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OCI Database Migration Service: Tutorial for online migration of AWS RDS for Oracle to Oracle Autonomous Database-Shared

For migration scenarios where your application must remain online, and your source database has a direct connection to OCI.

Purpose statement

This document walks you through all the steps required to migrate an existing AWS RDS for Oracle database to an OCI Autonomous database (ADB). You will provision a Virtual Cloud Network (VCN) and an ADB instance to be used as a target then you will perform a database migration using Oracle Cloud Infrastructure Database Migration (DMS).

With DMS we make it quick and easy for you to migrate databases from on-premises, Oracle, or third-party cloud into Oracle databases on OCI.

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Introduction to OCI Database Migration – DMS

OCI Database Migration (DMS) provides a high performant, self-service experience to achieve migrations, which include:

- Migration of data from on-premises, Oracle, or 3rd party cloud databases into Oracle databases on OCI.
- Logical Online and Offline Migration providing enterprise-level migration with minimal downtime and on-premises to cloud migration.

The service is based on industry leading GoldenGate replication and Zero Downtime Migration engine.

DMS Documentation:

Review the documentation here.

Assumptions:

- There is an existing AWS RDS for Oracle instance with Oracle Enterprise Edition, version 19 was selected for this exercise. The following link contains more information on how to create one.
- Database archiving mode set to ARCHIVELOG, this happens automatically when automated backups are enabled by setting the backup retention period to a value greater than 0.
- Set the instance as Publicly accessible.
- Selected architecture for this exercise is Non-CDB. Learn more about RDS for Oracle architecture at the following link.
- Amazon S3 integration is enabled, the database can transfer files between RDS for Oracle DB instance and an Amazon S3 bucket. To learn more, check the following link.

Task 0: Understand New DMS Concepts

DMS provides a fully managed approach to migrating databases from various locations into OCI-hosted databases.

Migrations can be either one of the following modes:

- **Offline**: The Migration makes a point-in-time copy of the source to the target database. Any changes to the source database during migration are not copied, requiring any applications to stay **offline** for the duration of the migration.
- **Online**: The Migration makes a point-in-time copy and replicates all subsequent changes from the source to the target database. This allows applications to stay **online** during the migration and then be switched over from source to target database.

DMS supports both offline and online mode. The service supports Oracle databases located on-premises, in 3rd party clouds, or on Oracle OCI as source. The targets can be Oracle Autonomous Database shared or dedicated and Oracle Cloud Infrastructure co-managed Oracle Base Database service (Oracle Base Database (VM, BM) and Exadata on Oracle Public Cloud).

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The DMS service runs as a managed cloud service separate from the user's tenancy and resources. The service operates as a multi-tenant service in a DMS Service Tenancy and communicates with the user's resources using Private Endpoints (PEs). PEs are managed by DMS and are transparent to the user.
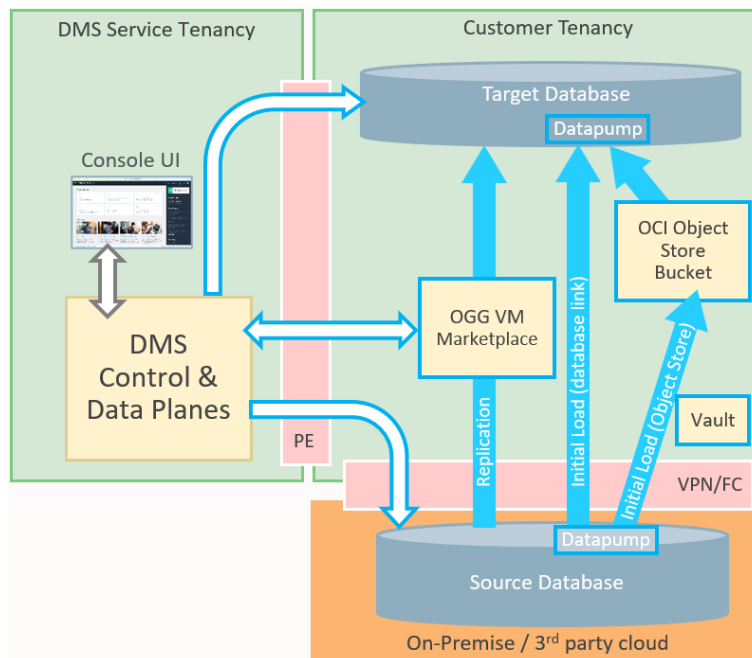
DMS Simplified Topology

Compartment: A compartment is a collection of related resources (such as cloud networks, compute instances, or block volumes) that can be accessed only by those groups that have been given permission by an administrator in your organization. For example, one compartment could contain all the servers and storage volumes that make up the production version of your company's Human Resources system. Only users with permission to that compartment can manage those servers and volumes.

