



Inovação com dados em nuvem

Oracle GoldenGate Cloud Guia para Laboratório Hands-On

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Guia para Laboratório *Hands-On*

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Introdução

O Oracle GoldenGate, um software de replicação e integração de dados líder do setor, agora está disponível como um serviço nativo de nuvem totalmente gerenciado na infraestrutura da Oracle (OCI). Este hands on te orienta a configurar e a usar o Oracle Cloud Infrastructure GoldenGate.

O Oracle Cloud Infrastructure GoldenGate é um serviço totalmente gerenciado que usa o Oracle GoldenGate Microservices para ajudá-lo a replicar dados em tempo real, em escala, na nuvem. Ele processa os dados conforme eles passam de um ou mais sistemas de gerenciamento para bancos de dados com destino na Oracle Cloud Infrastructure.

Neste laboratório, você irá:

- Criar os bancos de dados de origem e destino
- Criar um Oracle Cloud Infrastructure GoldenGate Deployment
- Registrar os bancos de origem e destino
- Criar um Extract e um Replicat
- Monitorar ambos os serviços criados

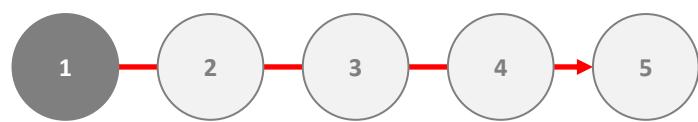
Pré-requisitos:

- Experiência com Oracle Database.
- Familiaridade com o Oracle GoldenGate é útil, mas não obrigatória.
- Familiaridade com a Oracle Cloud Infrastructure é útil, mas não obrigatória.
- Uma conta do Oracle.

É importante que os conceitos fundamentais desses recursos estejam claros para uma boa experiência em nossa nuvem.

Lab 1.

Configuração do ambiente



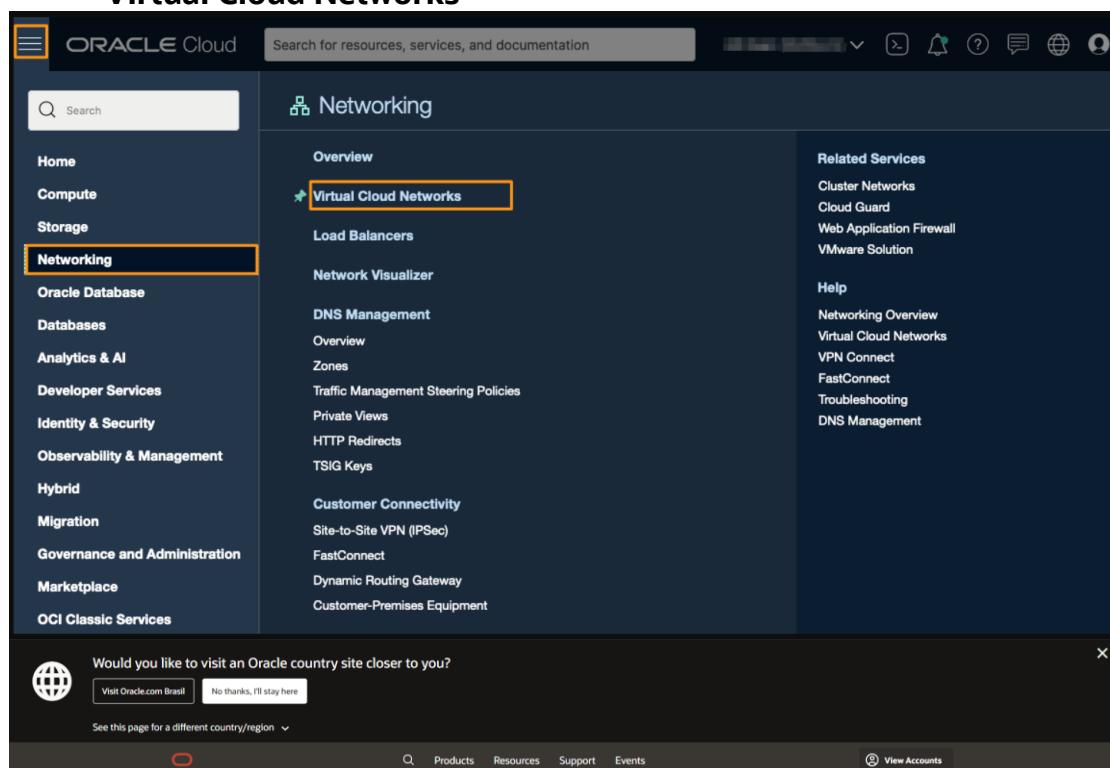
Lab 1. Configuração do ambiente

Objetivos:

- Aprenda a provisionar uma VCN e subnet
- Aprenda como provisionar, conectar e carregar dados em uma instância Autonomous Transaction Processing (ATP)
- Aprenda como provisionar, conectar e carregar dados em uma instância do Autonomous Data Warehouse (ADW)

STEP 1: Criar a VCN e a subnet

1. Abra o **Navigation Menu**, navegue para **Networking**, e selecione **Virtual Cloud Networks**



2. Clique em **Start VCN Wizard**.
3. Selecione **VCN with Internet Connectivity**, e então clique em **Start VCN Wizard**.

Start VCN Wizard

[Help](#) [Cancel](#)

VCN with Internet Connectivity

VCN with Internet Connectivity and Site-to-Site VPN Connect

Creates a VCN with a public subnet that can be reached from the internet. Also creates a private subnet that can connect to the internet through a NAT gateway, and also privately connect to the Oracle Services Network.

Includes: VCN, public subnet, private subnet, internet gateway (IG), NAT gateway (NAT), service gateway (SG).

[Start VCN Wizard](#) [Cancel](#)

4. Entre com o nome da VCN, selecione um compartimento, e então clique em **Next**.

Basic Information

VCN NAME [\(i\)](#)

COMPARTMENT [\(i\)](#)

Compartment_OCI_GG

ggsstage (root)/Compartment_OCI_GG

5. Verifique se a configuração está correta e então clique em **Create**.

Create a VCN with Internet Connectivity

Configuration

Review and Create

Review and Create

Oracle Virtual Cloud Network (VCN)

Name: DemoVCN
Compartment: UA_USER
Tags: VCN: VCN-2021-03-09T19:25:40
CIDR: 10.0.0.0/16
DNS Label: DemoVCN
DNS Domain Name: DemoVCN.oraclevcn.com

Subnets

Public Subnet

Subnet Name: Public Subnet-DemoVCN
CIDR: 10.0.0.0/24
Security List Name: Default Security List for DemoVCN
Route Table Name: Default Route Table for DemoVCN
DNS Label: sub03091926000

Private Subnet

Subnet Name: Private Subnet-DemoVCN
CIDR: 10.0.1.0/24
Security List Name: Security List for Private Subnet-DemoVCN
Route Table Name: Route Table for Private Subnet-DemoVCN
DNS Label: sub03091926001

Gateways

Name	Gateway Type	Used By

[Previous](#) [Create](#) [Cancel](#)

Você pode clicar em **View VCN Details** e ver que ambas redes/ sub-redes públicas e privadas foram criadas.

STEP 2: Crie uma instância ATP (Autonomous Transaction Processing)

1. Abra o **Navigation Menu**, navegue para **Oracle Database**, e selecione **Autonomous Transaction Processing**.

The screenshot shows the Oracle Cloud navigation menu on the left with various service categories like Home, Compute, Storage, Networking, and Oracle Database. The Oracle Database category is highlighted with an orange border. On the right, under the Oracle Database section, there is a sub-menu for 'Autonomous Database' which includes Autonomous Data Warehouse, Autonomous JSON Database, and Autonomous Transaction Processing. The 'Autonomous Transaction Processing' option is also highlighted with an orange border.

2. Escolha **Create Autonomous Database**.

The screenshot shows the Oracle Cloud interface for creating an Autonomous Database. On the left, there is a sidebar with options like Autonomous Database, Dedicated Infrastructure, Autonomous Container Database, and Autonomous Exadata Infrastructure. The 'Autonomous Database' option is selected and highlighted with a blue border. On the right, there is a main panel titled 'Autonomous Databases in UA_USER Compartiment'. Within this panel, there is a button labeled 'Create Autonomous Database' which is also highlighted with a red border. Below this button is a table with columns for Display Name, State, Dedicated, OCPUs, and Storage, though no data is currently entered.

3. Selecione o **Compartiment** clicando no drop-down list (Importante: utilize o seu comportamento) e então preencha os campos **Display Name** e **Database Name** com o nome **ATPSource**.

ORACLE Cloud Applications > Search for resources, services, and documentation

Create Autonomous Database

Provide basic information for the Autonomous Database

Compartiment: UA_USER (highlighted with a red box)

Display name: DB 202103090959

Database name: DB202103090959

The name must contain only letters and numbers, starting with a letter. Maximum of 14 characters.

4. Em **Choose a workload type**, selecione o **Transaction Processing**.

Choose a workload type

Data Warehouse	Transaction Processing	JSON	APEX
Built for decision support and data warehouse workloads. Fast queries over large volumes of data.	Built for transactional workloads. High concurrency for short running queries and transactions.	Built for JSON-centric application development. Developer friendly document APIs and native JSON storage.	Built for Oracle APEX application development. Creation and deployment of low-code applications, with database included.

5. Em **Choose a deployment type**, selecione **Shared Infrastructure**.

Choose a deployment type

Shared Infrastructure	Dedicated Infrastructure
Run Autonomous Database on shared Exadata infrastructure.	Run Autonomous Database on dedicated Exadata infrastructure.

6. Em **Configure the database**, mantenha **Choose database version, Storage (TB) e OCPU Count** como aparecem.

Configure the database

Choose database version: 19c

OCPUs count: 1

Storage (TB): 1

7. Coloque a senha. Tome nota, você precisará dela posteriormente.

Create administrator credentials ⓘ

Username: Read-Only
ADMIN

ADMIN username cannot be edited.

