



Autonomous Database: Create Metadata and Refreshable Clone

Lab 21-1 Practices

Estimated time: 30 minutes

Setup Instructions for the Lab

Set up instructions for OUIT (EDAS)

Policies

```
Allow Group <group name>manage autonomous-database-family in
compartment <compartment name>
```

Database_Quota

```
zero database quotas in compartment <compartment name>
set database quota atp-ocpu-count to 2 in compartment
<compartment name>
set database quota adw-ocpu-count to 2 in compartment
<compartment name>
set database quota adw-total-storage-tb to 2 in compartment
<compartment name>
set database quota atp-total-storage-tb to 2 in compartment
<compartment name>
set database quota atp-ocpu-count to 2 in compartment
<compartment name>
set database quota adw-ocpu-count to 2 in compartment
<compartment name>
set database quota adw-total-storage-tb to 2 in compartment
<compartment name>
set database quota atp-total-storage-tb to 2 in compartment
<compartment name>
```

Get Started

Overview

Company Autonomous Database enables you to clone your source database so you can have another environment like your source database to use for development. For example, to use for testing, or to implement a proof of concept.

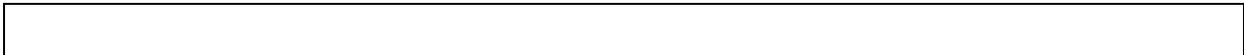
The type of clone you create will depend on your needs.

- A Full Clone creates a new database with the source database's data and metadata.
- A Metadata Clone creates a new database that includes all the source database schema metadata, but not the source database data.
- A Refreshable Clone creates a read-only full clone of the source database that can be refreshed with the data changes from the source database for a specific number of days.

In this lab, you'll:

- a. Provision an autonomous database.
- b. Create a backup of the autonomous database.
- c. Create a Metadata clone from the backup of the source database.
- d. Create a Refreshable clone from the source database.

Place Holder for an architectural diagram below – to be replaced.



Prerequisites

- You must have access to the OCI Console.
- The Company University lab team set up all the IAM policies required for you to complete this lab.
- To learn more about cloning an Autonomous Database, see [Cloning an Autonomous Database](#).

Assumptions

- Select the region that's available in the tenancy allotted to you. In this lab, we are considering US East (Ashburn) (IAD) as your region.
- You must be familiar with navigating the OCI Console.

Provision Autonomous Database

In this practice, you will provision an Autonomous database.

Tasks

1. Use the console to sign into your Company Cloud Infrastructure (OCI) account.
2. Select the region available in the tenancy allotted to you. In this lab, consider US East (Ashburn) as your region.
3. From the navigation menu, under Company Database, click **Autonomous Database**.
4. Confirm you are in the compartment you are assigned.
5. Click **Create Autonomous Database**.
6. Provide basic information for the Autonomous Database in the dialogue box:
 - a. **Compartment** - Confirm it is the name of the compartment where you want your database system to be created.
 - b. **Display name:** - IAD-AP-LAB21-ATP-01
 - c. **Database name** – APLAB21DBATP
 - d. **Choose workload type** - **Transaction Processing**
 - e. **Choose deployment type** - **Shared infrastructure**
 - f. Configure the database
 - 1) **Always Free** -Leave it off
 - 2) **Choose database version** - Leave at default of **19c**
 - 3) **OCPU count** -1
 - 4) **Storage (TB)** – 1
 - 5) **OCPU auto scaling** - Leave it checked
 - 6) **Storage auto scaling** - Leave it unchecked
 - g. Create administrator credentials:

- 1) **Username** - Read-only – ADMIN (Note – You do not have access to the database as user SYS. As the user, ADMIN, you can access Database Actions to perform administrative tasks, for example to create a user
 - 2) Enter **Password** and **Confirm password** for user ADMIN.
- h. **Choose network access** – click to select **Secure access from everywhere**.
 - i. **Choose License and Company Database Edition** - click to select **License Included**.
 - j. **Provide contacts for operational notifications and announcements** - For this lab, **do not provide email contact**
 - k. Click **Create Autonomous Database**.

Note: While the database is being provisioned, you will see the status of Provisioning. Once provisioning is completed, you will have an Autonomous Database where the status of the database is **Available**.

Create an On-demand backup of the database

In this practice, you will create a backup of your Autonomous Database.

