 3322101 - BigQuery Handler added support for the BigQuery Bignumeric data type.

The BigQuery Handler has added support for the BigQuery Bignumeric data type. The BigQuery Bignumeric data type provides support for larger scale and precision than the BigQuery Numeric data type.

Bug 33734218 - BigQuery Handler can propagate Oracle Number types as exponential notation when mapped to String fields in BigQuery.

This issue has been fixed.

3.16 Release 21.4.0.0.3 — January 2022

Upgrade to log4j 2.17 to address Security Vulnerability

The following security vulnerabilities have been fixed: CVE-2021-45105.

Oracle recommends that you upgrade to this patch to include this security fix.

Bug 33364860 - Admin Client Cannot connect to OCI GoldenGate when Administration Server Health API Returns Unhealthy

This issue has been fixed.

Bug 33531900 - 429 - Too Many Requests - Any process marked as critical to health makes the entire Oracle GoldenGate UI hang

This issue has been fixed.

3.17 Release 21.4.0.0.2 — December 2021

Upgrade to log4j 2.16 to address Security Vulnerability

The following security vulnerabilities have been fixed: **CVE-2021-45046** and **CVE-2021-44228**.

Oracle recommends that you upgrade to this patch to include these security fixes.

3.18 Release 21.4.0.0.0 — November 2021

Enh 33271830 - BigQuery Handler - Need to support encryption of user credentials

BigQuery Handler has been modified to allow setting of the credentials through the handler configuration properties. This allows Oracle Wallet to be used to secure the credentials.

Enh 33309496 - Avro Formatter added configuration to allow special handling of Oracle Number source types as strings.

This issue has been fixed.

Bug 33314537 - File Writer Handler failing to delete data files on Windows due to process based file locking.

This issue has been fixed. File Writer Handler now implements retries on file delete operations.

Bug 33298943 - Azure Data Lake File exists error

This issue has been fixed. Parquet Event Handler change to overwrite target files if file already exists.

3.19 Release 21.3.0.0.0 — September 2021

Enh 32797018 - JDBC Handler functionality changed to explicitly rollback any in process transaction before closing the JDBC connection.

Enh 32887009 - Dependency Downloader - Maven version was upgraded to 3.8.1.

Bug 32816606 - BigQuery Handler - Error occurs when new primary key column is added in source database

This issue has been fixed. Columns added to an existing BigQuery table must be nullable, otherwise the BigQuery DDL fails.

Enh 32804778 - Added metacolumn keyword to provide indication that the metadata for associated table has changed.

This issue has been fixed. The metacolumn `metadachanged` has been added. This metacolumn has a boolean value and when true, it indicates that the metadata of the table has changed as of the current record.

Enh 32615479 - Kafka Connect Handler - Support added for Confluent Protobuf Converter.

This issue has been fixed. The Confluent Protobuf Converter does not support standalone primitive types. The Kafka Connect Handler generates the key as a string thereby causing the key serialization to fail.

Enh 32555807 - Delimited Text Formatter - Escaping automatically disabled when a multi-character field delimiter is configured.

Enh 32551577 - ORC Event Handler - Added support for timestamp logical types.

Added support to map from Avro timestamp logical type to ORC timestamp logical type.

Enh 32441213 - Added parameters to the `columnValue[][]` templating functionality to enhance user control.

Second parameter is the resolved value if the column value is null. Third parameter is the resolved value if the column value is missing.

Bug 32431377 - JDBC Handler fails on a NOOP update.

This issue has been fixed.

Enh 32415987 - The template keyword `staticMap` has added a second parameter for a default value.

If the value is not resolved through the map lookup, then the default value will be used if configured.

Enh 32379356 - Added Stage and Merge support for Microsoft Azure Synapse.

Enh 32343513 - File Writer Handler - Change behavior of control file to write the file name even if finalize action is to delete the file.

Bug 31979798 - JDBC Handler - Fixed integration to Apache Impala

This issue has been fixed

Bug 31620193 - Elasticsearch Handler SSL connectivity fails with unable to authenticate user

This issue has been fixed.

Enh 31940679 - Oracle NoSQL Handler has been changed to use the new NoSQL SDK client.

The new NoSQL SDK client supports connectivity to both on-premise and Oracle Cloud Infrastructure instances of Oracle NoSQL.

Enh 31480798 - Elasticsearch Handler has removed support for Elasticsearch 5.x as it is beyond the EOL.

3.20 Release 21.1.0.0.0 — June 2021

Enh 31815601 - HDFS Handler - Sync Partitioning Functionality to File Writer Handler

The partitioning functionality of the HDFS Handler has been modified to use the templating strings. You now have much more control over how data is partitioned into HDFS. For more information, see the HDFS Handler - Partitioning in the *Using Oracle GoldenGate for Big Data* guide.

Bug 31554644 - GoldenGate Big Data Adapter parameter `gg.handler.name.omitNullValues=true` affects updates

JSON Formatter added new property `gg.handler.name.format.omitNullValuesSpecialUpdateHandling` for special handling of null values when `gg.handler.name.format.omitNullValues` is set to `true`. For more information, see JSON Formatter Configuration Properties in the *Using Oracle GoldenGate for Big Data* guide.

Bug 31518128 - Kinesis Handler - Enable working with STS

Kinesis Handler added functionality for connectivity to AWS using the Security Token Service. For more information, see Kinesis Streams Handler Configuration in the *Using Oracle GoldenGate for Big Data* guide.

Bug 31316766 - HDFS Event Handler - Log the HDFS configuration at the debug level

HDFS Event Handler added functionality to log the HDFS configuration at the DEBUG log level.