Password:

Confirm password:

8. Em **Choose a license type**, selecione **License Included**.

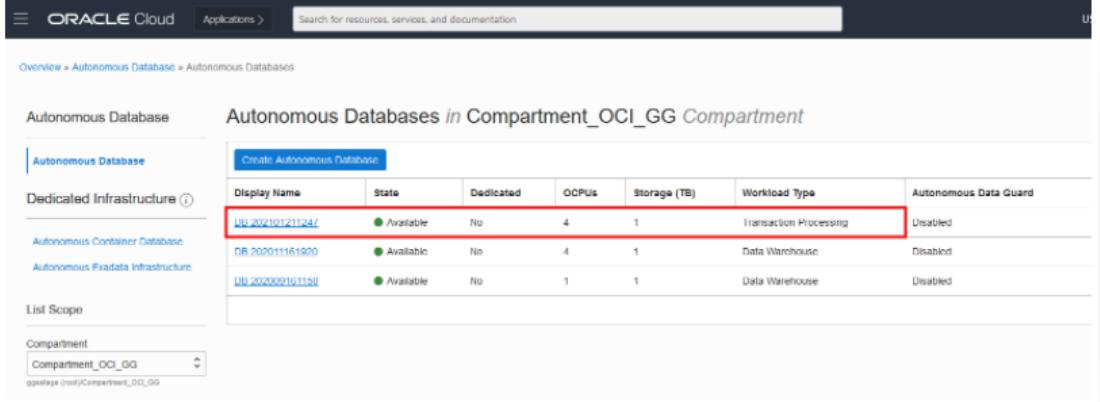
Choose a license type

Bring Your Own License (BYOL)	License Included
Bring my organization's Oracle Database software licenses to the Database service. Learn more	Subscribe to new Oracle Database software licenses and the Database service.

9. Clique em **Create Autonomous Database**. Assim que terminar o provisionamento, você pode clicar no nome da instância para ver mais detalhes a respeito dela.

STEP 3: Carregue o schema do ATP

1. Clique no link abaixo para baixar o schema do database.
<https://objectstorage.us-ashburn-1.oraclecloud.com/p/D9dqoEWMpWZgpMSyILK-ycaSQqiywQ2CxFZZkTY4ZpW9Yi0rV0MHiD4UWOglGu0T/n/c4u03/b/data-management-library-files/o/Archive.zip>
2. Salve o `Archive.zip` e então faça unzip do arquivo.
3. Volte à Console do OCI, selecione o seu ATP instance na lista de Autonomous Databases para ver mais detalhes e acessar as ferramentas de administração.



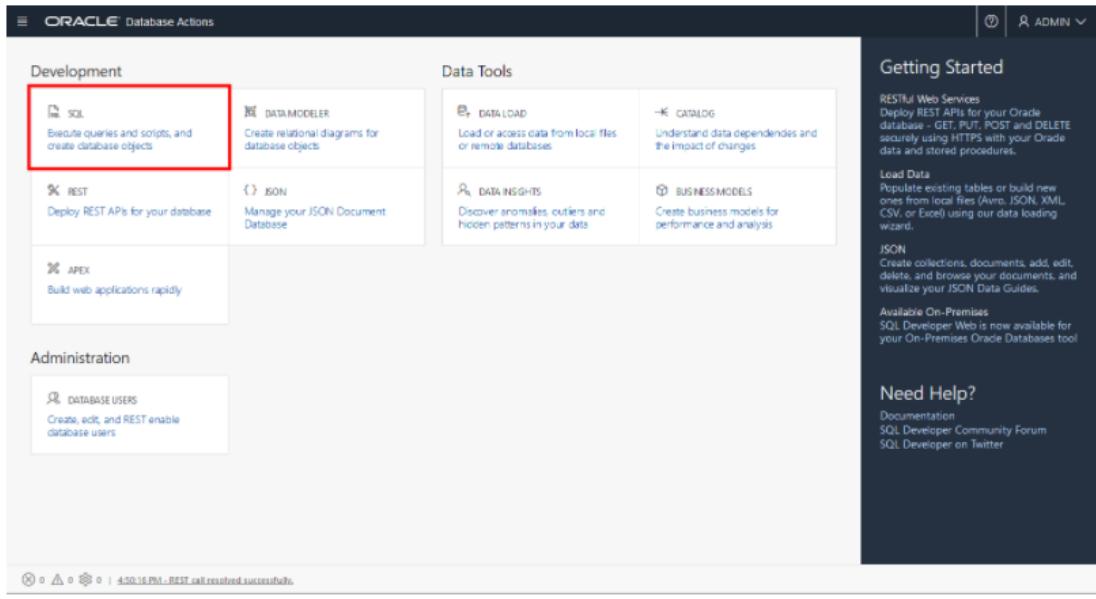
The screenshot shows the Oracle Cloud Autonomous Database console. The top navigation bar includes 'ORACLE Cloud', 'Applications >', and a search bar. Below the navigation is a breadcrumb trail: 'Overview > Autonomous Database > Autonomous Databases'. On the left, there's a sidebar with 'Autonomous Database' selected, followed by 'Dedicated Infrastructure' (with a question mark icon), 'Autonomous Container Database', and 'Autonomous Exadata Infrastructure'. Under 'List Scope', a dropdown menu shows 'Compartiment_OCI_GG'. The main content area is titled 'Autonomous Databases in Compartiment_OCI_GG Compartiment'. It features a 'Create Autonomous Database' button at the top. Below it is a table with the following data:

Display Name	State	Dedicated	OCpus	Storage (TB)	Workload Type	Autonomous Data Guard
DB_202101211247	Available	No	4	1	Transaction Processing	Disabled
DB_202011161920	Available	No	4	1	Data Warehouse	Disabled
DB_202009161159	Available	No	1	1	Data Warehouse	Disabled

4. Clique em **Tools** e então selecione **Open Database Actions**.

5. Entre com o usuário ADMIN utilizando a mesma senha escolhida anteriormente.

6. No menu Database Actions, em **Development**, selecione **SQL**.



7. (Opcional) Clique no X para fechar o Help dialog.
8. Copie o conteúdo do arquivo **OCIGGLL_OCIGGS_SETUP_USERS_ATP.sql** e cole no **SQL Worksheet**.

The screenshot shows the Oracle SQL Worksheet. The script **OCIGGLL_OCIGGS_SETUP_USERS_ATP.sql** is displayed in the editor. The code creates a user 'SRC_OCIGGLL' with password '#OCIGG5r9ck5', grants session creation, locks the account, and then解锁s it. It also grants connect and resource roles, and unlimited tablespace. Finally, it enables an ORDS schema with specific parameters. The 'Query Result' tab is selected at the bottom.

```

1 CREATE USER "SRC_OCIGGLL" IDENTIFIED BY "#OCIGG5r9ck5";
2 GRANT CREATE SESSION TO "SRC_OCIGGLL";
3 ALTER USER "SRC_OCIGGLL" ACCOUNT UNLOCK;
4 GRANT CONNECT, RESOURCE, DBROLE TO "SRC_OCIGGLL";
5 GRANT UNLIMITED TABLESPACE TO "SRC_OCIGGLL";
6
7 BEGIN
8   ORDS.ENABLE_SCHEMA(p_enabled => TRUE,
9                      p_schema => 'SRC_OCIGGLL',
10                     p_url_mapping_type => 'BASE_PATH',
11                     p_url_mapping_pattern => 'SRC_OCIGGLL',
12                     p_auto_rest_auth => FALSE);
13   commit;
14 END;
15 /
16 exit;
17
18
19
20
21

```

9. Clique em **Run Script**. No Output tab é possível ver o resultado da execução.
10. Copie o conteúdo do arquivo **OCIGGLL_OCIGGS_SRC_USER_SEED_DATA.sql** e cole em uma nova SQL Worksheet.

The screenshot shows the Oracle Database Actions SQL Worksheet interface. The left sidebar displays the Navigator and Worksheets tabs, with 'ADMIN' selected. Under 'Tables', the 'SRC_CITY' table is listed. The main workspace shows the DDL code for creating the 'SRC_CITY' table:

```

1 -- File created - Edgray 3-07-2021
2
3 -- DDL for Table SRC_CITY
4
5
6
7 CREATE TABLE "SRC_OCIGGLL"."SRC_CITY"
8   ("CITY_ID" NUMBER(10,0),
9    "CITY" VARCHAR2(150 BYTE),
10   "REGION_ID" NUMBER(10,0),
11   "POPULATION" NUMBER(10,0))
12   STORING INITAL 65536 NEXT 1849576 MAXEXTENTS 1 MAXTRANS 2147483645
13   PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
14   BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
15
16
17
18
19
20
21 -- DDL for Table SRC_CUSTOMER
22

```

The status bar at the bottom indicates: '0 0 0 0 | 4:51:38 PM - BEST call recorded successfully.'

11. Clique em **Run Script**. No Output tab é possível ver o resultado da execução.
12. Na navegação à esquerda, conforme print, procure pelo schema SRC_OCIGGLL e então selecione as tabelas dele para verificar se tudo foi criado adequadamente.

The screenshot shows the Oracle Database Actions SQL Worksheet interface. The left sidebar displays the Navigator and Worksheets tabs, with 'SRC_OCIGGLL' selected. Under 'Tables', several tables are listed: SRC_CITY, SRC_CUSTOMER, SRC_ORDERS, SRC_ORDER_LINES, SRC_PRODUCT, and SRC_REGION. The 'SRC_CITY' table is highlighted with a red box. The main workspace shows the DDL code for creating the 'SRC_CITY' table, identical to the previous screenshot.

13. Para habilitar o registro complementar, execute o seguinte comando:
ALTER PLUGGABLE DATABASE ADD SUPPLEMENTAL LOG DATA;

STEP 4: Crie uma instância ADW (Autonomous Data Warehouse)

1. Abra o **Navigation Menu**, navegue até **Oracle Database**, e selecione o **Autonomous Data Warehouse**.

The screenshot shows the Oracle Cloud navigation menu on the left with various service categories like Home, Compute, Storage, Networking, Oracle Database, Databases, Analytics & AI, Developer Services, Identity & Security, Observability & Management, Hybrid, Migration, Governance and Administration, Marketplace, and OCI Classic Services. The 'Oracle Database' category is highlighted with an orange border. On the right, under the 'Oracle Database' heading, there's a list of services: Overview, Autonomous Database (which is selected and highlighted with an orange box), Autonomous Data Warehouse (also highlighted with an orange box), Autonomous JSON Database, Autonomous Transaction Processing, Autonomous Dedicated Infrastructure, Bare Metal, VM, and Exadata, Exadata at Oracle Cloud, Exadata Cloud@Customer, External Database, Data Safe, and GoldenGate. To the right of the main content area, there's a 'Related Services' sidebar listing APEX Application Development, Database Management, Data Integration, Streaming, MySQL, Oracle NoSQL Database, Help, Autonomous Databases, Bare Metal and VM DB Systems, Exadata Cloud@Customer, and All Oracle Database Documentation.

