Oracle®

Using Oracle GoldenGate for MongoDB Migrations

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Oracle Using Oracle GoldenGate for MongoDB Migrations, 23ai

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Start

Oracle GoldenGate Studio is a free edition of Oracle GoldenGate, licensed under the Oracle Free Use Terms and Conditions license. GoldenGate Studio provides a simpler user experience for users new to Oracle GoldenGate. It functions similar to Oracle GoldenGate with some restrictions.

Articles in this category:

- GoldenGate Studio Release Notes
  Review release information before you install and work with GoldenGate Studio. This document is accurate at the time of publication and is updated periodically with each new software release.
- Get started with Oracle GoldenGate for MongoDB Migrations
  Discover what you need and how to get started with GoldenGate Studio.
- GoldenGate Studio Quickstarts

  Quickstarts are common use cases that give you step by step instructions on how to use recipes.

GoldenGate Studio Release notes

Review release information before you install and work with GoldenGate Studio. This document is accurate at the time of publication and is updated periodically with each new software release.

What's new in GoldenGate Studio

Discover what's new in the latest GoldenGate Studio release.

Feature	Description
23ai core features	This GoldenGate Studio release also includes the latest core capabilities of Oracle GoldenGate 23ai. Learn more.
Connections	GoldenGate Studio now supports MongoDB, and MongoDB Atlas for use as a source connection, and Oracle Autonomous JSON Database, and Oracle JSON Collection Tables for use as a target connection.
New recipe added	Support for database migration is now available as a new recipe. A database migration transfers data from a source to a target database by performing an initial load, followed by real-time replication of change events. The process continues until the the user finishes the migration to perform a switchover. You can select this recipe when creating a pipeline. Explore recipes.
Quickstart added	Want step-by-step instructions to help you get started with database migration? Use this new quickstart article: Create a Database Migration.

What's supported

Visit Supported connection types to learn which Oracle GoldenGate versions Oracle GoldenGate Studio supports as source and target connections.

How to get help

Oracle GoldenGate for MongoDB Migrations is not supported by Oracle Support. Questions regarding Oracle GoldenGate for MongoDB Migrations can be posted in the Oracle GoldenGate for MongoDB Migrations Community Forum.

Source code availability

For third party technology that you receive from Oracle in binary form, which is licensed under an open source license that gives you the right to receive the source code for that binary, you can obtain a copy of the applicable source code from https://www.oracle.com/downloads/opensource/software-components-source-code.html.

For Helidon, visit https://github.com/helidon-io/helidon.

If the source code for the technology was not provided to you with the binary, you can also receive a copy of the source code on physical media by submitting a written request to:

Oracle America, Inc
Attn: Associate General Counsel
Development and Engineering Legal
500 Oracle Parkway, 10th Floor
Redwood Shores, CA 94065

Or, you may send an email to Oracle using the form located at: https://apex.oracle.com/pls/apex/f?p=34135:1::::::. Ensure your request includes:

The name of the component or binary file(s) for which you are requesting the source code
The name and version number of the Oracle product
The date you received the Oracle product
Your name
Your company name (if applicable)
Your return mailing address and email
A telephone number in the event we need to reach you.

We may charge you a fee to cover the cost of physical media and processing. Your request must be sent (i) within three (3) years of the date you received the Oracle product that included the component or binary file(s) that are the subject of your request, or (ii) in the case of code licensed under the GPL v3, for as long as Oracle offers spare parts or customer support for that product model.

Known issues

Learn about known issues within the current release version.

ORDS and REST API target mapping error

When existing database/schemas in the target mapping aren't enabled for ORDS and REST APIs, the Oracle GoldenGate Replicat will report errors that the database/schema is not ORDS and REST API enabled, however, the "Load Target Database" step will still show COMPLETED. This gives the false impression that everything was successful.

Recommendation: Ensure that the target schemas included in the MongoDB Migration pipeline are ORDS and REST API enabled. Once the pipeline is created, you can check the mapping tab to view included schemas and exclude those that should not be included in the migration.

Unable to restart a pipeline after it's manually stopped

After you manually stop a pipeline, the Start button is not active and you're unable to restart the pipeline.

Workaround: Refresh the browser screen, then the Start button should appear in the correct state.

Oracle GoldenGate Studio may become unresponsive while an online migration is running

The Oracle GoldenGate Studio user interface may become unresponsive while an online migration is running.