Enh 30272210 - OCI Event Handler added functionality to explicitly set the encryption key

A new property `gg.handler.name.SSEKey` now allows you to control the encryption of data files loaded to OCI. For more information, see Configuring the Oracle Cloud Infrastructure Event Handler in *Using Oracle GoldenGate for Big Data* guide.

Bug 31215115 - OGGBD JDBC Replicat error on `gg.mdp.ConnectionUrl` property

JDBC metadata provider throws an error when the case of the configuration property `gg.mdp.connenctionUrl` is not exact. This issue has been fixed.

Enh 31200109 - File Writer Handler - Add support for partitioning

The File Writer Handler and Event Handlers have added functionality for partitioning using templated strings. For more information, see Template Keywords in the *Using Oracle GoldenGate for Big Data* guide.

Enh 31174502 - Elasticsearch Handler - Remove support for Elasticsearch 5.x

The Elasticsearch Handler has removed connectivity support for Elasticsearch 5.x. Per the Elasticsearch documentation all 5.x versions are beyond the scheduled end of life date.

Enh 30493966 - Elasticsearch Handler - Remove support for Elasticsearch 2.x

The Elasticsearch Handler has removed connectivity support for Elasticsearch 2.x. Per the Elasticsearch documentation all 2.x versions are beyond the scheduled end of life date.

Enh 31113821 - Automatically convert char column to binary when replicat parameter SOURCECHARSET PASSTHRU is set.

Automatically convert char source columns to binary when replicat parameter SOURCECHARSET PASSTHRU is set. This will propagate char values including invalid characters as is. For more information about SOURCECHARSET with PASSTHROUGH option, see SOURCECHARSET in *Oracle GoldenGate Reference for Oracle GoldenGate*.

Enh 31003774 - Removing Velocity Libraries from OGGDB Installation

The Velocity libraries have been removed from the packaging. Velocity templates are still supported but users must obtain the Velocity libraries and provide pathing via the `gg.classpath` variable.

Enh 30892015 - Support Autonomous Data Warehouse LONG and RAW LONG data types.

Bug 30847910 - The OCI Event Handler is not correctly abending when it encounters an exception.

OCI Event Handler is not correctly abending on some failures. This issue has been fixed.

Enh 30823462 - File Writer Event handlers - end to end throughput stats

Bug 30652897 - replicat passes incorrect metadata date and timestamp binary length

JDBC metadata provider passes incorrect metadata date and timestamp binary length. This issue is fixed.

Enh 30652870 - Partial LOB support

Functionality changed to abend in the case where a partial LOB is encountered. Partial LOBs are not supported.

Enh 30652854 - Stage and Merge : Support Truncate operation

File Writer Handler add ability to roll before and after a truncate event.

Bug 30606368 - Kafka Adapter logs many OGG-03014 warning messages when the trail file encoding is UTF-16.

False warning of truncated data when source trail is UTF-16 encoded. This issue has been fixed.

Bug 30595252 - Kafka Connect Handler - Deprecate old way of configuring metacolumns

Kafka Connect Handler has deprecated the old way to configure metacolumns with individual properties. Instead use the property `gg.handler.name.metacolumnsTemplate` going forward.

Bug 30590585 - Avro Formatter - Deprecate old way of configuring metacolumns

Avro Formatter has deprecated the old way to configure metacolumns with individual properties. Instead use the property `gg.handler.name.format.metacolumnsTemplate`.

Bug 30576238 - JSON Formatter - Remove the old configuration properties to control metacolumns

JSON Formatter has deprecated the old way to configure metacolumns with individual properties. Instead use the property `gg.handler.name.format.metacolumnsTemplate`.

Bug 30558744 - Delimited Text Formatter - remove the old way of controlling metacolumns

Delimited Text Formatter has deprecated the old way to configure metacolumns with individual properties. Instead use the property `gg.handler.name.format.metacolumnsTemplate`.

Bug 30526878 - File Writer Handler and Event Handler precise throughput calculation

File Writer Handler logs throughput metrics for the event handlers to the log file.

Bug 30408287 - BigQuery Handler - Change how schemas and tables map into datasets and tables.

Schema name now maps to BigQuery datasets and table name maps to BigQuery table name.

Bug 30403408 - Enhance the template mapping features to allow regex functionality

The keyword `${regex}` has been added to the template mapper to execute search and replace functionality.

Bug 30285088 - Kafka REST Handler incorrectly processes multibyte data when locale is not set to UTF-8.

Kafka REST Handler incorrectly handles multibyte characters when locale is not UTF-8. This issue has been fixed.

Enh 30283426 - Enable Oracle Wallet username and password encryption for JMS Handler.

For more information about `ORACLEWALLETUSERNAME` and `ORACLEWALLETPASSWORD`, see *Configuring Properties to Access the Credential Store* in the *Using Oracle GoldenGate for Big Data* guide.

Enh 29624678 Cassandra Handler - Support Datastax 4.0 and 4.x drivers

Cassandra Handler has been migrated to use version 4.0.0 and higher of the Datastax driver and 2.0.0 and higher of the Datastax Enterprise driver.

Enh 28813106 - Automatically enable metadata provider when JDBC Handler is selected.

Bug 27663118 - Improved error reporting when incorrect formatter configuration when using the Parquet Event Handler.

This issue has been fixed.

Bug 21299953 - Replicat error message on trail compatibility incorrectly refers to Flat File Writer

This issue has been fixed. Replicat error message has been corrected to adjust the trail compatibility setting on the extract process.

Bug 31297753 - Log4j version upgraded to 2.13.3.

The following security issue was fixed:

- CVE-2020-9488

Bug 32830352 - Commons IO upgraded from 2.6 to 2.8.

The following security issue was fixed:

- CVE-2021-29425

Bug 32423892 - Jackson-databind upgraded from 2.10.2 to 2.12.1

The following security issue was fixed:

- CVE-2020-25649