2. Clique em **Create Autonomous Database**.

The screenshot shows the 'Create Autonomous Database' page. On the left, there's a sidebar with links for Autonomous Database, Dedicated Infrastructure (with a help icon), Autonomous Container Database, and Autonomous Exadata Infrastructure. The main area is titled 'Autonomous Databases in UA_USER Compartiment'. It features a prominent blue button labeled 'Create Autonomous Database' which is highlighted with a red box. Below this button is a table with columns for Display Name, State, Dedicated, OCPUs, and Storage. There are two rows in the table, both of which are currently empty.

3. Selecione o **Compartiment** clicando na drop-down list (Você deve selecionar o seu compartimento) e então preencha **Display Name** e **Database Name** com **ADWTTarget**.

Create Autonomous Database

Provide basic information for the Autonomous Database

Compartment
UA_USER

Display name
DB 202103090959

A user-friendly name to help you easily identify the resource.

Database name
DB202103090959

The name must contain only letters and numbers, starting with a letter. Maximum of 14 characters.

4. Em **Choose a workload type**, selecione **Data Warehouse**.

Choose a workload type			
Data Warehouse	Transaction Processing	JSON	APEX
Built for decision support and data warehouse workloads. Fast queries over large volumes of data.	Built for transactional workloads. High concurrency for short running queries and transactions.	Built for JSON-centric application development. Developer friendly document APIs and native .JSON storage.	Built for Oracle APEX application development. Creation and deployment of low-code applications, with database included.

5. Em **Choose a deployment type**, selecione **Shared Infrastructure**.

Choose a deployment type	
Shared Infrastructure	Dedicated Infrastructure
Run Autonomous Database on shared Exadata Infrastructure.	Run Autonomous Database on dedicated Exadata Infrastructure.

6. Em **Configure the database**, deixe **Choose database version**, **Storage (TB)** e **OCPUs Count** como estão.

Configure the database

Choose database version
19c

OCPUs count
1

Storage (TB)
1

The number of OCPUs cores to enable. Available cores are subject to your tenancy's service limits.

7. Coloque uma senha. Anote-a! Você precisará dela posteriormente.

Create administrator credentials ⓘ

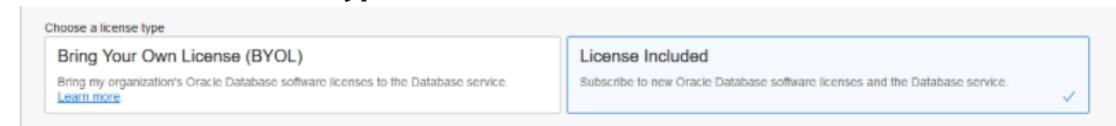
Username Read-Only
ADMIN

ADMIN username cannot be edited.

Password

Confirm password

8. Em **Choose a license type**, selecione **License Included**.



9. Clique em **Create Autonomous Database**. Assim que terminar o provisionamento, você pode clicar no nome da instância para ver mais detalhes a respeito dela.

STEP 5: Carregue o ADW schema

1. Selecione sua instância ADW na lista de Autonomous Databases para ver os detalhes dela e acessar as ferramentas de administração.

Display Name	Status	Dedicated	OCpus	Storage (TB)	Workload Type	Autonomous Data Guard
DR_20210121241	Available	No	4	1	Transaction Processing	Disabled
DR_202011151900	Available	No	4	1	Data Warehouse	Disabled
DR_202009161150	Available	No	1	1	Data Warehouse	Disabled

2. Clique em **Tools** e então selecione **Open Database Actions**.

Autonomous Database Information Tools Tags

Database administration and developer tools for Autonomous Database

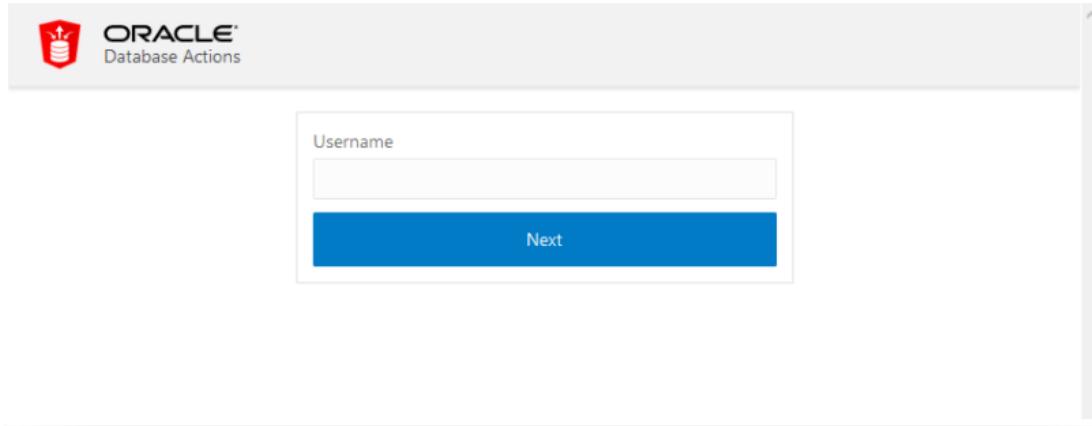
Database Actions
Load, explore, transform, model, and catalog your data. Use an SQL worksheet, build REST interfaces and low-code apps, manage users and connections, build and apply machine learning models. [Learn more](#)
[Open Database Actions]

Oracle Application Express
Oracle Application Express (APEX) is a low-code development platform that enables you to build scalable, secure enterprise apps that can be deployed anywhere. [Learn more](#)
[Open APEX]

Oracle ML User Administration
Oracle Machine Learning is a development environment that uses a web-based interface to enable you to perform data analytics, data discovery and data visualizations. [Learn more](#)
[Open Oracle ML User Administration]

SODA Drivers
Simple Oracle Document Access (SODA) is a set of APIs that let you work with JSON documents managed by the Oracle Database without needing to use SQL. SODA drivers are available for REST, Java, Node.js, Python, PL/SQL, and C. [Learn more](#)
[Download SODA Drivers]

3. Entre com o usuário ADMIN colocando a senha escolhida anteriormente.



4. No menu Database Actions, em **Development**, selecione **SQL**.

Development

- SQL** Execute queries and scripts, and create database objects
- REST** Deploy REST APIs for your database
- JSON** Manage your JSON Document Database
- APEX** Build web applications rapidly

Data Tools

- DATA MODELER** Create relational diagrams for database objects
- DATA LOAD** Load or access data from local files or remote databases
- DATA INSIGHTS** Discover anomalies, outliers and hidden patterns in your data
- CATALOG** Understand data dependencies and the impact of changes
- BUSINESS MODELS** Create business models for performance and analysis

Administration

- DATABASE USERS** Create, edit, and REST enable database users

Getting Started

- RESTful Web Services** Deploy REST APIs for your Oracle database - GET, PUT, POST and DELETE securely using HTTPS with your Oracle data and stored procedures.
- Load Data** Populate existing tables or build new ones from local files (Avro, JSON, XML, CSV, or Excel) using our data loading wizard.
- JSON** Create collections, documents, add, edit, delete, and browse your documents, and visualize your JSON Data Guides.
- Available On-Premises** SQL Developer Web is now available for your On-Premises Oracle Databases tool

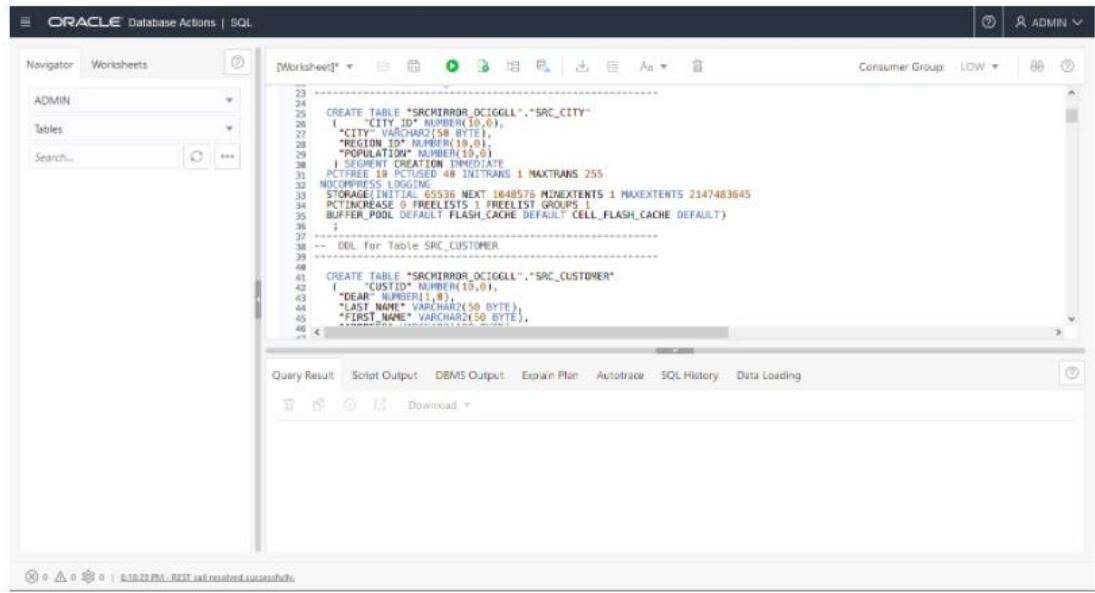
Need Help?

- Documentation
- SQL Developer Community Forum
- SQL Developer on Twitter

5. Copie o conteúdo do arquivo **OCIGGLL_OCIGGS_SETUP_USERS_ADW.sql** e cole no SQL Worksheet.

The status bar at the bottom shows: ⓘ ⚡ ⚡ ⚡ ⚡ | 1:02:16 PM - REST call resulted successfully.