Workaround: You can try the following:

- Increase CPU and RAM for demanding workloads
- Manually stop the pipeline after data migration completes
- Restart the container

Unable to locate an running online migration pipeline on the Pipelines page

When an online migration is running for a long period of time, you're unable to find it on the Pipelines page.

Workaround: You can access the running pipeline from the Oracle GoldenGate Studio Home page.

Get started with Oracle GoldenGate for MongoDB Migrations

Discover what you need and how to get started with Oracle GoldenGate for MongoDB Migrations.

What you need

To use Oracle GoldenGate Studio, you need the following:

- A system running on a Docker, or a compatible container runtime such as Podman
- Internet connectivity to access the container registry
- A valid Oracle.com login

Get GoldenGate Studio

You can get GoldenGate Studio from the Oracle Container Registry (OCR). Follow the applicable instructions to access GoldenGate Studio:

You must sign in to your Oracle account and accept the license agreement before you can pull the GoldenGate Studio docker image from the Oracle Container Registry.

To access the GoldenGate Free docker image:

1. Accept the license agreement.

2. In your Docker client, enter the following command to log in to the Oracle Container Registry:

   ```
   docker login container-registry.oracle.com
   ```

3. When prompted, enter your Oracle account username and password.
4. Copy the `docker pull` command to pull the latest GoldenGate Studio image, and run it in your Docker client:

   ```
   docker pull container-registry.oracle.com/goldengate/goldengate-mongodb-migrations:latest
   ```

Start and run the GoldenGate Studio docker image

Learn to start and run GoldenGate Studio after pulling the docker image from Oracle Container Registry.

To start and run GoldenGate Studio:

1. In your Docker client, you can enter a run command with default settings or enter a run command with parameter values:
   - To run GoldenGate Studio with default settings:

     ```
     docker run -v ${PWD}/cert:/etc/nginx/cert:ro -p 8443:443 container-registry.oracle.com/goldengate/goldengate-free:latest
     ```

     A container instantiates with the following default options:
     - auto generated container name
     - 80 port for HTTP Server
     - 443 port for HTTPS Server
     - `oggadmin` for the name of the administrative account
     - auto generated the password for the administrative account
     - `Local` for the name of the deployment
     - Use container storage for `/u02` and `/u03` volume
     - auto generated self-signed certificate
   - To run GoldenGate Studio with modified settings:

     ```
     docker run \
         --name <container-name> \
         -p <host port>:80 \
         -p <host port>:443 \
         -p <host port>:8443 \
         -e OGG_ADMIN=<admin user name> \
         -e OGG_ADMIN_PWD=<admin password> \
         -e OGG_DEPLOYMENT=<deployment name> \
         -e OGG_DOMAIN=<domain name> \
         -v [<host mount point>:]/u02 \
         -v [<host mount point>:]/u03 \
         -v [<host mount point>:]/etc/nginx/cert \
     ```

```
    container-registry.oracle.com/goldengate/goldengate-mongodb-
migrations:latest
```

Parameter descriptions:

- `<container-name>`: Name for the container. Auto-generated by default.
- `-p <host-port>:80`: The host port to map the Oracle GoldenGate HTTP server. No mapping by default.
- `-p <host-port>:443`: The host port to map the Oracle GoldenGate HTTPS server. No mapping by default.
- `-e OGG_ADMIN`: The name of the administrative account to create. `oggadmin` by default.
- `-e OGG_ADMIN_PWD`: The password of the administrative account. Auto-generated by default.

> **Tip:**
>
> Ensure the password meets the following requirements:
>
> * At least one lowercase character [a...z]
> * At least one upposercase character [A...Z]
> * At least one digit [0...9]
> * At least one special character [- ! @ % & * . #]
> * The length should be between 8 and 30 characters.

- `-e OGG_DEPLOYMENT`: The name of the deployment. `Local` by default.
- `-e OGG_DOMAIN=<domain name>`: The domain name to use for the self-signed certificate (default: hostname of the container). Not needed if you bring your own ssl certificates.
- `-v /u02`: The volume used for persistent GoldenGate data. Use container storage by default.
- `-v /u03`: The volume used for temporary MongoDB export and GoldenGate data. Use container storage by default.
- `-v /etc/nginx/cert`: The volume used for storing the SSL certificat for the HTTPS server. Creates a self-signed certificate by default.