To configure your Autonomous database for manual backups, you will perform the following:

- Create an Company Cloud Infrastructure Object Storage bucket for manual backups.
- Set database property `DEFAULT_BACKUP_BUCKET` to specify the manual backup bucket on the Company Cloud Infrastructure Object Storage.
- Define the Company Cloud Infrastructure Object Storage credentials.
- Set the database property `DEFAULT_CREDENTIAL` database property.

Tasks

1. Sign into your Company Cloud Infrastructure (OCI) account.
2. Select the region available in the tenancy allotted to you. In this lab, consider US East (Ashburn) as your region.
3. From the navigation menu, under Company Database, click **Autonomous Database**.
4. Confirm you are in the compartment you are assigned.
5. On the **Autonomous Database** page, you will see the link to your Autonomous Database, **IAD-AP-LAB21-ATP-01**. Click the link.
6. On the **Autonomous Database Details** page, In the Autonomous Database Information tab, note the name of the database as you will need it later. The name of the database is **APLAB21DBATP**.
7. Scroll down on the left of the panel. You will see the category **Resources**.
 - a. Under **Resources**, click **Backups**.
 - b. Click **Create Manual Backup**.
 - c. You will see a window open with the message, “Before you can create manual backups, you must have an Object Storage bucket and your database must be configured to connect to it. This is a one-time operation.”

You can click the **Learn more link** to learn how to set up storage for a manual backup for an Autonomous database.
8. Create an Company Cloud Infrastructure Object Storage bucket for manual backups.

- a. From the navigation menu, under **Storage** ,click **Buckets**.
- b. Confirm you are in the correct compartment and click **Create Bucket**.
- c. Fill out the **Create Bucket** dialog box:
 - 1) **Bucket Name: BKAPLAB21ATP**
 - 2) Leave the default values for other things in the dialogue box **and** click **Create**.
 - 3) You will create a bucket in Standard Storage tier. There are 3 storage tiers.
To learn more about the various storage tiers for Object Storage, click [Object Storage Tiers](#).

Note: Manual backups are only supported with buckets created in the standard storage tier, make sure you pick Standard as the storage tier when creating your bucket.

9. Create URL for your bucket.

You will create the URL for the bucket you created.

The format of the URL is `https://swiftobjectstorage.region.Companycloud.com/v1/namespace-string/bucket_name`

To learn how to how to create the URL for your bucket, click [Construct the storage URL](#) and understand the 6 steps in number 20 on that page.

The swift URL for the bucket is:

<https://swiftobjectstorage.us-ashburn-1.Companycloud.com/v1/ocuoictrng6/BKAPLAB21ATP>

10. Set database property DEFAULT_BACKUP_BUCKET to specify the manual backup bucket on the Company Cloud Infrastructure Object Storage.
 - a. From the navigation menu, under **Company Database**, click **Autonomous Database**.
 - b. Confirm you are in the compartment you are assigned.
 - c. On the **Autonomous Database** page, you will see the link to your Autonomous Database, **IAD-AP-LAB21-ATP-01**, click the link.
 - d. On the **Autonomous Database Details** page, click **Database Actions**.
 - e. Go to the Database Actions page and click **SQL**.
 - f. In Worksheet enter in the following command:

```
ALTER DATABASE PROPERTY SET default_backup_bucket='https://swiftobjectstorage.us-ashburn-1.Companycloud.com/v1/ocuocictrng6/BKAPLAB21ATP'
```

Click the green circle with the white arrow to run the command.

11. Obtain Authentication Token for the credential for our Company Cloud Infrastructure Object Storage account
 - a. Go back to your Autonomous Database Details page.
 - b. In the upper right-hand corner of the page, click the **Profile** icon (circle with a silhouette of a person).
 - c. Click your username.
 - d. Click **Auth Tokens** in the left navigation pane.
 - e. Click **Generate Token**.
 - f. In the **Description** field, enter the description, **IAD-AP-AUTHTKN-01**.
 - g. Click **Generate Token**.
 - h. Click **Copy** to copy the content of the token. Past the value into something like Notepad. Click **Close**.

12. Create a credential for your Company Cloud Infrastructure Object Storage account using `DBMS_CLOUD.CREATE_CREDENTIAL`.

- a. Copy the following in that notepad file.

```
BEGIN
DBMS_CLOUD.CREATE_CREDENTIAL(
  credential_name => 'DEF_CRED_NAME',
  username => 'adb_user@example.com',
  password => 'Auth_Token'
);
END;
/
```

Replace the value of username with your username you saw in Profile.
Replace the value of password with the content of the Auth Token you copied before.

