



## **Block Storage: Create a Volume Group and Enable Cross Region Replication**

**Lab 13-1 Practices**

# Get Started

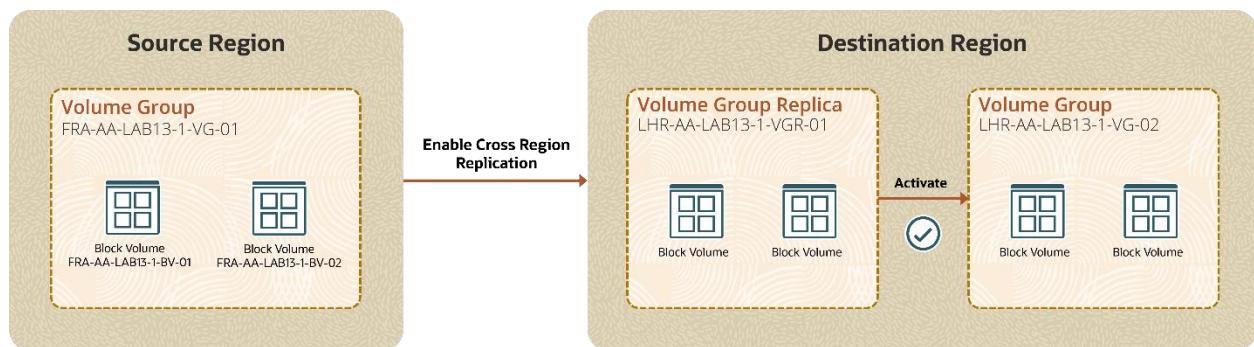
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## Overview

The Oracle Cloud Infrastructure (OCI) Block Volume service provides you with the capability to group together multiple volumes in a volume group. A volume group can include both types of volumes, boot volumes, which are the system disks for your compute instances, and block volumes, which are for data storage.

In this lab, you'll work with volume groups. You will:

- a. Create two block volumes
- b. Create a volume group
- c. Enable Cross-Region Replication for the volume group
- d. Activate the Volume Group replica
- e. Disable replication for a volume group



## Prerequisites

- Enabling Cross-Region Replication for the Volume Group requires access to a destination region. See [Replicating a Volume \(oracle.com\)](https://docs.oracle.com/en-us/iaas/Block_Volume/replicating_a_volume.html) for the list of region mappings for cross-region replication.

# Create Two Block Volumes

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The Oracle Cloud Infrastructure Block Volume service lets you dynamically provision and manage block storage volumes.

In this practice, you will learn how to create two block volumes, which will subsequently be part of a volume group.

## Tasks

1. Use the console to sign in to your Oracle Cloud Infrastructure (OCI) account.
2. Select the region available in the tenancy allotted to you. In this lab, consider Germany Central (Frankfurt) as your region.
3. From the **Main Menu**, select **Storage**. Under **Block Storage**, click **Block Volumes**.
4. Click **Create Block Volume**.
5. Fill in the required volume information:
  - a. **Name:** Enter **FRA-AA-LAB13-1-BV-01**.
  - b. **Create In Compartment:** Select the compartment assigned to you.
  - c. **Availability Domain:** Select the first availability domain.
  - d. **Volume Size and Performance:** Select the **Custom** option and enter **512** in the **Volume Size** field.
  - e. **Target Volume Performance:** Drag the VPU/GB slider to the left to make it **Lower Cost**.
  - f. **Backup Policies:** Do not specify any policy.
  - g. **Cross Region Replication:** Select the **OFF** radio button.
  - h. **Encryption:** Select the **Encrypt using Oracle-managed keys** radio button.
6. Click **Create Block Volume**.

**Note:** The Block Volume state is now Available.

7. Repeat steps 3-6 to create a second block volume. Name this volume **FRA-AA-LAB13-1-BV-02**.

**Note:** You now have two block volumes where the state is Available.

# Create a Volume Group

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The Oracle Cloud Infrastructure (OCI) Block Volume service provides you with the capability to group together multiple volumes in a volume group.

In this practice, you'll learn how to create a volume group.

## Tasks

1. From the **Main Menu**, select **Storage**. Under **Block Storage**, click **Volume Groups**.
2. Click Create **Volume Group**.
3. Fill in the required fields on the **Basic Information** page:
  - a. **Name:** Enter **FRA-AA-LAB13-1-VG-01**.
  - b. **Compartment:** Select the compartment assigned to you.
  - c. **Availability Domain:** Select the first availability domain. (This must be the same Availability Domain, which you selected while creating the two block volumes in the previous exercise.)
4. Click **Next** to go to the next page.
5. On the **Add Volumes** page, for each volume you want to add:
  - a. Select the compartment containing the volume from the **Compartment** drop-down list.
  - b. Select the volume **FRA-AA-LAB13-1-BV-01** from the **Volume** drop-down list.
  - c. Click **+ Additional Volume** to add more volumes.
    - 1) Select the compartment containing the volume from the **Compartment** drop-down list.
    - 2) Select the volume **FRA-AA-LAB13-1-BV-02** from the **Volume** drop-down list.
6. After you've added all the volumes you want to include when creating the volume group, click **Next**.