Data region: A geographical region that's associated with one or more data centers. When you sign up for an Oracle Cloud account, you select a default data region, where your services will be hosted.

DMS Control Plane: Used by DMS end user to manage Migration and Registered Database objects. The control plane is exposed through the DMS Console UI as well as the Rest API.

DMS Data Plane: Managed by DMS Control Plane and transparent to the user. The GGS Data Plane manages ongoing migration jobs and communicates with the user's databases and GoldenGate instance using PEs. The DMS data plane does not store any customer data, as data flows through GoldenGate and Data Pump directly within the user's tenancy.

Migration: A Migration contains metadata for migrating one database. It contains information about source, target, and migration methods and is the central object for users to run migrations. After creating a migration, a user can

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validate the correctness of the environment and then run the migration to perform the copy of database data and schema metadata from source to target.

Migration Job: A Migration Job displays the state or a given Migration execution, either for validation or migration purposes. A job consists of several sequential phases, users can opt to wait after a given phase for user input to resume with the following phase.

Registered Database: A Registered Database represents information about a source or target database, such as connection and authentication credentials. DMS uses the OCI Vault to store credentials. A registered database is reusable across multiple Migrations.

Task 1: Have the Administrator Set Required Permissions

The following permissions need to be set to have access to the necessary objects unless you have administrative privileges. The following permissions assume that the user is part of group DMS_LA and all resources are created in a compartment called DMS_LA. Have your tenancy administrator set these permissions.

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PERMISSIONS REQUIRED BY DMS TO USE DATABASES, VAULTS, AND NETWORKING

```
Allow group DMS_LA to inspect compartments in tenancy
Allow group DMS_LA to inspect tenancies in tenancy
Allow group DMS_LA to inspect tenancies in tenancy where request.operation='GetTenancy'
Allow group DMS_LA to manage autonomous-database-family in compartment DMS_LA
Allow group DMS_LA to manage database-family in compartment DMS_LA
Allow group DMS_LA to manage instance-family in compartment DMS_LA
Allow group DMS_LA to manage keys in compartment DMS_LA
Allow group DMS_LA to manage object-family in compartment DMS_LA
Allow group DMS_LA to manage odms-connection in tenancy
Allow group DMS_LA to manage odms-job in tenancy
Allow group DMS_LA to manage odms-migration in tenancy
Allow group DMS_LA to manage public-ips in compartment DMS
Allow group DMS_LA to manage secret-family in compartment DMS_LA
Allow group DMS_LA to manage vaults in compartment DMS_LA
Allow group DMS_LA to manage virtual-network-family in compartment DMS_LA
```

PERMISSIONS REQUIRED TO CREATE OGG MARKETPLACE IMAGE

```
Allow group DMS_LA to use tag-namespaces in tenancy
Allow group DMS_LA to manage app-catalog-listing in tenancy
Allow group DMS_LA to use volume-family in compartment DMS_LA
```

Task 2: Sign in and Open DMS Console

To perform this learning path, you need to have access to an OCI tenancy with access to a region where DMS is released, such as the US-Ashburn-1 region. Please review https://www.oracle.com/cloud/data-regions/ for available regions.

1. Open browser with URL https://console.us-ashburn-1.oraclecloud.com/ (Adjust for home region)
2. Log in using your tenancy name and username/password.
3. In the OCI console title bar change region if applicable.

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Task 3: Create Virtual Cloud Network

The following task is optional if a suitable VCN is already present.

1. In the OCI Console Menu, go to Networking > Virtual Cloud Networks

2. Pick a compartment on the left-hand side Compartment list. You need to have the necessary permissions for the compartment.

3. Press Start VCN Wizard and pick VCN with Internet Connectivity.

4. Enter a VCN Name, such as VCN_DMS_LA. Leave CIDR block defaults, unless you need non-overlapping addresses for peering later. Press Next.

5. Review Summary and press Create.

Task 4: Update Security List for Virtual Cloud Network Subnet

This task assumes default permissions in your public subnet. If you disabled or restricted your default permissions such as port 22 SSH access or restricted egress, please add default permissions as needed.

1. In the OCI Console Menu, go to **Networking > Virtual Cloud Networks** and pick your VCN.

2. In the Subnets list, pick Public Subnet-*VCN NAME*.

3. In the Security Lists list, pick Default Security List for *VCN NAME*.

4. In the Ingress Rules list press Add Ingress Rules.

5. Enter the following values, otherwise leave defaults:

6. Source CIDR: 0.0.0.0/0

7. Destination Port Range: 443

8. Description: OGG HTTPS

9. Close dialog by pressing **Add Ingress Rules**.

10. In the Ingress Rules list press Add Ingress Rules.

11. Enter the following values, otherwise leave defaults:

12. Source CIDR: **10.0.0.0/16**

13. Destination Port Range: **1521**

14. Description: Oracle DB access for PEs

15. Close dialog by pressing **Add Ingress Rules**.

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Task 5: Create Vault

The following task is optional if a Vault is already present.