Data storage volumes

- `/u01`: the volume for the GoldenGate system
- `/u02`: the volume for persistent GoldenGate data
- `/u03`: the volume for temporary MongoDB export and GoldenGate data

Administrative account password

On first startup of the container, a random password is generated for the Oracle GoldenGate if one is not provided for `OGG_ADMIN_PWD`. You can find this password at the start of the container log:

```
docker logs <container-name> | head -3
```

2. After a few minutes, you should see `Server started at: http://localhost:8443`. GoldenGate Studio is now ready for you to use.
3. Launch a web browser, and go to `http://localhost:8443`.
4. On the GoldenGate Studio login screen, enter the username and password that you passed to the docker run command, and then click **Log in**.

After you log in successfully, you're brought to the GoldenGate Studio Home page.

Next steps

Now that you're in GoldenGate Studio, you can:

- Learn about Oracle GoldenGate for MongoDB Migrations
- Learn about connections
- Create connections

GoldenGate Studio Quickstarts

Quickstarts are common use cases that give you step by step instructions on how to use recipes.

Select a quickstart to get started:

- Create a Database Migration

Create a Database Migration

Learn to use a recipe to create a Database Migration in Oracle GoldenGate Studio.

Before you begin

To succesfully complete this Quickstart, you need:

- Source and target databases with sample data loaded.
- A replica set for an online migration MongoDB source connection.
- A MongoDB version that has not reached end of life for the online migration source connection.
- GoldenGate Studio installed.
- Target databases/schemas enabled for ORDS and REST APIs.

Task 1: Create the database connections

1. Create the source MongoDB connection:
   a. On the GoldenGate Studio Home page, click **Create connection**.
   b. The Create connection configuration panel consists of three pages. On the General Information page, enter `SourceMongoDB` as a **Connection name**, and optionally, a **Description**.
   c. For **Connection type**, select **MongoDB** from the dropdown.

d. Click **Next**.

e. On the Connections details page, enter a **Connection string**.

> **Note:**
>
> If the Connection string requires a **Username** and **Password**, enter them in the fields provided below.
> Ensure that your connection string follows the expected format.

f. Click **Next**.

g. On the Confirmation page review a summary of your connection details, and then click **Create**.

2. Repeat the steps above to create the target Oracle JSON Collection Tables or Oracle Autonomous JSON Databaseconnection, and make these changes:

- On the General Information page, for **Name**, enter `TargetJSONCollection`.
- On the General Information page, for **Connection type**, select Oracle JSON Collection Tables.
- On the Connection details page, enter a username and password.

> **Note:**
>
> See the connection strings expected format table for more information.

Task 2: Create and configure the pipeline

1. Create the pipeline:

a. On the GoldenGate Studio Home page, click **Create pipeline**.

b. On the Recipe page, select the **Database Migration** recipe, and then click **Next**.

c. On the Overview page, complete the following fields, and then click **Next**:

i. For Name, enter **demo-pipeline**.

ii. For Migration Type, select **Online**.

d. On the Connections page, complete the following fields, and then click **Next**:

i. For **Source database**, select the source database from the dropdown.

ii. For **Target database**, select the target database from the dropdown.

e. On the Validate Source page, select **Validate**, and then click **Next**.

f. On the Validate Target page, select **Validate**, and then click **Next**.

g. Click **Save & configure**.

2. Configure the pipeline:

a. On the Configuration page, configure the database/schema and collection/table mappings as needed. Click **Save**.

b. On the Overview page, in the Initialization view, click **Start**.

> **Note:**
>
> It takes a few minutes for the pipeline initialization to run. The status of each of the steps will change from PENDING to IN PROGRESS to COMPLETED when it is ready for you to use.

c. In the Runtime view, you can view the real time database statistics, such as Operations Extract and Operations Replicat.

Task 3: Monitor the pipeline

1. Monitor the pipeline in the GoldenGate Studio console.
2. For advanced monitoring, you can review the Extracts and Replicats the GoldenGate Microservices console.

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Overview

Learn about Oracle GoldenGate for MongoDB Migrations and Oracle GoldenGate Studio, and concepts to help you get started.

Articles in this category:

- What is Oracle GoldenGate for MongoDB Migrations?

What is Oracle GoldenGate for MongoDB Migrations?

Oracle GoldenGate for MongoDB Migrations is an environment where you can migrate MongoDB database to Oracle Autonomous JSON Database or Oracle JSON Collection Tables. It includes Oracle GoldenGate Studio and Oracle GoldenGate for MongoDB replication.

Want to learn more? Watch this short overview video.

Video

What is Oracle GoldenGate Studio?