7. On the **Cross Region Replication** page, you can optionally enable asynchronous cross region volume replication for the volume group. You will be enabling this option in the subsequent steps. For now, leave the **OFF** option selected and click **Next**.
8. On the **Backup Policies** page, you can optionally configure scheduled backups for the volume group by selecting a backup policy to use for scheduled backups. You will not configure any Backup Policies at this time. Click **Next**.
9. On the **Summary** page, review the information. To edit any information, click **Edit** in the right corner.
10. Once everything looks correct, click **Create** to create the volume group. You can see that the Volume Group is created successfully, and it includes two block volumes.

# Enable Cross-Region Replication for the Volume Group

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The Block Volume service provides you with the capability to perform ongoing automatic asynchronous replication of volume groups to other regions.

In this practice, you'll learn how to enable replication for a volume group.

**Note:** This lab requires you to subscribe to two regions. Hence, you will not be able to perform it in Free Tier account.

## Tasks

1. Open the **Main Menu** and click **Storage**. Under **Block Storage**, click **Volume Groups**.
2. Click the volume group **FRA-AA-LAB13-1-VG-01**.
3. Click **Edit**.
4. Click **Cross Region Replication** on the left of the screen and select the **ON** option.
5. Enter the following information into the data fields:

- a. **Target Region:** Select the UK South (London) region to replicate the volume group.

**Note:** See [Replicating a Volume \(oracle.com\)](https://docs.oracle.com/en/cloud/iaas-services/block/replicating-a-volume-oracle-com) for the list of region mappings for cross-region replication.

- b. **Availability Domain:** Select the first availability domain to place the volume group replica in.
- c. **Volume Group Replica Name:** Enter **LHR-AA-LAB13-1-VGR-01** for the volume group replica name.

**Note:** In this lab, we used Germany Central (Frankfurt) as the source region and UK South (London) as the target region. This might change depending on the region available in the tenancy allotted to you.

6. Select the **Confirm** check box to acknowledge the cost warning and click **Next**.
7. Click **Summary** on the left of the screen.
8. Click **Save Changes**.

**Note:** The Volume Group state changes to Updating. After a couple of seconds, the state becomes Available.

9. Under **Resources** in the left navigation pane, click **Volume Group Replicas**. The replica **LHR-AA-LAB13-1-VGR-01** is now created in the target region, UK South (London).
10. In the console ribbon at the top of the screen, click the Region icon to expand the menu. Select the target region, **UK South (London)**.
11. Under **Block Storage** in the left navigation menu, click **Volume Group Replicas**.

**Note:** You can now see the replica **LHR-AA-LAB13-1-VGR-01** and its details such as OCID, Source Region, Last Sync, and Created.



# Activate the Volume Group Replica

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To create a new volume group from a volume group replica, you need to activate the replica. The activation process creates a new volume group by cloning the replica.

In this practice, you'll learn how to activate a volume group replica.

## Tasks

1. Make sure that you are in the correct destination region that contains the volume group replica you want to activate.
2. Open the **Main Menu** and click **Storage**. Under **Block Storage**, click **Volume Group Replicas**.
3. Click the replica **LHR-AA-LAB13-1-VGR-01**.
4. Click **Activate**.
5. Click **Confirm** to acknowledge that there may be a delay in the initial replication sync of the volume group.
6. In the **Activate Volume Group Replica** window, select the compartment assigned to you and specify the name for the new volume group as **LHR-AA-LAB13-1-VG-02**.
7. Click **Activate**.

## Notes

- Activating a volume group from the replica creates a clone of the source volume group.
  - In the left navigation pane, under **Resources**, you can see and access the **Activated Volume Groups** and **Block Volume Replicas**.
8. From the **Main Menu**, select **Storage**. Under **Block Storage**, click **Volume Groups**.  
**Note:** You can now see the volume group **LHR-AA-LAB13-1-VG-02** in the volume groups list along with details such as Number of Volumes and Total Size of the volume groups.
  9. In the left navigation pane, under **Block Storage**, click **Block Volumes** to see both activated Block Volumes.

# Disable Replication for a Volume Group

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When you turn off replication for a volume group, by default, all volumes continue to replicate. However, as separate Volume Replicas, they are no longer part of a Volume Group Replica. At this point, you can turn off individual volume replication for all volumes.

In this practice, you'll learn how to disable replication for a volume group.

## Tasks

1. Select the source region where you created your volume group, **Germany Central (Frankfurt)**.
2. From the **Main Menu**, select **Storage**. Under **Block Storage**, click **Volume Groups**.
3. Select the volume group **FRA-AA-LAB13-1-VG-01**.
4. Click **Edit**.
5. Click **Cross Region Replication** on the left of the screen and select the **OFF** option.
6. Select the **Check here to confirm** check box to acknowledge that the volume group replica will be deleted.
7. Select the **Volume replication off** check box to turn off replication for individual volumes.
8. Click **Summary** on the left of the screen.
9. Click **Save Changes**.

**Note:** The Volume Group state changes to Updating. After a couple of seconds, the state becomes Available.

10. In the console ribbon at the top of the screen, click the Region icon to expand the menu. Ensure that you are in the correct destination region, **UK South (London)**.
11. Open the **Main Menu** and click **Storage**. Under **Block Storage**, click **Volume Group Replicas**.

**Note:** The **LHR-AA-LAB13-1-VGR-01** Volume Group Replica will be in a Terminating state. After a couple of minutes, it will be terminated.