1. In the OCI Console Menu, go to **Identity & Security > Vault**.
2. Pick a compartment on the left-hand side **Compartment** list.
3. Press Create Vault.
4. In the **Create Vault** dialog, enter a Name such as **DMS_Vault**.
5. Close the dialog by pressing **Create Vault**.
6. Wait until the state of the new vault is **Active**.
7. Click on the new vault and press **Create Key** in the **Master Encryption Keys** list.
8. In the **Create Key** dialog, enter a Name such as **DMS_Key**.
9. Close the dialog by pressing **Create Key**.

Task 6: Identify the RDS instance details

First find the endpoint (DNS name) and port number for the RDS DB instance.
Navigation: Amazon RDS homepage>Databases>Your DB> **Connectivity & security tab**:

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* OCI Database Migration needs an IP address, the following command nslookup + RDS Private Endpoint should show a similar response as the following, take note of the IP address:

In the **Configuration** tab, locate the following information:

- **DB name** (not the DB instance ID)
- **Master username**

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Navigate to the AWS Console Home>S3>**buckets**:

Identify the bucket **Name** and **Region**.

Task 7: Create Target Autonomous Database

The following task is optional if a target autonomous database is already present. In the first phase of DMS LA an autonomous database with private IP address is required. In this example the target database is an ATP-shared instance.

1. You first need to create a Network Security Group for use in a Private IP ADB instance. In the OCI Console Menu, go to **Networking > Virtual Cloud Networks** and pick your VCN.

2. In the left-hand **Resources** list, pick **Network Security Groups**.

3. Press **Create Network Security Group**.

4. Enter Name such as **DMS_NSG** and press **Next.**

5. In the **Rule** box please enter the following entries, otherwise leave defaults**:**

   Source Type: CIDR

   Source CIDR: 0.0.0.0/0

6. Press **Create**.

7. Now you can create the ADB instance. In the OCI Console Menu, go to **Oracle Database > Autonomous Database >Autonomous Transaction Processing.**

8. Pick a compartment on the left-hand side **Compartment** list.

9. Press **Create Autonomous Database**.

10. Enter the following values, otherwise leave defaults. You can adjust shapes and storage to your use case.

    - Display Name: TargetATP
    - Database name: TargetATP
    - Create administrator credentials – Password: password of your choice
    - Access Type: Private endpoint access only
    - Virtual cloud network: VCN_DMS_LA (Or your VCN name)
    - Client subnet: Public Subnet-VCN_DMS_LA (Or your subnet name)
    - Network security group: DMS_NGS (Or your NSG name)
    - Choose a license type: Bring Your Own License (BYOL)

11. Close the dialog by pressing **Create Autonomous Database.**

Task 8: Create GoldenGate Marketplace Instance

1. The following task is optional if a suitable GoldenGate instance is already present. This instructions apply for OGG 21c.

2. In the OCI Console Menu, go to Marketplace >Marketplace>All Applications.

3. In the "Search for listings…" field enter GoldenGate.

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4. In the All Applications search results press on the box with Oracle GoldenGate for Oracle –Database Migrations.