Oracle GoldenGate Studio provides a simplified user interface for data replication and migration, using recipes and pipelines to streamline configuration and runtime tasks. Behind the scenes is Oracle GoldenGate, Oracle's best in class replication software, which includes a local deployment used to migrate data between the source and target connections.

What can I use Oracle GoldenGate for MongoDB Migrations for?

You can use Oracle GoldenGate for MongoDB Migrations:

- To migrate data offline or online
- In a production environment
- As a training tool in a learning environment

Oracle GoldenGate for MongoDB Migrations is not supported by Oracle Support. You can post questions about Oracle GoldenGate for MongoDB Migrations in the GoldenGate Studio Community Forum.

What are GoldenGate Studio's limitations?

Learn about the limitations for using GoldenGate Studio.

GoldenGate Studio is limited to:

- MongoDB connections. See what's supported.
- For MongoDB or Oracle JSON Collection connections, if TLS/SSL is set to true in your connection string, then only verified CA-signed certificates will be accepted. Self-signed certificates won't be validated.
- Support through community forums, instead of Oracle Support.

- Patches provided at Oracle's discretion in the form of new builds available through Oracle Container Registry.
- Interaction with other GoldenGate Studio instances. You can't use GoldenGate Studio with fully licensed Oracle GoldenGate products or other third-party integration tools.
- Integrated and Nonintegrated Replicats, ensuring that you don't use Replicat-only features with licensed Extracts.

> **Note:**
>
> Refrain from changing the Replicat type in the Oracle GoldenGate Microservices console, or making changes to the underlying parameter file, as it affects GoldenGate Studio's ability to manage the pipeline.

- No Active Data Guard (ADG) or XStream entitlements.
- No support for Downstream capture.

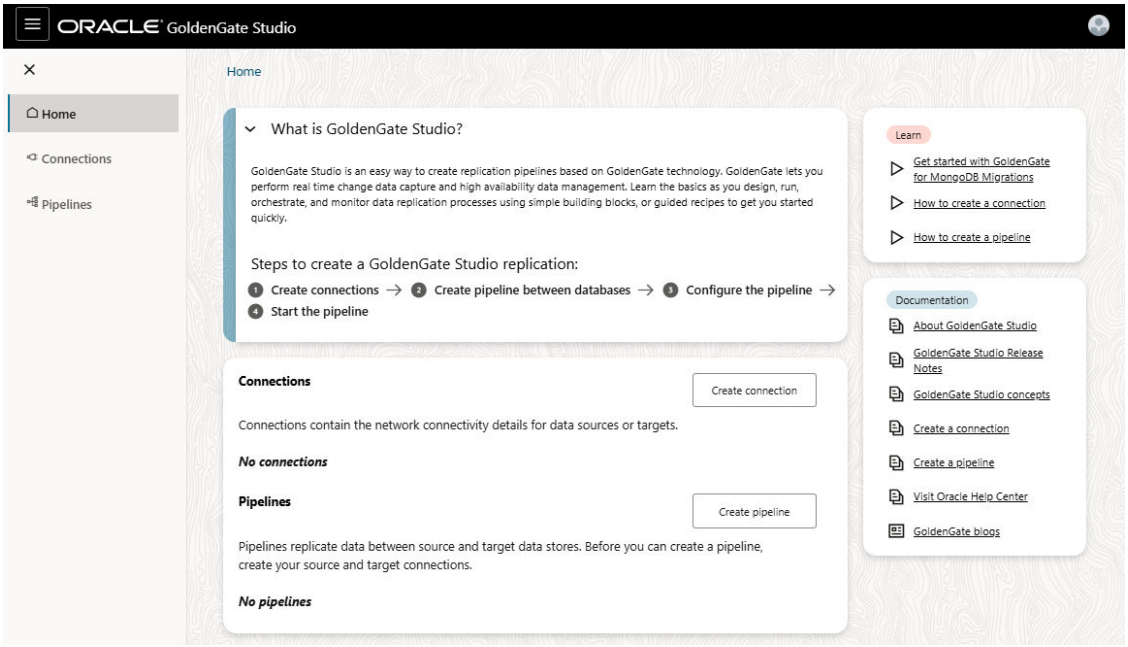
Concepts

Get familiar with the following concepts and other commonly used terms before you get started with GoldenGate Studio.

- **Recipe**: A recipe is a pipeline template for common data replication use cases. Follow a recipe to get started quickly and easily.
- **Connection**: A connection contains the network connectivity details to data stores and other GoldenGate instances.
- **Pipeline:** A pipeline is an instance of a recipe. It enables you to select your source connection, the type of replication action to apply, and the target connection. After a pipeline starts, you can observe the replication process in real time.