6. Clique em **Run Script**. No Output tab é possível ver o resultado da execução.
7. Copie o conteúdo do arquivo **OCIGGLL_OCIIGGS_SRC_MIRROR_USER_SEED_DATA.sql** e cole em uma nova SQL Worksheet.



The screenshot shows the Oracle Database Actions interface. In the top navigation bar, it says "ORACLE Database Actions | SQL". On the left, there's a sidebar titled "ADMIN" with "Tables" selected. The main area is titled "[Worksheet]" and contains the following SQL code:

```
23 CREATE TABLE "SRCMIRROR_OCIGGLL"."SRC_CITY"
24   "CITY_ID" NUMBER(10,0),
25   "CITY" VARCHAR2(50 BYTE),
26   "REGION_ID" NUMBER(10,0),
27   "POPULATION" NUMBER(10,0),
28   "LAST_UPDATE" DATE,
29   "PCTFREE" 10 PCTUSED 40 INITTRANS 1 MAXTRANS 255
30   NOCOMPRESS LOGGING
31   STORE IN EXTSORT NEXT 1048575 FREEEXTENTS 1 MAPEXTENTS 2147483645
32   PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
33   BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
34   /
35
36
37 -- DDL for Table SRC_CUSTOMER
38
39
40
41 CREATE TABLE "SRCMIRROR_OCIGGLL"."SRC_CUSTOMER"
42   "CUSTID" NUMBER(10,0),
43   "DEAR" NUMBER(1,0),
44   "LAST_NAME" VARCHAR2(50 BYTE),
45   "FIRST_NAME" VARCHAR2(50 BYTE),
46   /
47
48
```

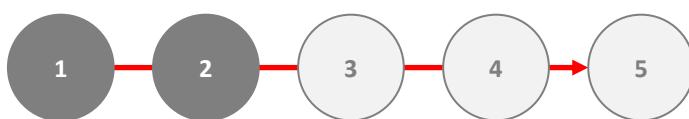
Below the code, the "Output" tab is selected, showing the message: "E:\10-22 PM - RPTST.sql executed successfully."

8. Clique em **Run Script**. No Output tab é possível ver o resultado da execução.
9. No menu de navegação, procure pelo schema SRCMIRROR_OCIGGLL e verifique se as tabelas dele foram criadas adequadamente. Estando tudo OK, seguir para o próximo lab.

Lab 2.

Criar o Oracle Cloud Infrastructure

GoldenGate Deployment



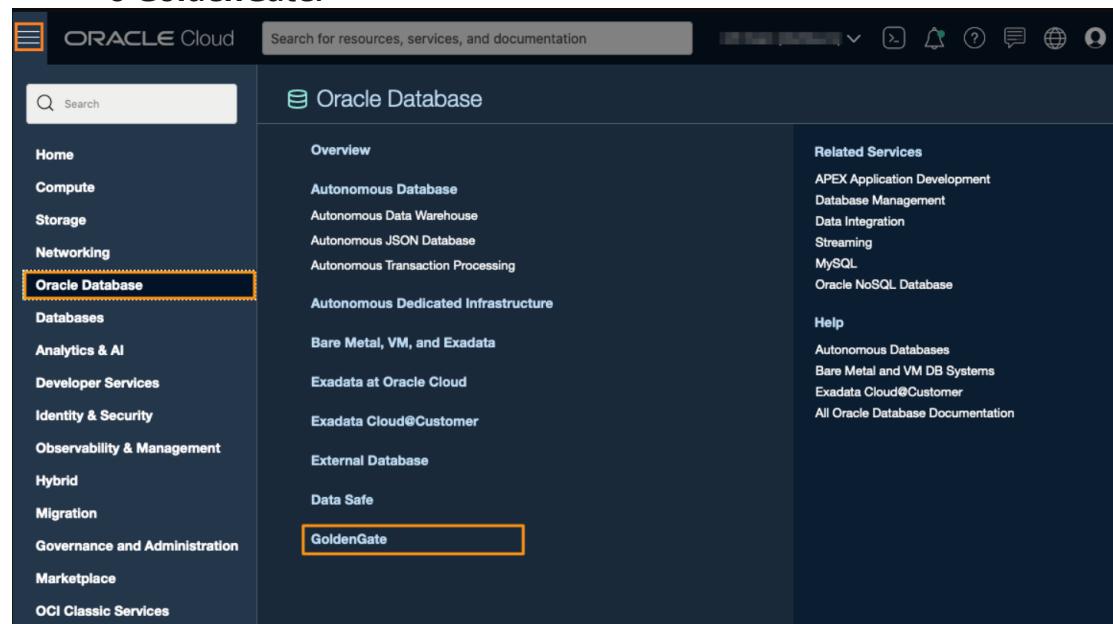
Lab 2. Criar o Oracle Cloud Infrastructure GoldenGate Deployment

Objetivos:

- Provisionar um Oracle Cloud Infrastructure GoldenGate na Console
- Criar um OCI GoldenGate deployment
- Rever os detalhes do OCI GoldenGate deployment
- Acessar a console do OCI GoldenGate deployment

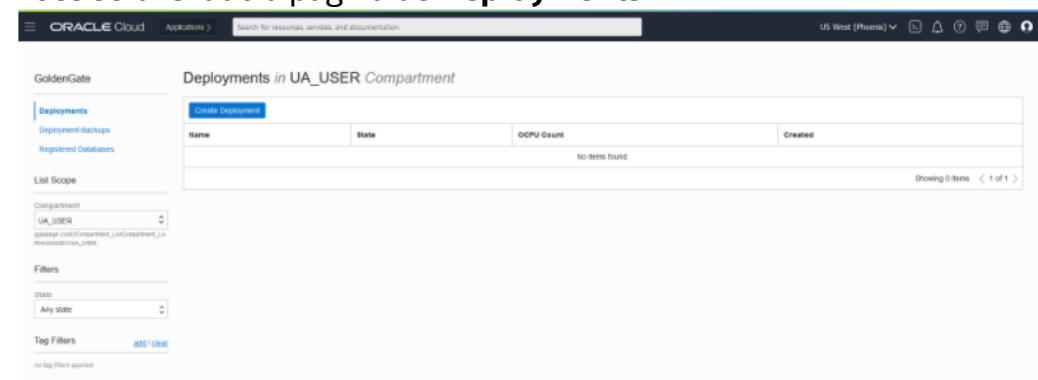
STEP 1: Criar o deployment.

1. Abra o **Navigation Menu**, navegue em **Oracle Database**, e selecione o **GoldenGate**.



The screenshot shows the Oracle Cloud Infrastructure navigation menu on the left. Under the 'Oracle Database' category, the 'GoldenGate' link is highlighted with a yellow box. The main content area displays various Oracle Database services like Autonomous Database, Exadata at Oracle Cloud, and Data Safe, with the 'GoldenGate' link also highlighted with a yellow box.

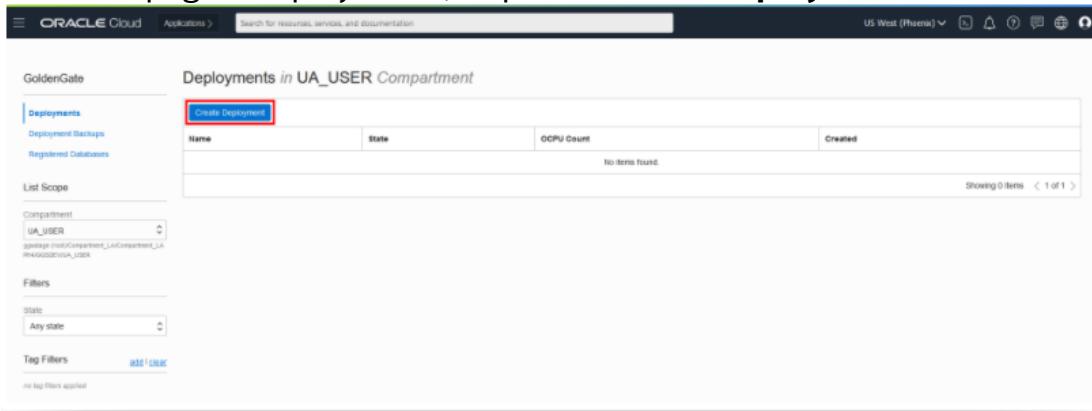
Você será levado à página de **Deployments**.



The screenshot shows the 'Deployments' page for the 'UA_USER' compartment. The 'Create Deployment' button is highlighted with a blue box. The main table shows 'No items found'. The sidebar includes sections for 'Compartiment' (set to 'UA_USER'), 'Filters' (with a dropdown set to 'Any state'), and 'Tag Filters'.

2. Verifique se o Compartimento selecionado está correto.

3. Na página Deployments, clique em **Create Deployment**.



The screenshot shows the Oracle Cloud interface for the GoldenGate service. The top navigation bar includes 'ORACLE Cloud', 'Applications >', and a search bar. The main area is titled 'Deployments in UA_USER Compartment'. On the left, there's a sidebar with 'List Scope' (set to 'Compartment: UA_USER'), 'Filters' (set to 'Any state'), and 'Tag Filters' (empty). The main table has columns 'Name', 'State', 'OCPU Count', and 'Created'. A message at the bottom says 'No items found.' and 'Showing 0 items < 1 of 1 >'. The 'Create Deployment' button is highlighted with a red box.