5. In the upper right-hand side box, make sure the Compartment is correct, check the "I have reviewed and accept the Oracle Standard Terms and Restrictions" box and press **Launch Stack**.
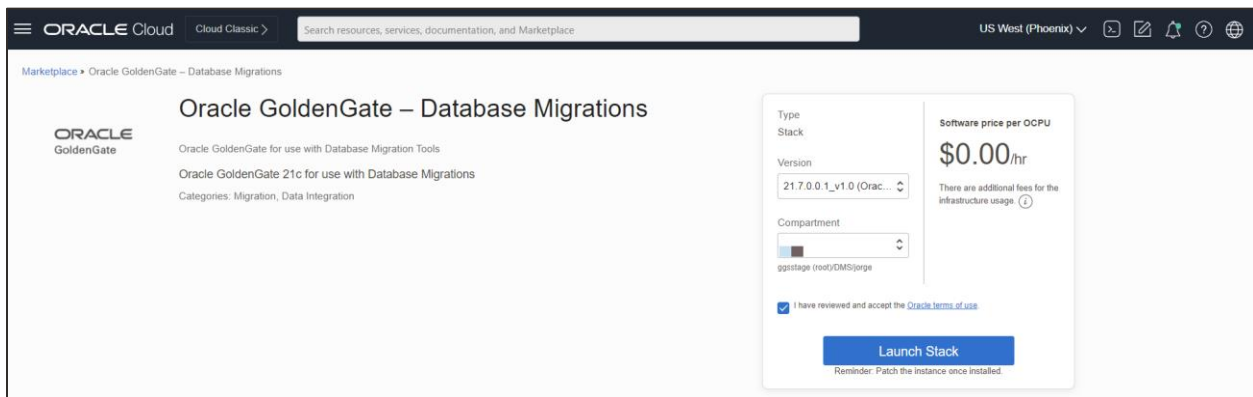
Creating the stack is divided into three stages, Stack Information, Configurable Variables, and Final Review. For the first stage, Stack Information, scroll down to the bottom and click on **Next**
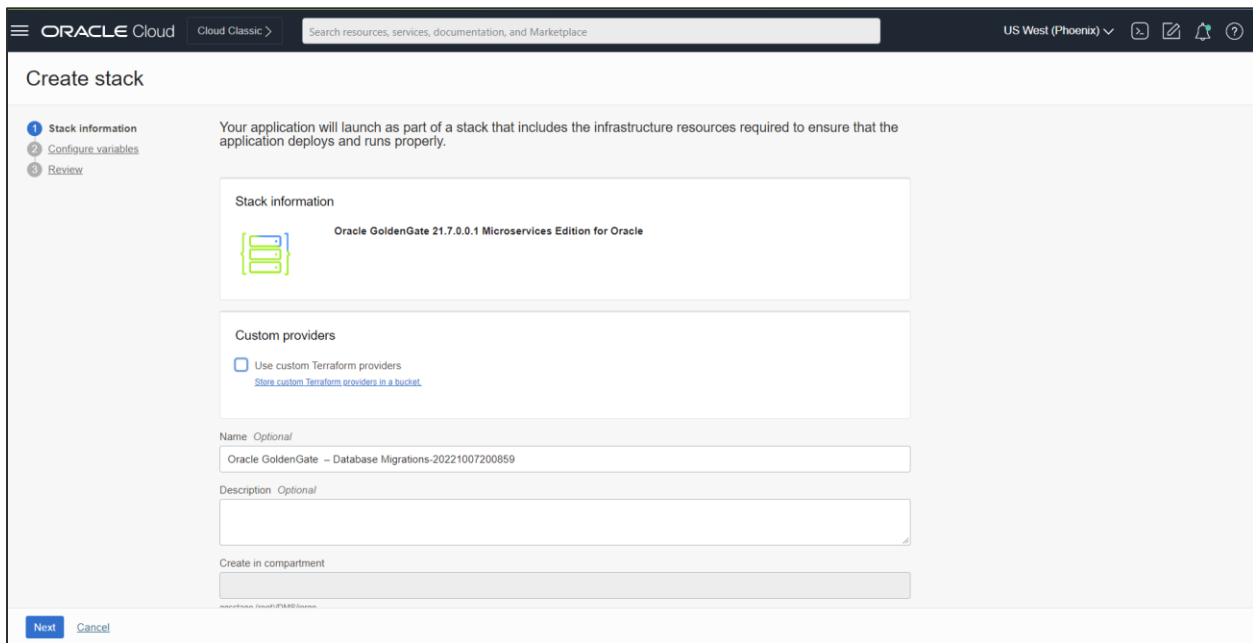
Configure the following variables for section **Name for New Resources**:

- Display Name (As is)
- Host DNS Name, enter oggdms

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Name for New Resources

Display Name

Oracle GoldenGate 21.7.0.0.1 Microservices Edition for Oracle

Display name used to identify all new OCI resources

Host DNS Name *Optional*

oggdms

DNS host name for new instance. Leave blank for the default name or if using a Subnet with DNS disabled.

On **Network Settings** enter the following values, otherwise leave defaults:

- VCN Network Compartment: **DMS_LA** (Or your Compartment)
- VCN: **VCN_DMS_LA** (Or your VCN name)
- Subnet Network Compartment: **DMS_LA** (Or your Compartment)
- Subnet: **Public Subnet-VCN_DMS_LA** (Or your subnet name)

Network Settings

☐ Create New Network

Use this field to indicate whether you want to create new network resources or use existing ones

VCN Network Compartment *Optional*

Choose...

Compartment for new or existing Virtual Cloud Network (VCN)

VCN

-

Existing VCN to use for new instance if not creating a new network

Subnet Network Compartment *Optional*

Choose...

Compartment for new or existing Subnet

Subnet ⓘ

-

Existing Subnet to use for new instance if not creating a new network

Configure the following variables for the section **Instance Settings**, bear in mind that the Availability Domain must be the same as the rest of your resources:

1. Availability Domain: **US-ASHBURN-AD-1** (Adjust for the correct region)
2. Compute Shape: Pick according to your available quota and use case, **VM. Standard2.1** is sufficient for simple use cases
3. Assign Public IP (Check)
4. Check Custom Volume Sizes to save on block storage quota. **50GB** for each volume is sufficient for simple use cases

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Configure the following variables for the section **Create OGG Deployment**:

- Deployment Name, enter **Marketplace** (you will require this when creating the migration)
- Deployment 2 - Autonomous Database (Check)
- Deployment 2 - Autonomous Database Compartment: **DMS_LA** (Or your Compartment)
- Deployment 2 - Autonomous Database Instance: **TargetATP** (Or your ADB instance)

Configure the following variable for the section **Shell Access**:

An SSH key pair is require for logging into GoldenGate. If you don't already have one, please create it.