- b. In Worksheet copy and paste the above edited command and run it as user ADMIN.

1) Click the sheet with the tiny green circle and white arrow to execute the procedure. It is to the right the green circle with the white arrow you click on before to run the alter database command.

c. Set the database property `DEFAULT_CREDENTIAL` to the credential you created.

d. Enter in the following command and execute the command:

```
ALTER DATABASE PROPERTY SET DEFAULT_CREDENTIAL =  
'ADMIN.DEF_CRED_NAME'
```

e. Confirm the value for `DEFAULT_BACKUP_BUCKET` is configured correctly. Execute the following query.

```
SELECT PROPERTY_VALUE FROM DATABASE_PROPERTIES WHERE  
PROPERTY_NAME='DEFAULT_BACKUP_BUCKET';
```

You should see the name of your Object Storage bucket

13. Go to the Autonomous Database Details page you have open and create a manual backup.

a. Click **Backups** in the left navigation pane.

b. Click **Create Manual Backup**.

c. Enter a name for the backup in the Display Name field – IADAPMBK

d. Click **Create Manual Backup**.

Create Meta Data Clone

Page holder for create meta data clone.

Create Meta Data Clone

1. Go to the Autonomous Database Details page you have open.
2. Click **More Actions** and select **Create Clone**.
3. In the **Create Autonomous Database Clone** dialogue box.
 - a. Choose a **clone type**: select **Metadata Clone**.
 - b. **Clone Source**: select **Clone from a backup**.
 - c. **Backup clone type**: Select the backup from a list.
 - d. Under **Display Name** you should see the name of the backup you created. Check the box next to the name.
 - e. In the **Provide basic information for the Autonomous Database clone** dialogue box, most fields are grayed out and filled in for you.
 - 1) Enter Display name - Clone-of-IAD-AP-LAB21-ATP-01
 - 2) Enter in Database name IADLAB21CloneDB
4. Fill in the **Configure the database** dialogue box:
 - a. Choose database version: select **19c**.
 - b. Accept and leave the other fields with current values.
5. In the **Create administrator credentials** dialogue box.
 - a. Provide the password for user **Admin**, twice.
6. **Choose network access** –select **Secure access from everywhere**.
7. **Choose license and Company Database edition** – select **License included**.
8. Click Create **Autonomous Database Clone**.

Create a Refreshable Clone

When you have completed this practice, please purge the autonomous database you created in this practice.

Create a refreshable clone

1. Go to the Autonomous Database Details page you have open.
2. Click **More Actions** and select **Create Clone**.
3. Fill in the **Create Autonomous Database Clone** dialogue box
 - a. **Choose a clone type** , Click and select **Refreshable Clone**.
 - b. In the **Provide basic information for the Autonomous Database clone** dialogue box, most fields are grayed out and filled in for you.
 - 1) Enter Display name - RshClone-of-IAD-AP-LAB21-ATP-01
 - 2) Enter in Database name IADLAB21RshCloneDB
4. Fill in the **Configure the database** dialogue box:

Accept and leave the other fields with current values.

 - a. **Choose network access** – Select **Secure access from everywhere**.
 - b. **Choose license and Company Database edition** – Select **License included**.
 - c. Click **Create Autonomous Database Clone**.

Purge Instructions

When you have completed this practice, please purge the autonomous database you created in this practice.

Purge Autonomous Database

1. Sign into the Company Cloud Infrastructure (OCI) Console and ensure you have selected the Source Region.
2. Open the **Main Menu** and click **Company Database**, click to select **Autonomous Database**
Confirm you are in the compartment you are assigned. Click the link of the autonomous database you wish to purge: **IAD-AP-LAB21-ATP-01**.
3. From the **Autonomous Database Details** page, click **More actions**.
4. Click **Terminate**.
5. Enter the name of your **Autonomous Database (IAD-AP-LAB21-ATP-01)** in the field for **To confirm, enter the name of the database that you want to terminate:**
IAD-AP-LAB21-ATP-01
6. Click **Terminate Autonomous Database**.
The **status** for the Autonomous Database will show, **TERMINATING**.
7. Eventually you will see the status of the Autonomous Database will show, **TERMINATED**.
All buttons for administrative tasks for this database system will be grayed out.