Other commonly used terms in this guide:

- **Oracle GoldenGate Studio console**: The main user interface for GoldenGate Studio, where you create and manage database connections and pipelines.
- **Oracle GoldenGate Microservices console**: The user interface for experienced GoldenGate users to configure advanced settings, monitor performance, and perform other common Oracle GoldenGate activities.
- **Extract**: A process that runs against the source database to extract, or capture, data.
- **Replicat**: A process that delivers data to the target database.
- Oracle GoldenGate Studio Free Home page


ORACLE GoldenGate Studio
Home
Connections
Pipelines
Home
What is GoldenGate Studio?
GoldenGate Studio is an easy way to create replication pipelines based on GoldenGate technology. GoldenGate lets you perform real time change data capture and high availability data management. Learn the basics as you design, run, orchestrate, and monitor data replication processes using simple building blocks, or guided recipes to get you started quickly.
Steps to create a GoldenGate Studio replication:
1 Create connections → 2 Create pipeline between databases → 3 Configure the pipeline → 4 Start the pipeline
Learn
Get started with GoldenGate for MongoDB Migrations
How to create a connection
How to create a pipeline
Documentation
About GoldenGate Studio
GoldenGate Studio Release Notes
GoldenGate Studio concepts
Create a connection
Create a pipeline
Visit Oracle Help Center
GoldenGate blogs
Connections
Create connection
Connections contain the network connectivity details for data sources or targets.
No connections
Pipelines
Create pipeline
Pipelines replicate data between source and target data stores. Before you can create a pipeline, create your source and target connections.
No pipelines

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Replicate

Learn to use GoldenGate Studio to replicate data.

Articles in this category:

- How to replicate data
- Create connections
- Follow recipes
- Create pipelines

How to replicate data

Replicating data in GoldenGate Studio is as easy as 1-2-3.

To create a replication process in GoldenGate Studio:

1. Create source and target connections.
2. Create a pipeline.
3. Start a pipeline.

Create connections

Connections contain the network connectivity information for sources and targets.

What is a connection?

A connection contains the connectivity details for a data source or target.

Supported connection types

Check the following list for specific technologies you can use as sources and targets in Oracle GoldenGate for MongoDB Migrations.

Supported source technologies	Supported target technologies
• MongoDB • MongoDB Atlas	• Oracle JSON Collection Tables • Oracle Autonomous JSON Database

Create a connection

Learn to create a connection to MongoDB to use as a GoldenGate Studio source or target.

Watch this short video to learn how to create a database connection:

Video

> **Tip:**
>
> Before you create a connection, ensure that you enable Archive Log Mode and restart your database.

To create a connection:

1. From the GoldenGate Studio Home page, click **Create connection**.
2. The Create connection configuration panel consists of three pages. On the General Information page, enter a **Connection name**, and optionally, a **Description**.
3. Select a connection from the **Connection type** dropdown, and then click **Next**.
4. On the Connections details page, complete the following fields, and then click **Next**:
   a. Enter the **Connection string**.

      If the username and password are included in the connection string, remove them from the connection string and enter them in the **Username** and **Password** fields provided. Ensure the connection string matches the expected format:

Supported technologies	Expected connection string format
MongoDB	`mongodb://host1[:port1][...hostN[:portN]][/[defaultauthdb][?options]]`
MongoDB Atlas	`mongodb+srv://<host>/[?options]`
Oracle JSON Collection Tables	`mongodb://<host>:<port>/?authMechanism=PLAIN&authSource=$external&retryWrites=false&loadBalanced=true&tls={true|false}`
Oracle Autonomous JSON Database	`mongodb://<host>:<port>/?authMechanism=PLAIN&authSource=$external&ssl=true&retryWrites=false&loadBalanced=true`

   b. (Optional) If connection string includes credentials, enter the **Username** and **Password**.

> **Note:**
>
> For MongoDB or Oracle JSON Collection connections, if TLS/SSL is set to true in your connection string, then only verified CA-signed certificates will be accepted. Self-signed certificates won't be validated.

5. On the Confirmation page review a summary of your connection details, and then click **Create**.

Next steps

After you have source and target connections created in GoldenGate Studio, you can:

- Learn about recipes
- Learn about pipelines
- Create a pipeline

Follow recipes

Recipes are templates for common replication scenarios that you can use to accelerate your data replication journey.