Important: The key needs to be in RSA key in PEM format, other formats like OpenSSL are currently not supported. You can use a command like:

```
ssh-keygen -t rsa -N "" -b 2048 -m PEM
```

SSH Public Key: Open your *.pub key in an editor and cut and paste the contents into this field.

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Review your entries & Click **Next**

Proceed to do a final review & Click **Create** when ready. Provisioning will take a few minutes. Please follow the logs for additional information. Wait for the Job State to change to Succeeded.

Upon creation, scroll down to the bottom of the logs and copy the **ogg_instance_id,** and the **ogg_public_ip**. Save them for later use, you will require them during the migration.

You will now need to open an SSH terminal to the GoldenGate instance. The instructions are for Unix-style ssh command:
ssh -i <private_key_file> opc@<ogg_public_ip>

(For example: ssh -i ./id_rsa opc@193.122.169.5)

Enter the following command:
```
cat ./ogg-credentials.json
```

The output is like this:
{"username": "**oggadmin**", "credential": "**Xv%p7vUL4DXLKjqv**"}

Copy the credential password (Here: Xv%p7vUL4DXLKjqv) You will need it in the next steps.

In a browser, open the OGG Service Manager home page:
HTTPS://<ogg_public_ip> (For example https://193.122.169.5)

The browser will show warnings that the page is insecure because it uses a self-signed certificate. Ignore those warnings and proceed). On the GoldenGate Service Manager login screen, enter username **oggadmin** and the **password** copied from the credentials file earlier.
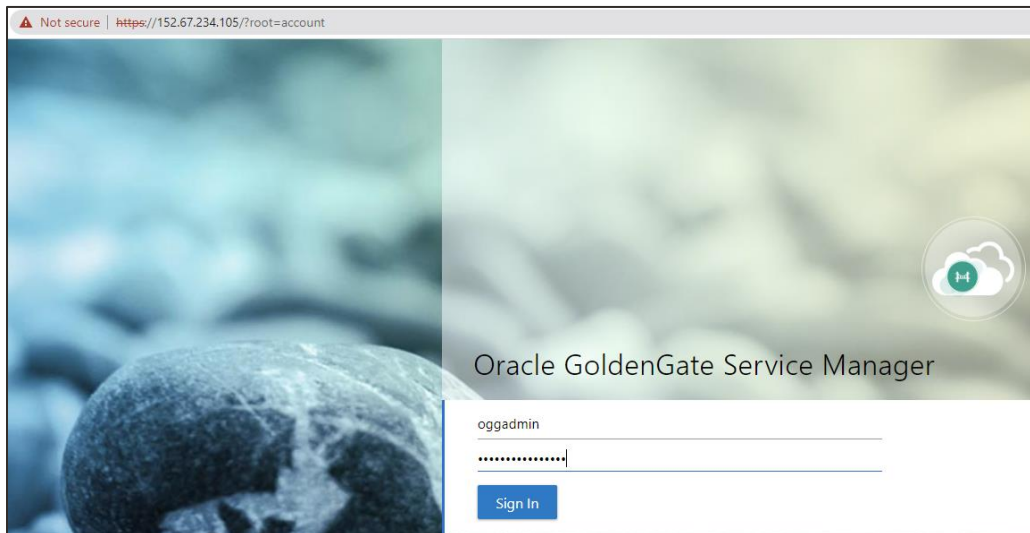
On the top-left "hamburger" menu, choose Administrator. In the Users table, press the edit icon for user **oggadmin** Enter the following values, otherwise leave defaults:

- Info: admin
- Password/Verify Password: <password of your choice>
- Press Submit

You will be logged out, log back in with **oggadmin** and your password.

In the Services table, click on the **port** of the Marketplace Administration Server (typically 9011), this will open a new Sign In page for the **Oracle GoldenGate Administrator Server**.