4. Em Create Deployment, coloque **GGSDeployment** no campo Name.

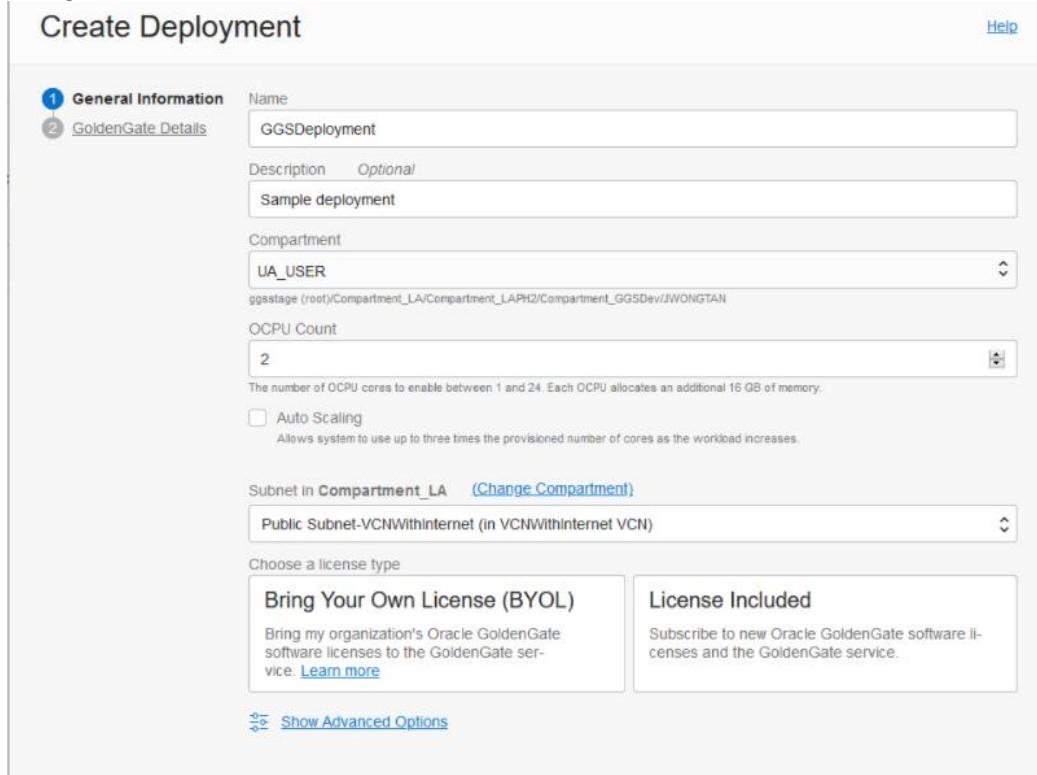
5. No Compartiment dropdown, selecione o seu compartimento.

6. Para OCPU Count, coloque **2**.

7. Para Subnet, selecione **Public Subnet**.

8. Para License type, selecione **Bring You Own License (BYOL)**.

9. Clique em **Show Advanced Options** e então selecione **Create Public Endpoint**.



The screenshot shows the 'Create Deployment' dialog. It has two tabs: 'General Information' (selected) and 'GoldenGate Details'. In 'General Information', the 'Name' field is 'GGSDeployment' and the 'Description' field is 'Optional: Sample deployment'. In 'GoldenGate Details', the 'Compartment' is 'UA_USER', 'OCPU Count' is '2', and 'Subnet in Compartment_LA' is 'Public Subnet-VCNwithInternet (in VCNwithInternet VCN)'. At the bottom, there's a 'Show Advanced Options' button.

10. Clique em **Next**.

11. Em GoldenGate Instance Name, coloque **ogginstance**.

12. Em Administrator Username, coloque **oggadmin**.

13. Em Administrator Password, escolha uma senha e tome nota dela para usar posteriormente.

14. Clique em **Create**.

STEP 2: Reveja os detalhes do Deployment.

Na página Deployment Details, você pode:

- Revise o status da implantação
- Inicie o console de implantação de serviço GoldenGate
- Edite o nome ou descrição do deployment
- Pare e inicie o deployment
- Mova o deployment para um compartimento diferente
- Revise as informações de recursos do deployment
- Adicione tags

The screenshot shows the Oracle Cloud Deployment Details page for a deployment named 'GGDeployment'. The deployment is currently active. The 'Deployment Information' tab is selected, showing details like Name: OGGInstance, Console URL: https://mgmtcpge1.us-phoenix.oraclecloud.com, Version: Latest Version, Username: ogginstance, and OCPU Count: 1. The 'Metrics' section displays CPU Utilization and OCPU Consumption graphs for the last hour. The 'Resources' section lists Network Security Groups and Deployment Backups. At the bottom, there are links for Terms of Use and Privacy and Cookies Preferences, along with a copyright notice: Copyright © 2021, Oracle and/or its affiliates. All rights reserved.

STEP 3: Inicie a Console do GoldenGate Deployment.

1. Quando o deployment estiver ativo, clique em **Launch Console**.

GoldenGate » Deployments » Deployment Details

GGSDeployment

Sample deployment

ACTIVE

Launch Console Edit Stop Scale More Actions

Deployment Information Tags

General

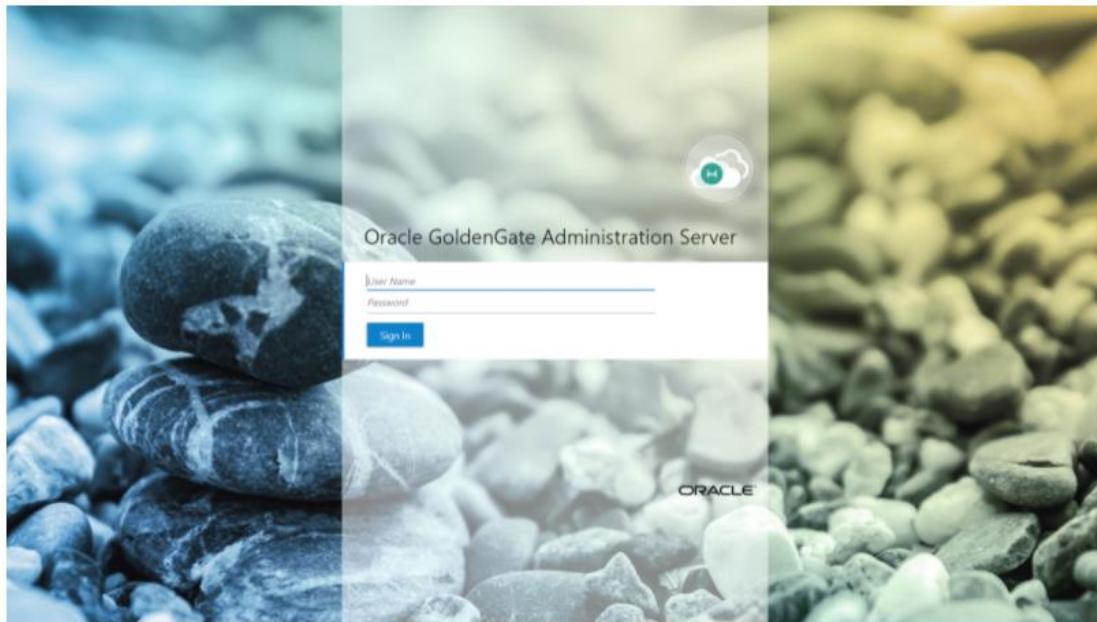
OCID: ...py6l4a Show Copy

Compartment: ggsstage (root)/Compartment_LA/Compartment_LAPH2/Co

Created: Thu, Jan 14, 2021, 15:02:12 UTC

Updated: Thu, Jan 14, 2021, 15:11:30 UTC

2. Para logar no GoldenGate deployment console, coloque o **oggadmin** no User Name e a senha escolhida anteriormente para ele e então clique em **Sign In**.



Depois de fazer login com sucesso, você será levado à página inicial do console GoldenGate Deployment. Aqui, você pode acessar GoldenGate Administration, Performance Metrics, Distribution e Receiver Servers, bem como adicionar Extracts e Replicats para suas tarefas de replicação de dados.

Lab 3.

Registrar os Databases



Lab 3. Registrar os Databases

Objetivos:

Neste laboratório, você registrará os bancos de dados de origem e de destino para implantações do Oracle GoldenGate que serão usadas nas atividades deste Hands On.

STEP 1: Registrar o Source Database (Origem).

1. Clique em **Registered Databases**.

The screenshot shows the Oracle Cloud GoldenGate interface. On the left, there's a sidebar with 'GoldenGate' at the top, followed by 'Deployments' (which is blue), 'Deployment Backups', and 'Registered Databases' (which is highlighted with a red box). Below that is 'List Scope' and a 'Compartment' dropdown set to 'UA_USER'. To the right, the main area is titled 'Deployments in UA_USER Compartment'. It has a 'Create Deployment' button and a table with columns 'Name' and 'State'. There are two empty rows in the table.

2. Clique em **Register Database**.

This screenshot shows the same Oracle Cloud GoldenGate interface as the previous one, but with a different focus. The 'Registered Databases' link in the sidebar is now blue, indicating it's selected. The main area is titled 'Registered Databases in UA_USER Compartment'. It features a 'Register Database' button (which is highlighted with a red box) and a table with 'Name' and 'State' columns. The compartment dropdown is still set to 'UA_USER'. The sidebar also includes 'Deployments', 'Deployment Backups', 'List Scope', and the 'Compartment' dropdown.

3. No painel de Registrar Database, para **Name** e **Alias**, coloque **SourceATP**.
4. Na seleção de Compartment dropdown, coloque o compartimento correto.
5. Clique em **Select Database**.
6. Em **Database Type** dropdown, selecione **Autonomous Database**.
7. Para o **Autonomous Database in compartment**, clique em **Change Compartment**, selecione a instância ATP criada para este lab, ou seja, a **ATPSource**. Algumas opções a mais de banco de dados podem aparecer, dependendo do conteúdo no Compartimento selecionado.