Explore recipes

Oracle GoldenGate for MongoDB Migrations provides you with a single recipe to facilitate online or offline database migrations.The Database migration recipe performs an Initial load, and then applies change events until you're ready to switch over to the target database.

- **Offline**: Source applications must be taken offline prevent updates to the source database during migration. Offline migration is most suitable for small databases, or where duration of downtime is not a concern. Data and metadata are exported from the source database and imported into the target database.
- **Online**: Source systems can remain online during the migration. Online migration is most suitable for large databases, or for critical applications where duration of downtime is a concern. An initial snapshot of data and metadata is exported from the source database and imported into the target database, followed by continuous synchronization of changes. Downtime is required only during switchover.

Follow a recipe

To follow a recipe:

1. From the GoldenGate Studio Home page, click **Create pipeline**.
2. On the Recipe page, select a recipe to follow.
3. Follow the instructions to Create a pipeline.

Create pipelines

Learn to create a data replication process using pipelines and recipes.

About pipelines

A pipeline is an instance of a recipe. It enables you to select your source connection, the type of replication action(s) to apply, and the target connection. After a pipeline starts, you can observe the replication process in real time.

If you're familiar with Oracle GoldenGate Extract and Replicats, then pipelines are an abstraction of the Oracle GoldenGate replication process. When you start a pipeline, GoldenGate Studio:

- Check source and target database
- Extract Source Database
- Load Target Database
- Create GoldenGate credentials (Online migration only)
- Create and run Extract (Capture) (Online migration only)
- Create and run Replicat (Apply) (Online migration only)

These steps can be observed during the pipeline's Initialization phase on the Pipeline Details page.

You can view pipelines on the Home page, as well as the Pipelines page. Before you create a pipeline, ensure that you have source and target connections created, and existing target databases/schemas are ORDS and REST API enabled.

Create a pipeline

Learn to create a pipeline by following a recipe.

Watch this short video to learn how to create a pipeline.

Video

> **Tip:**
>
> Ensure that you have a source and target connection before creating a pipeline.

To create a pipeline:

1. From the GoldenGate Studio Home page, click **Create pipeline**.

   You can also select **Pipelines** from the navigation menu, and then click **Create pipeline** on the Pipelines page.
2. The Create Pipeline process consists of six pages. On the Recipe page, select a recipe, and then click **Next**.
3. On the Overview page, complete the following fields, and then click **Next**:
   a. Enter a **Name** for the pipeline.
   b. Optionally, enter a **Description**.
   c. For Migration Type, select an **Offline** or **Online** migration.
4. On the Connections page, select your source and target connections from their respective dropdowns, and then click **Next**.
5. Validate your source, and then click **Next**.
6. Validate your target, and then click **Next**.
7. Review a summary of the pipeline details, and then click **Save & configure**.

After your pipeline is created, you're brought to the Pipeline Configuration screen. Learn to configure a pipeline.