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Enter the username and password (labeled credential) from the out copied from the ogg-credentials.json file from step above. Do not enter the newly updated password.
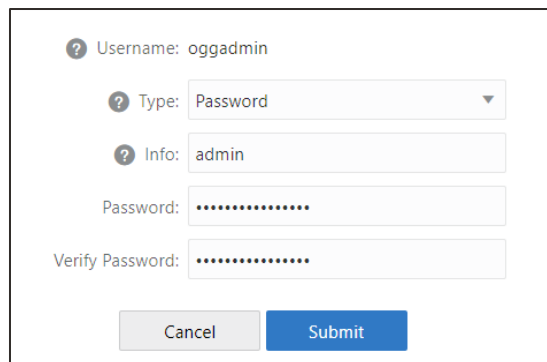
Click on the top left navigation menu and repeat the steps:

On the top-left "hamburger" menu, choose Administrator. In the Users table, press the edit icon for user **oggadmin**

Enter the following values, otherwise leave defaults:

- Info: admin
- Password/Verify Password: <password of your choice>
- Press Submit

You will be logged out. You may now close any Oracle GoldenGate Service Manager leftover tab.

Task 9: Prepare the AWS RDS Oracle database

This task prepares required user accounts and settings for Migration in the Source DB. It assumes default settings in the database. If you changed default settings, further settings might be necessary.

1. Set the following parameters thru the Parameter groups functionality:
   a. STREAMS_POOL_SIZE=2147483648
      i. This parameter can be incompatible if you select a very small DB instance class, i.e. I am using a 4 vCPUs /16GiB RAM.
   b. ENABLE_GOLDENGATE_REPLICATION=TRUE
   c. GLOBAL_NAMES=FALSE
2. Execute the following PL/SQL procedures (SQL Developer was used):
   a. Set the retention period for archived redo logs:
      i. EXEC RDSADMIN.RDSADMIN_UTIL.SET_CONFIGURATION('ARCHIVELOG RETENTION HOURS',72);
   b. Turn on supplemental logging on the source database:
      i. EXEC RDSADMIN.RDSADMIN_UTIL.ALTER_SUPPLEMENTAL_LOGGING('ADD');
   c. Set force logging:
      i. EXEC RDSADMIN.RDSADMIN_UTIL.FORCE_LOGGING(P_ENABLE => TRUE);
3. Create and set the user ggadmin to be an Oracle GoldenGate administrator:

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a. CREATE USER GGADMIN IDENTIFIED BY GGADMIN_PWD DEFAULT TABLESPACE USERS TEMPORARY TABLESPACE TEMP;

b. ALTER USER GGADMIN QUOTA 100M ON USERS;

c. GRANT UNLIMITED TABLESPACE TO GGADMIN;

d. GRANT CONNECT, RESOURCE TO GGADMIN;

e. GRANT SELECT ANY DICTIONARY TO GGADMIN;

f. GRANT CREATE VIEW TO GGADMIN;

g. GRANT EXECUTE ON DBMS_LOCK TO GGADMIN;

4. GRANT SELECT ON following objects:

a. SYS.CCOL$,SYS.CDEF$,SYS.COL$,SYS.CON$,SYS.DEFERRED_STG$,SYS.ICOL$,SYS.IND$,SYS.LOB$, SYS.LOBFRAG$,SYS.OBJ$,SYS.SEG$,SYS.TAB$,SYS.TABCOMPART$,SYS.TABPART$,SYS.TABSUBP ART$ TO GGADMIN

b. BEGIN
RDSADMIN.RDSADMIN_DBMS_GOLDENGATE_AUTH.GRANT_ADMIN_PRIVILEGE

(GRANTEE=>'GGADMIN',
PRIVILEGE_TYPE=> 'CAPTURE',
GRANT_SELECT_PRIVILEGES=>TRUE,
DO_GRANTS=>TRUE);

END ;

Task 10: Prepare the target Autonomous Database

The next steps will connect to the target Database instance and enable the standard ggadmin user. The connection will be thru the Oracle GoldenGate instance using sqlplus.

You can skip these steps if the user is already enabled.

Ensure the Autonomous Database regional wallet has been placed in /u02/deployments/Marketplace/etc/adb. If not, download the zip file from OCI Console and unzip it there.

Modify sqlnet.ora so it correctly has the wallet location (needed if connecting with sqlplus):

```
cat sqlnet.ora
WALLET_LOCATION = (SOURCE = (METHOD = file) (METHOD_DATA =
(DIRECTORY="/u02/deployments/Marketplace/etc/adb")))
SSL_SERVER_DN_MATCH=yes
```

Set the following Export variables:

- export ORACLE_HOME="/u01/app/ogg/lib/instantclient"

- export LD_LIBRARY_PATH="$ORACLE_HOME"

- export PATH="$ORACLE_HOME:$PATH"

- export TNS_ADMIN="/u02/deployments/Marketplace/etc/adb"

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- `$ORACLE_HOME/sqlplus admin/ <ATP password>@ targetatp_high`

In SQL Plus enter the following commands to unlock the GGADMIN user:

```
SQL> alter user ggadmin identified by <new password> account unlock;
User altered.
SQL> quit
```

Task 11: Create Object Store Bucket for Datapump Storage

Object Store is used as temporary storage between source and target databases with Datapump. This task is creating an empty bucket for use in the migration.