8. Entre com a senha no campo **Password**, clique em **Register**.

Register Database

[Help](#)

Name
SourceATP

Alias Name
SourceATP

Description *Optional*

Compartment
LL6150-COMPARTMENT

c4u03 (root)/Livelabs/LL6150-COMPARTMENT

Select Database
 Enter Database Information

Database Type
Autonomous Database

Database in LL6150-COMPARTMENT [\(Change Compartment\)](#)
SourceATP6150

Database FQDN
adb.us-ashburn-1.oraclecloud.com

Database User Name *Read-Only*
ggadmin

Database User Password

Network Connectivity via Private Endpoint
[Show Advanced Options](#)

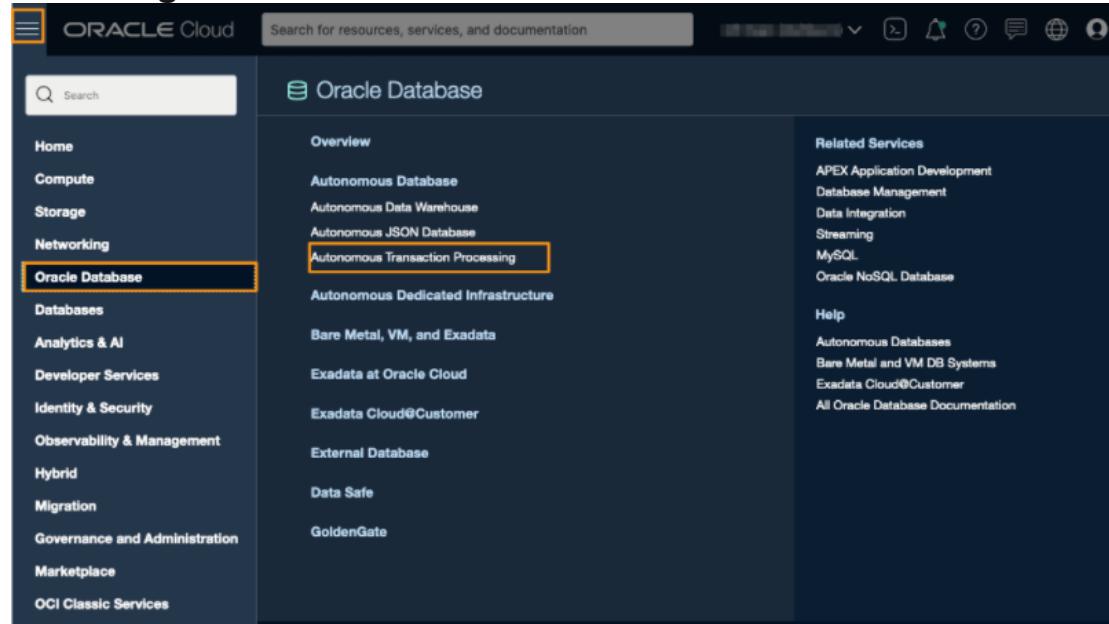
[Register](#) [Cancel](#)

O Database aparecerá como ativo depois de alguns minutos.

STEP 2: Habilite o usuário ggadmin no Source Database.

Embora o usuário **ggadmin** seja criado durante o processo de registro do banco de dados, ele é desabilitado por padrão. As etapas a seguir orientam como habilitá-lo.

1. Clique em **Navigation Menu** na parte de cima, à esquerda, navegue para **Oracle Database** e selecione o **Autonomous Transaction Processing**.



The screenshot shows the Oracle Cloud navigation menu. The left sidebar has a 'Navigation Menu' with various service categories. The 'Oracle Database' category is highlighted with an orange box. Under 'Oracle Database', there are several sub-options: Overview, Autonomous Database, Autonomous Data Warehouse, Autonomous JSON Database, Autonomous Transaction Processing (which is also highlighted with an orange box), Autonomous Dedicated Infrastructure, Bare Metal, VM, and Exadata, Exadata at Oracle Cloud, Exadata Cloud@Customer, External Database, Data Safe, and GoldenGate. To the right of the main content area, there's a 'Related Services' section listing APEX Application Development, Database Management, Data Integration, Streaming, MySQL, and Oracle NoSQL Database. Below that is a 'Help' section with links to Autonomous Databases, Bare Metal and VM DB Systems, Exadata Cloud@Customer, and All Oracle Database Documentation.

2. Da lista de Databases, selecione a **ATPSource**.
3. Na página de detalhes da ATPSource Database, clique em **Tools**, e então selecione **Open Database Actions**.
4. Logue em **Database Actions** utilizando o ADMIN conforme senha provisionada nos passos anteriores.
5. Abaixo de **Administration**, clique em **Database Users**.
6. Da lista de usuários, localize o **GGADMIN** e então clique nos três pontinhos e selecione o **Edit**.



The screenshot shows the 'Database Users' page for the ATPSource database. It displays a list of users, with 'GGADMIN' being the first entry. The user details shown include a blue circular icon with a magnifying glass and padlock, the username 'GGADMIN', and a note that 'Password Expires in 359 days'. To the right of the user list, there is a red-bordered square containing three vertical dots, which is the 'Edit' icon mentioned in the steps.

7. No painel do **Edit User**, retire o clique da opção **Account is Locked**, coloque a senha do usuário **ggadmin** user escolhida nos passos anteriores e então clique em **Apply Changes**.

Edit User

User

User Name * GGADMIN

New Password Account is Locked

Confirm Password

REST Enable

Authorization required

Graph Enable

REST Alias

URL Mapping Type BASE_PATH

Observe que o ícone do usuário muda de um cadeado azul para uma marca de seleção verde.

8. Saia de **Database Actions**.

STEP 3: Registre o Database Target (destino) e habilite o ggadmin user.

Agora, siga as etapas abaixo para registrar a instância de destino do Autonomous Data Warehouse (ADW).

1. Na página **Registered Databases**, clique em **Register Database**.

2. No painel de **Register Database**, coloque **TargetADW** em **Name** e **Alias**.
3. Em **Compartment** dropdown, selecione o compartimento correto.
4. Clique em **Select Database**.
5. Para o **Autonomous Database in *compartment***, clique em **Change Compartment**, selecione o compartimento em que o ADW foi criado, e então selecione o **ADWTtarget** na lista. Algumas opções a mais de banco de dados podem aparecer, dependendo do conteúdo no Compartimento selecionado.
6. Coloque a senha escolhida durante a criação do usuário e então clique em **Register**.

Register Database

[Help](#)

Name	<input type="text" value="TargetADW"/>
Alias Name	<input type="text" value="TargetADW"/>
Description <small>Optional</small>	<input type="text" value="ADW Connection"/>
Compartment	<input style="background-color: #f0f0f0; border: none; padding: 0 10px; height: 1.2em;" type="text" value="UA_USER"/> ggsstage (root)/Compartment_LA/Compartment_LAPH4/GGSDEV/UA_USER
<input checked="" type="radio"/> Select Database <input type="radio"/> Enter Database Information	
Database Type	<input style="background-color: #f0f0f0; border: none; padding: 0 10px; height: 1.2em;" type="text" value="Autonomous Database"/> ▼
Autonomous Database in Compartment_LA (Change Compartment)	
<input style="background-color: #f0f0f0; border: none; padding: 0 10px; height: 1.2em;" type="text" value="DB 202011161920"/> ▼	
Database FQDN	<input type="text" value="adb.us-phoenix-1.oraclecloud.com"/>
Database User Name <small>Read-Only</small>	<input type="text" value="ggadmin"/>
Database User Password	<input type="password" value="*****"/>
Database Wallet	<div style="border: 1px dashed #ccc; padding: 5px; margin-bottom: 10px;"> Drop a file or select one <small>Autonomous database cloud wallet file only</small> </div> <div style="border: 1px solid #ccc; padding: 2px; background-color: #f0f0f0; display: inline-block;">Wallet_DB202011161920.zip ×</div> <p><input type="checkbox"/> Network Connectivity via Private Endpoint</p>
Register Cancel	

Os bancos de dados de origem e destino aparecerão na lista de bancos de dados registrados. Após alguns minutos, ambos estarão ativos.

7. Repita as instruções do STEP 2 para habilitar o usuário **ggadmin** no **TargetADW** database.

Lab 4.

Criar e Executar o Extract e o Replicat



Lab 4. Criar e executar o Extract e o Replicat

Objetivos:

- Logar no Oracle GoldenGate deployment console
- Adicionar um transaction data e uma checkpoint table
- Adicionar e executar um Extract
- Adicionar e executar um Replicat

STEP 1: Logar na Oracle GoldenGate deployment console

1. Logar no Oracle Cloud Infrastructure, abrir o menu de navegação, E então selecione o **GoldenGate** das opções do **Oracle Database** services.
2. Na página de Deployments, selecione o **GGSDeployment**.
3. Na página de Deployment Details, clique em **Launch Console**.

GoldenGate » Deployments » Deployment Details

GGSDeployment

Sample deployment

ACTIVE

Launch Console Edit Stop Scale More Actions ▾

Deployment Information Tags

General

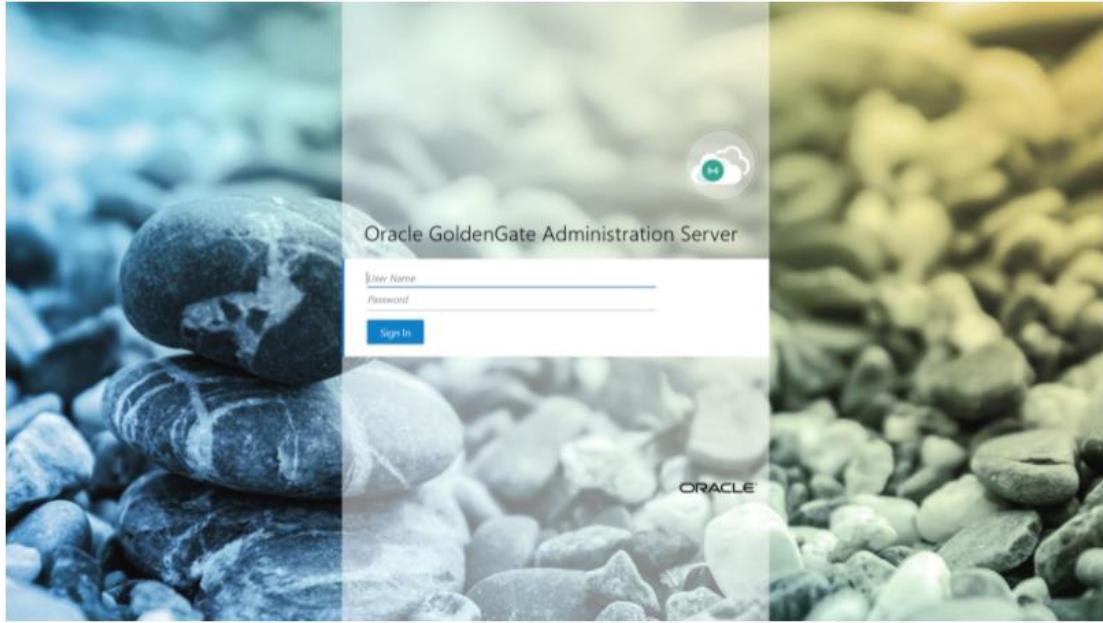
OCID: ...py6l4a [Show](#) [Copy](#)