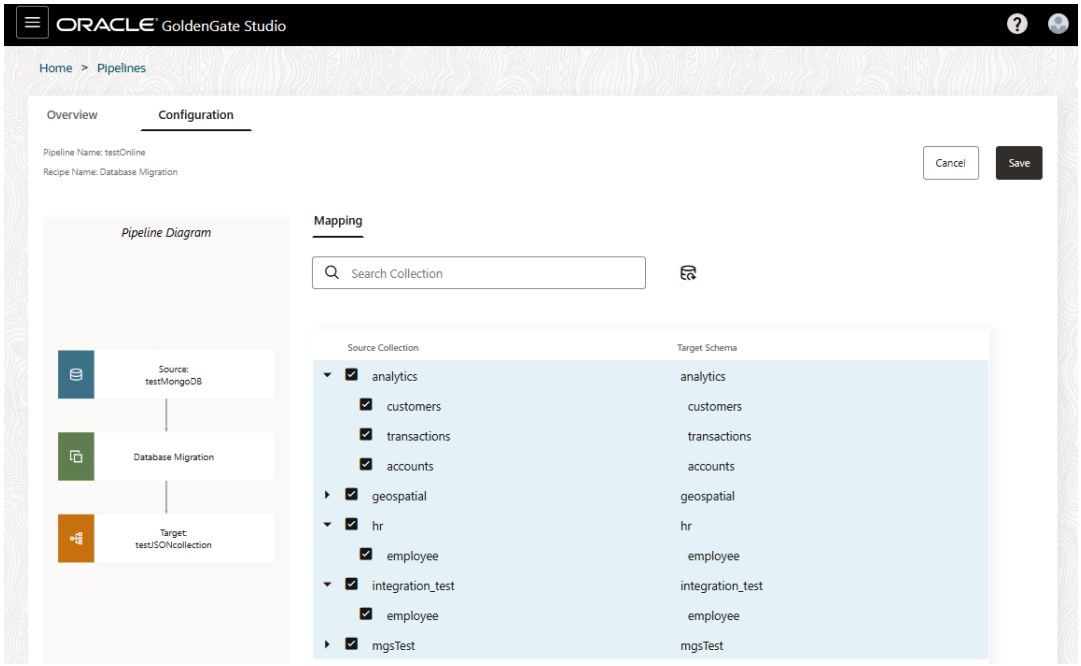
Configure a pipeline

After you create a pipeline, you're brought to its Configuration screen. If you're revisiting a pipeline after you created it, you can select the pipeline from the Pipelines page to view its details, and then click **Configuration** to return to the Configuration screen.

You must have a pipeline created before you can configure it.

To configure a pipeline:

1. Under **Mapping**, you can review and select the source database collections to replicate.



You can:

- Include a MongoDB database and all its collections. This also ensures that any collections/tables added to the database in the future are also implicitly included and replicated.
- Include a database/schema but not all its collection/tables. Collections/Tables **not** included will not be replicated, however, future collections/tables added to the database/schema are implicitly included and replicated to the target.
- Exclude the database/schema but include its collection/tables. Any collection/tables added to the database/schema in the future are **not** included.
- Exclude an entire database/schema and all its collections/tables.

2. Click **Save** to save your configuration settings.
3. After configuring your pipeline, click **Start** to run it.

   You can review the initialization procedure, the status and progress of each step in the replication process, and how much time it takes for each step to complete.
4. For online migration, after the initialization completes, you're brought to the **Runtime** view where you can monitor data capture operations as they are replicated from the source database to the target. For offline migration, the pipeline finishes when initialization completes.

For online migration, the pipeline runs continually until it's manually stopped. For offline migration, the pipeline is considered complete once the migration process finishes.

Next steps

After your pipeline is created, configured, and running, learn to manage pipelines.

4
Manage

Learn to manage your GoldenGate Studio resources.

Articles in this category:

- Manage connections
- Manage pipelines

Manage connections

Learn about connection management tasks including how to edit, clone, and delete connections.

View connection details

Select a connection from the Database connections page to view its details. On the Connection details page, you can:

- View connection details such as:
  - Connection name, description, when it was created, and when it was last updated
  - Database type, hostname, port, username, connector, and connection type
- Edit the connection details
- Clone the connection
- Delete the connection

Edit a connection

To edit a connection:

1. On the Database connections page, select a connection to edit. You're brought to the connection's detail page.
2. On the connection's detail page, click **Edit**.
3. In the **Configure Database Connection Configuration** panel, review the connection settings, make your updates, and then click Next to progress though the Edit connection pages.
4. Click **Save changes**.

Clone a connection

To clone a connection:

1. On the Database connections page, select the connection to clone. You're brought to the connection's details page.
2. On the connection details page, click **Clone**.

You're brought back to the Database connections page, where the cloned connection appears in the list.

Delete a connection

Before you delete a connection, ensure that the connection is not currently in use by an active pipeline.

To delete a connection:

1. On the Database connections page, select the connection to delete. You're brought to the connection details page.
2. On the connection details page, click **Delete**.
3. In the Delete connection dialog, confirm that you want to delete the connection, and then click **Delete**.

The Database connections list is refreshed and the deleted connection removed. You cannot undo a delete operation.

Manage pipelines

Learn about pipeline management tasks including how to edit, start, stop, and delete pipelines.

View pipeline details

On the Pipelines page, select a pipeline to view its details. On the pipeline's details page, you can:

- Review pipeline details such as the pipeline name, description, when it was created, when it was last run, and whether it ran successfully.
- Start the pipeline.
- Stop the pipeline.

> **Note:**
>
> The pipeline runs continuously until you click **Stop**.

- View its initialization steps, the status and logs for each step, and initial load details

> **Note:**
>
> To view message logs for a step, click its ellipsis (three dots) icon, and then select **View details**.

- View the pipeline as it runs in realtime

Edit a pipeline

To edit a pipeline:

1. On the Pipelines page, open the Action menu (ellipsis icon) for the pipeline you want to edit.

2. From the Pipeline's Action menu, select **Edit configuration**.
3. In the Edit pipeline panel, you can edit the following values:
   - Name
   - Description
4. Click **Save & configure**.