In the OCI Console Menu, go to Storage > Object Storage & Archive…

Press Create Bucket.

On the page Create Bucket, fill in the following entries, otherwise leave defaults:

- Bucket Name: **DMSStorage**

Press Create Bucket

Task 12: Create Registered Database for the RDS source database in OCI Database Migration

Registered database resources enable networking and connectivity for the source and target databases.

Navigation: Go to Migration & Disaster Recovery > Database Migration > Registered Databases: Press Register Database.

In the page Database Details, fill in the following entries, otherwise leave defaults:

a. Name: Provide a name for the registered database.

b. Vault: Select the previously created Vault.

c. Encryption Key: Select the pre created Key.

d. Select the radio button "Manually configure database".

e. Database Type: Amazon RDS Oracle

f. Connect String: Provide the RDS public IP, port, and the database name, i.e:

    a. 44.X.152.184:1521/ORCL

Leave Create private endpoint to access this database unselected.

Press **Next**

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Register database

Database administrator username: admin

Database administrator password: Enter the user password

Click Register

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*These details were previously identified on the AWS RDS instance

Task 13: Create Registered Database for Target

In the OCI Console Menu, go to Migration > Database Migration > Registered Databases.

Press Register Database.

On the page Database Details, fill in the following entries, otherwise leave defaults:

- Name: Provide a name for the registered database.
- Leave selected the "Select database" radio button.
- Database Type: Autonomous Database
- Select the previously created database
- Leave checked the Create private endpoint to access this database option.

Press Next

On the page Connection Details, fill in the following entries, otherwise leave defaults:

- Database Administrator Username: **admin**
- Database Administrator Password: *<Admin password>*

Press Register

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Task 14: Create Migration

In the OCI Console Menu, go to Migration > Database Migration > Migrations.

Press Create Migration.

On the page **Add Details**, fill in the following entries, otherwise leave defaults:

- Name: Migration Name
- Vault: your Vault name
- Encryption Key: **Encryption key name**

Press **Next**

On the page **Select Databases**, fill in the following entries, otherwise leave defaults:

- Source Database: RDS
- Target Database: Your Autonomous DB name

Press **Next**

*This depends on the name provided to the registered databases.

On the page **Migration Options**, fill in the following entries, otherwise leave defaults:

- In Initial Load Select Datapump via Amazon Simple Storage Service
- Object Storage Bucket: select the bucket created previously in OCI.

Amazon S3 Bucket details:

- Enter the S3 bucket name previously identified.
- Provide the region, i.e us-west-1
- Enter the associated Access Key
- Enter the associated secret access key.
- Provide Database directory object to be created in source database for temporary storage of database export files, i.e. dumpdir.

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Provide GoldenGate hub details, this should have been created this previously:

- Check Use online replication
- Enter GoldenGate hub URL
- GoldenGate administrator username: oggadmin
- GoldenGate administrator password

Source Database Details:

- GoldenGate deployment name: Default name is "Marketplace", provide the correct name in case you changed it.
- Database username: ggadmin
- Database password: Enter the user password

*This is the user created on the source and granted goldengate admin rights

Target database details:

- GoldenGate deployment name: Default name is "Marketplace", provide the correct name in case you changed it.

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- Database username: ggadmin
- Database password: Enter the user password

*This is the goldengate user unlocked from the Autonomous Database.

Press Create

Task 15: Validate Migration

Before a Migration job can be executed for a migration resource in OCI Database Migration, the migration resource must be validated.

Navigation: Go to Migration & Disaster Recovery > Database Migration >Migrations> Select your migration> Migration details

Click Validate

This job will validate the source, target, Goldengate hub and Datapump settings, if all is fine it should complete successfully.

*If there are any issue the user interface will display the error and provide a potential solution. Once the error is fixed click Validate again for a new job to be created.

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If a phase has failed, it will show with status **Failed**. In this case press **Download Log** to learn more about the reason of failure.

After a migration resource is validated then migration jobs can be executed.

Task 16: Run Migration

Navigation: Go to Migration & Disaster Recovery > Database Migration >Migrations> Select your migration> Migration details

Click Start

When a migration job starts, it can be configured to pause at a specified phase, and then it can be resumed when ready.

A confirmation dialog opens, and there the job can be configured to pause at any point by selecting a phase in Require User Input After, the pre-selected value is Monitor replication lag. This phase monitors Oracle GoldenGate Extract and Replicat operations until Replicat has caught up on the target database; end-to-end (E2E) replication lag should be less than 30 seconds.