Compartment: ggsstage (root)/Compartment_LA/Compartment_LAPH2/Cor

Created: Thu, Jan 14, 2021, 15:02:12 UTC

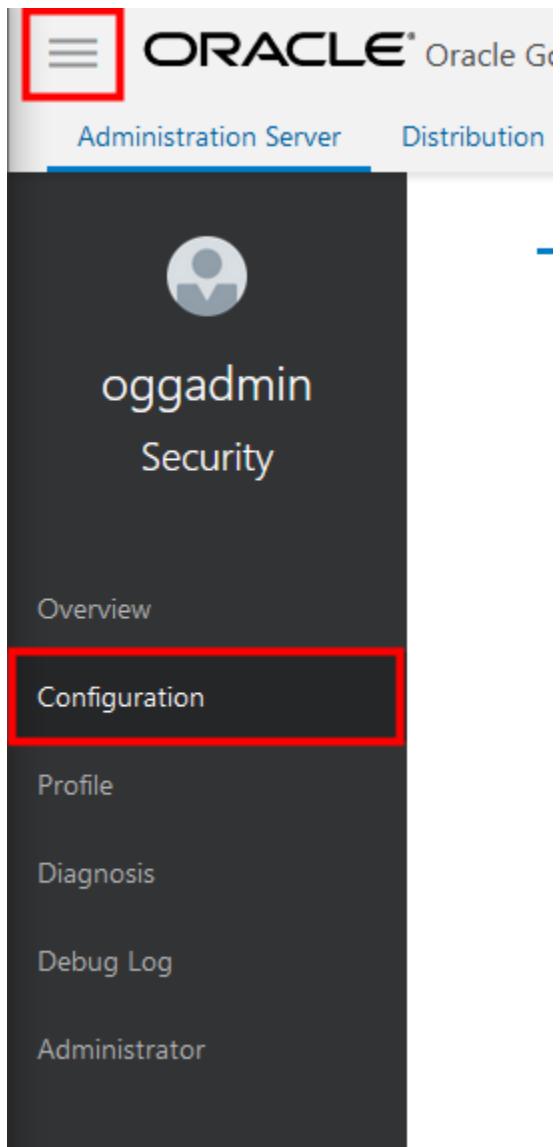
Updated: Thu, Jan 14, 2021, 15:11:30 UTC

4. Na OCI GoldenGate Deployment Console, coloque o usuário **oggadmin** em User Name e a senha escolhida na criação do mesmo, nos passos anteriores, e clique em **Sign In**.



STEP 2: Adicionar uma Transaction Data e uma Checkpoint Table

1. Abra o Menu no navegador e clique em **Configuration**.



2. Clique em Connect to database SourceATP.

Credentials			Action
Domain	Alias	User ID	
OracleGoldenGate	SourceATP1	oggadmin@(description=(RECV_TIMEOUT=120)(retry_count=20)(retry_delay=3)(address=(protocol=tcp)(port=1522)(host=adb.us-phoenix-1.oracledcloud.com))(connect_data=(service_name=nfbhehbknutwv_db202101211247_low.adb.oracledcloud.com))(security=(MY_WALLET_DIRECTORY='/u02/databases/oid1.goldengatedatabaseregistration.oc1.phx.amaaaaaaa224u2iaalvsrlfpdgig3qknnssqd54zaunj6dey2ht4qtklywhora')(SSL_SERVER_DN_MATCH=TRUE)(ssl_server_cert_dn='CN=adwc.uscom-east-1.oracledcloud.com.OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=California,C=US'))	
OracleGoldenGate	TargetADW	oggadmin@(description=(RECV_TIMEOUT=120)(retry_count=20)(retry_delay=3)(address=(protocol=tcp)(port=1522)(host=adb.us-phoenix-1.oracledcloud.com))(connect_data=(service_name=nfbhehbknutwv_db202011161920_low.adb.oracledcloud.com))(security=(MY_WALLET_DIRECTORY='/u02/databases/oid1.goldengatedatabaseregistration.oc1.phx.amaaaaaaa224u2iaar35sxitb4hg65qt7xgrgmbqb6gowtpvuzd32bnhzq')(SSL_SERVER_DN_MATCH=TRUE)(ssl_server_cert_dn='CN=adwc.uscom-east-1.oracledcloud.com.OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=California,C=US'))	

For connecting to a database and managing Checkpoint Tables, Transaction Information and Heartbeat Table, please click [here](#).

3. Próximo à TRANDATA Information clique em Add TRANDATA.

TRANDATA Information +

Schema Table Procedure

🔍 ✖

4. Em **Schema Name**, coloque **SRC_OCIGGLL**, e então clique em **Submit**.
5. Para verificar, você pode colocar **SRC_OCIGGLL** no campo de pesquisa e clicar em **Search**.

The screenshot shows the 'TRANDATA Information' interface. A search bar at the top contains 'SRC_OCIGGLL'. Below it, a table has one row with the same value in the 'Schema Name' column. The table includes columns for 'Schema Name', 'Prepared tables for instantiation', and a row number '6'.

Schema Name	Prepared tables for instantiation	6
SRC_OCIGGLL		

6. Clique em **Connect to database TargetADW**.

The screenshot shows the 'Credentials' page. It lists two entries: 'SourceATP1' and 'TargetADW'. The 'TargetADW' entry is highlighted with a red box around its 'Action' column. Below the table, a note says: 'For connecting to a database and managing Checkpoint Tables, Transaction Information and Heartbeat Table, please click' with a small icon.

Domain	Alias	User ID	Action
OracleGoldenGate	SourceATP1	ggadmin@{description=(RECV_TIMEOUT=120)(retry_count=20)(retry_delay=3)(address=(protocol=tcp)(port=1522)(host=adb.us-phoenix-1.oracledcloud.com))(connect_data=(service_name=nfbhehbknutww_dh20210211247_low.adb.oracledcloud.com)(security=(MY_WALLET_DIRECTORY='/u02/databases/oid1.goldengatedatabaseregistration.oc1.phx.amaaaaaaa224u2iaalvsfpdriggi3qknnssqd54zaubj6dey2h14q6kywhbra')(SSL_SERVER_DN_MATCH=TRUE)(ssl_server_cert_dn="CN=adwc.uscom-east-1.oracledcloud.com.OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=California,C=US"))}	
OracleGoldenGate	TargetADW	ggadmin@{description=(RECV_TIMEOUT=120)(retry_count=20)(retry_delay=3)(address=(protocol=tcp)(port=1522)(host=adb.us-phoenix-1.oracledcloud.com))(connect_data=(service_name=nfbhehbknutww_dh20211161920_low.adb.oracledcloud.com)(security=(MY_WALLET_DIRECTORY='/u02/databases/oid1.goldengatedatabaseregistration.oc1.phx.amaaaaaaa224u2ia3r5sxibt4hgj65qt7ax6rgmbqb6gjowtqvud32brhzq')(SSL_SERVER_DN_MATCH=TRUE)(ssl_server_cert_dn="CN=adwc.uscom-east-1.oracledcloud.com.OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=California,C=US"))}	

7. Próximo ao Checkpoint, clique em **Add Checkpoint**.

The screenshot shows the 'Checkpoint' page. It displays a table of existing checkpoints. The first row, 'SRCMIRROR_SUSERTEST"."CHECKTABLE", is highlighted with a red box around its 'Action' column. A red box also highlights the 'Add Checkpoint' button at the top left of the table area.

Checkpoint Table	Action
"SRCMIRROR_SUSERTEST"."CHECKTABLE"	
"OCIGGS_SRC_MIRROR_USER_SNURSE"."CHECKTABLE"	
"OCIGGS_SRC_MIRROR_USER_JPEREYDA"."CHECKTABLE"	
"SRCMIRROR_TEST2"."CHECKTABLE"	

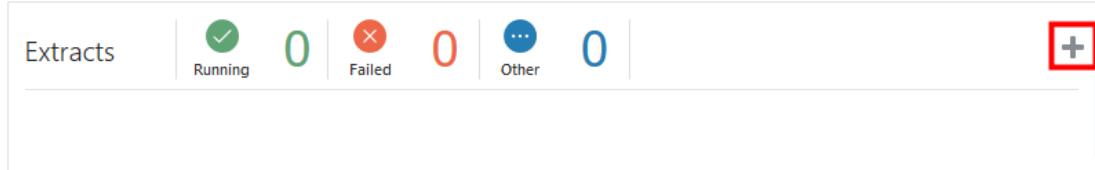
8. Em **Checkpoint Table**, coloque "**SRCMIRROR_OCIGGLL"."CHECKTABLE**", e então clique em **Submit**.

A dialog box is shown with a question mark icon and the text: '* Checkpoint Table: 'SRCMIRROR_OCIGGLL"."CHECKTABLE''. Below the dialog are two buttons: 'Cancel' and 'Submit'.

Para retornar à GoldenGate Deployment Console Home page, clique em **Overview** ao lado esquerdo do navegador.

STEP 3: Adicionar e Executar um Extract

1. Na página GoldenGate Deployment Console Home, selecione o botão mais (+) em **Extracts**.



2. Na página para Add Extract, selecione **Integrated Extract**, e então clique em **Next**.
3. No campo **Process Name**, escreva **UAEXT**.
4. No campo **Trail Name**, escreva **E1**.

The screenshot shows the 'Add Extract' wizard with three steps: Extract Type (Step 1), Extract Options (Step 2), and Parameter File (Step 3). The 'Basic Information' section is displayed. The 'Process Name' field contains 'UAEXT' and the 'Trail Name' field contains 'E1', both of which are highlighted with red boxes.

5. Abaixo do **Source Database Credential**, em **Credential Domain**, selecione o **OracleGoldenGate**.

6. Em **Credential Alias**, selecione o **SourceATP**.

The screenshot shows the 'Source Database Credential' configuration page. It features two dropdown menus: 'Credential Domain' set to 'OracleGoldenGate' and 'Credential Alias' set to 'SourceATP', both highlighted with red boxes.