Start a pipeline

Before you can start a pipeline, you must first configure it.

To start a pipeline:

1. On the Pipelines page, select the pipeline to start. You're brought to the pipeline's details page.
2. On the pipeline's details page, click **Start**.

   You're brought to the pipeline's initialization page, where you can observe the initial load tasks performed on the target database, as well as the creation and start of Extract and Replicat processes.
3. After the pipeline is initialized:
   - For Offline migrations, the pipeline finishes when initialization completes.
   - For Online migrations, you're brought to the Runtime page, where you can observe data capture operations on the source database replicated to the target database.

Stop a pipeline

You can only stop a pipeline that is running. Pipelines run continuously until you manually stop them. You can stop an offline migration pipeline during initialization. When you stop an online migration pipeline, GoldenGate Studio stops both the Extract and Replicat processes.

To stop a pipeline:

1. On the Pipelines page, select the pipeline to stop. You're brought to the pipeline's details page.
2. On the pipeline's details page, click **Stop**.

After the pipeline stops, you can click **Start** to restart it. GoldenGate Studio resumes the Extract and Replicat processes, replicating any transactions that occurred while the pipeline was stopped.

Delete a pipeline

To delete a pipeline:

1. On the Pipelines page, from the Action menu (ellipsis icon) of the pipeline you want to delete, select **Delete**.
2. In the Delete dialog, select whether you want to also delete the GoldenGate configuration.

> **Note:**
>
> GoldenGate configuration includes the Extract and Replicat processes created when the pipeline was originally initialized.

3. Click **Delete**.

The Pipeline page refreshes, and the deleted pipeline no longer appears in the list. Once deleted, you can't undo the action.

5
Monitor

Learn to monitor your GoldenGate Studio processes and how to use the information reported.

> **Note:**
>
> This chapter applies to Online migrations only.

Articles in this category:

- Monitor pipelines
- Monitor performance using the Oracle GoldenGate Microservices console

Monitor pipelines

Monitor your pipelines to ensure that your data replication processes are running smoothly without lag. Use the tools available to troubleshoot or diagnose issues you may encounter.

When you select an active pipeline from the Pipelines page, you're brought to the pipeline's Runtime page. Here, you can view:

- Basic pipeline information, including the pipeline's name, description, created date, and run date.
- A realtime visual pipeline diagram, that updates as you make changes to the pipeline configuration.
- Information about the pipeline processes, including process names, process types, their statuses, their latency, when their last operation was processed, and their total operation count. You can also view the processes' log events, reports, latency graphs, or launch the full GoldenGate console for advanced monitoring from the processes' Action menus.
- Operations Extract graph, showing inserts, updates, upserts, deletes, truncates, DDLs, discards, and ignores over time.
- Operations Replicat graph, showing inserts, updates, upserts, deletes, truncates, DDLs, discards, and ignores over time.
- (Not shown) A list of critical events, along with their codes, when they occurred, their severity, and message details.

For each process, you can access the following when you open the ellipsis (three dots) menu:

- View log events
- Access the Oracle GoldenGate Administration Server UI
- Download reports
- Download latency details

For more information about performance monitoring in the Oracle GoldenGate Microservices UI, see Monitor performance using the Oracle GoldenGate Microservices console.

Monitor performance using the Oracle GoldenGate Microservices console

You can monitor the status and health of your pipelines using the Runtime view on your pipeline's details page. For more advanced monitoring and reporting, you can access the Oracle GoldenGate Microservices console.

> **Note:**
>
> While you can access the Oracle GoldenGate Microservices console, you're still bounded to the limitations of GoldenGate Studio.

You can access the Oracle GoldenGate Microservices console one of two ways:

- When viewing the pipeline processes in the Runtime view, click the ellipsis menu and select **GoldenGate console**.
- Open `<hostname>/ogg` in your web browser. You're brought to the Oracle GoldenGate Service Manager. Under Deployment, select **Local**. In the Local Services page, select one of the following services to open:

  > **Note:**
  >
  > Your protocol (http or https) depends on whether you enabled SSL/TLS during the intial configuration/installation process.

  - **Administration Service**: View and manage Extract and Replicat process details, reports, and statistics.
  - **Distribution Service**: View and manage Distribution Path details.
  - **Performance Metrics Service**: View service and process performance metrics.
  - **Receiver Service**: View and manage Receiver Path details.

For more information about using the Performance Metrics Service, see Monitor Processes from the Performance Metrics Service.