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When the selected phase to pause after completes, the job will enter in a Waiting state until it is resumed (or terminated). If it was selected to pause after the phase Monitor Replication Lag, the transaction replication continues during the Waiting state. It will stop upon resume.
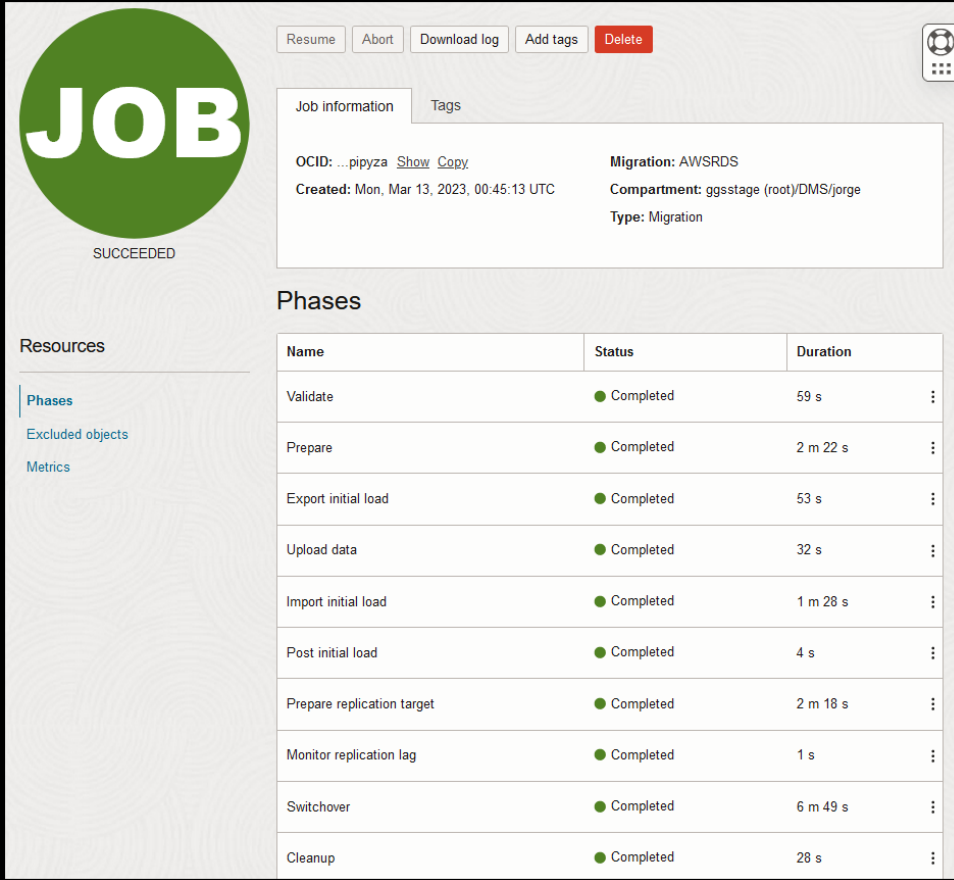
Click on the Resume button again and schedule another pause after phase Switchover. This phase does the following:

- Ensures replication E2E lag is still less than 30 seconds
- Ensures that Extract has captured outstanding transactions on the source database
- Stops Extract
- Ensures Replicat has applied all remaining trail file data
- Stops Replicat

After phase Switchover has completed, the workload on the target database (end of downtime) can start.

The last phase is Cleanup, click on the Resume button and click again Resume on the phase selection window. This phase performs cleanup operations such as deleting GoldenGate Extract and GoldenGate Replicat processes and connection details on source and target database respectively, removing Autonomous Database access to wallet, and so on. Learn more of the different phases at the following link.

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Once the Cleanup phase completes, the migration is considered as Successful.

You are now finished with this guide and ready to migrate your databases!

Issues faced while performing this guide

During the Migration phase on DMS I got the following error:

"PRGD-1042 : query to retrieve information from database view rdsadmin.rds_file_util.listdir failed

PRGD-1002 : SELECT statement "SELECT FILENAME FROM TABLE(rdsadmin.rds_file_util.listdir(p_directory => 'DATA_PUMP_DIR')) WHERE FILENAME LIKE '%ZDM_502_DP_EXPORT_9642_dmp_%'" execution as user "admin" failed for database with Java Database Connectivity (JDBC) URL "jdbc:oracle:thin:@(description=(address=(protocol=tcp)(port=1521)(host=54.177.158.174))(connect_data=(service_name= ORCL)))"

ORA-20199: Error in rdsadmin.rds_file_util."

This issue was identified in the **AWS side**, and I got help from a support engineer: "there is an issue identified which is causing "RDSADMIN.RDS_FILE_UTIL.LISTDIR" package failure. Run the workaround command "exec

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rdsadmin.rdsadmin_rman_util.validate_tablespace('USERS'); " you will be able to list the files successfully with RDS_FILE_UTIL.LISTDIR."

This allowed me to proceed with my migration.