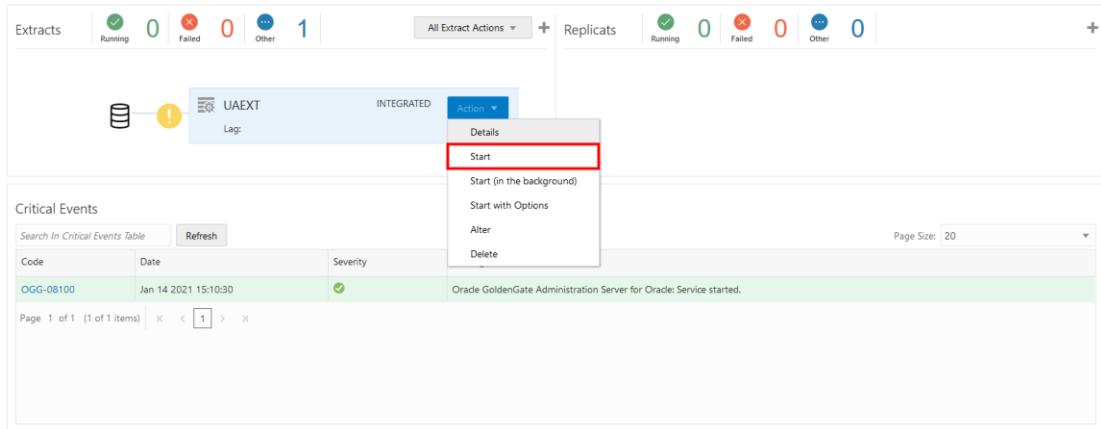
7. Abaixo de Managed Options, habilite o **Critical to deployment health**.
8. Clique em **Next**.

9. Na página do Parameter File, na área de texto, adicione uma nova linha com o seguinte:

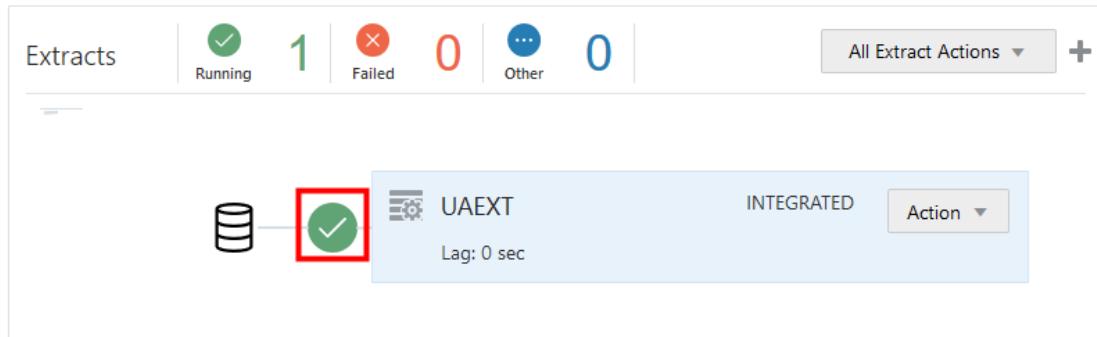
```
Table SRC_OCIGGLL.*;
```

10. Clique em **Create**. Você retornará para a OCI GoldenGate Deployment Console Home page.

11. No menu da UAEXT **Actions**, selecione **Start**. No box de confirmação, clique em **OK**.



A exclamação amarela mudará para verde, assim que concluído o processo.



STEP 4: Adicionar e Executar um Replicat

1. Na página GoldenGate Deployment Console Home, selecione o botão mais (+) em **Replicats**.



2. Na página Add Replicat, selecione **Nonintegrated Replicat**, e então clique em **Next**.
3. Na página Replicate Options, no campo **Process Name**, coloque **Rep**.
4. Em **Credential Domain**, selecione **OracleGoldenGate**.
5. Em **Credential Alias**, selecione **TargetADW**.
6. No campo **Trail Name**, coloque **E1**.
7. Em **Checkpoint Table**, selecione "**SRCMIRROR_OCIGGLL**","**CHECKTABLE**".

Basic Information

Process Name: Rep

Description:

Intent: Unidirectional

Create new credential

Credential Domain: OracleGoldenGate

Credential Alias: TargetADW

Source: Trail

Trail Name: E1

Trail Subdirectory:

Begin: Position in Log

Transaction Log Sequence Number: 0

Transaction Log RBA Offset: 0

Checkpoint Table: "SRCMIRROR_OCIGGLL"."CHECK...

8. Abaixo de **Managed Options**, habilite o **Critical to deployment health**.

9. Clique em **Next**.

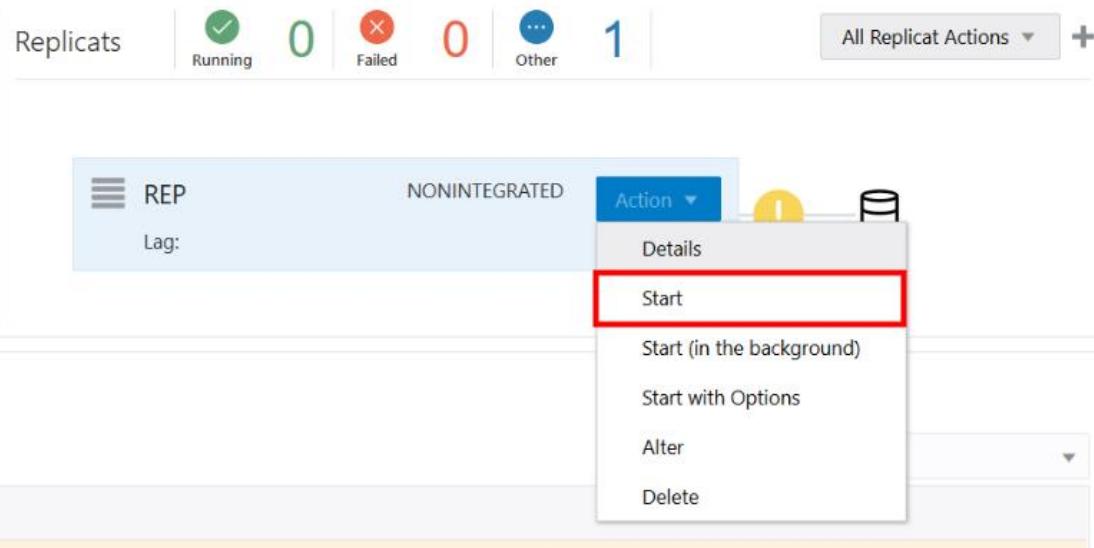
10. Em **Parameter File** text area, substitua o “**MAP *.* , TARGET *.*/;** para “**MAP SRC_OCIGGLL.* , TARGET SRCMIRROR_OCIGGLL.*;**”

Parameter File 

```
REPLICAT Rep
USERIDALIAS TargetADW DOMAIN OracleGoldenGate
MAP SRC_OCIGGLL.* , TARGET SRCMIRROR_OCIGGLL.*;
```

11. Clique em **Create**.

12. No menu Rep Replicat **Action**, selecione **Start**.



A exclamação amarela mudará para verde, assim que concluído o processo.

Lab 5.

Monitorar Extracts e Replicats



Lab 5. Monitorar Extrats e Replicats

Objetivos:

- Visualize gráficos e estatísticas usando o Performance Metrics Server no console de implantação GoldenGate
- Use Metrics na página Deployment Details no Oracle Cloud Infrastructure Console para determinar a integridade e utilização geral da instância

STEP 1: Usando o Performance Metrics Server

1. Na console do GoldenGate deployment, clique em **Performance Metrics Server**.

The screenshot displays the Oracle GoldenGate Services 21.1.0.0.0 for Oracle (OGGInstance) interface. The 'Performance Metrics Server' tab is selected. At the top, there is a navigation bar with four tabs: 'Administration Server', 'Distribution Server', 'Performance Metrics Server' (which has a red box around it), and 'Receiver Server'. Below the navigation bar, there is a summary bar for 'Extracts' with three categories: 'Running' (1), 'Failed' (0), and 'Other' (0). There is also a 'All Extract Actions' dropdown and a '+' button. The main content area is titled 'GoldenGate Processes' and contains a table with six rows, each representing a process: 'Admin Server' (Running, ADMINSRVR), 'Dist. Server' (Running, DISTSRVR), 'PM Server' (Running, PMSRVR), 'Recv. Server' (Running, RECVSRVR), 'Replicat' (Running, REP), and 'Extract' (Running, UAEXT). Each row has a green status icon and the name followed by 'Running'.

Nota: Você também pode visualizar performance details para Administration, Distribution, e Receiver Servers, bem como quaisquer processos criados.

2. Clique em Extract para ver os detalhes da performance.

The screenshot shows the Oracle GoldenGate Services 21.1.0.0.0 for Oracle (OGGInstance) interface. The 'Performance Metrics Server' tab is selected. The 'GoldenGate Processes' section displays six processes: Admin Server (Running, PID 12,754), Dist. Server (Running, PID 37,941), PM Server (Running, PID 19), Recv. Server (Running, PID 702), Replicat (Running, PID 0), and Extract (Running, PID 133,544). The Extract process is highlighted with a red box.

3. Clique em Database Statistics.

The screenshot shows the 'Database Statistics' tab for the UAEXT process. It displays various performance metrics:

Metric	Value
Process ID	12,754
I/O Reads	37,941
Reads Delta	19
Page Faults	133,544
Threads	13
I/O Writes	702
Writes Delta	0
Page Faults Delta	15
Handles	N/A
I/O Other	N/A
Other Delta	0
Working Set Size	599M
Kernel Time (ms)	1,790
Read Bytes	399M
Read Bytes Delta	6K
WSS Delta	0 Bytes

Below the table, there are legends for Kernel, User, Total, RSS, VM, Peak RSS, and Page Faults.

Aqui, você pode ver as estatísticas do banco de dados em tempo real, como Inserts, Updates, Deletes e assim por diante.

4. Repita os passos 1-3 para ver o snapshot do Replicats (chamado de **Rep** no seu lab) Database Statistics.

STEP 2: Visualizando o GoldenGate Metrics na Console do OCI

1. Na página do OCI GoldenGate Deployments, selecione o **GGSDeployment**.
2. Na página de detalhes do GGSDeployment, role para baixo até **Metrics** section.

The screenshot shows the Oracle Cloud interface for a deployment named 'GGDeployment'. The deployment is marked as 'ACTIVE' and has a green circular icon with 'GG' on it. The 'Metrics' tab is highlighted with a red box. Two charts are displayed: 'CPU Utilization' and 'OCPU Consumption'. The CPU Utilization chart shows a mean value of approximately 2% over a 5-minute interval. The OCPU Consumption chart shows a mean value of approximately 1.5 over a 5-minute interval.

3. Revise os gráficos **DeploymentInboundLag** e **DeploymentOutboundLag**.
4. Refresh a visualização após 5 minutos para ver as métricas atualizadas.