

## **Networking - Virtual Cloud Network: Configure Local VCN Peering**

**Lab 4-1 Practices**

# Get Started

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## Overview

In this practice, you will configure Local Peering Gateways (LPGs) to interconnect two Virtual Cloud Networks (VCNs).

## Local VCN Peering

Local VCN peering is the process of connecting two VCNs in the same region so that their resources can communicate using private IP addresses.

## Local Peering Gateway

A Local Peering Gateway is a component on a VCN for routing traffic to a locally peered VCN.

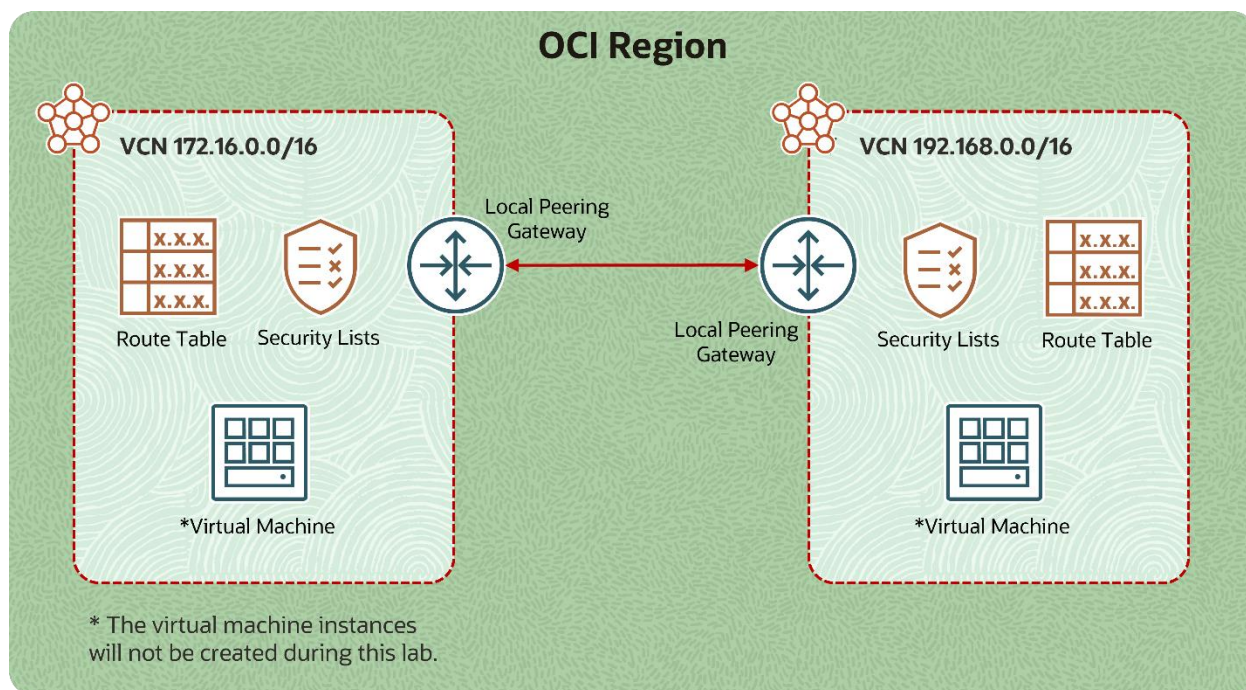
## Summary of Networking Components for Peering Using an LPG

The Networking service components required for a local peering include:

- Two VCNs with non-overlapping CIDRs, in the same region
- A local peering gateway (LPG) on each VCN in the peering relationship
- A connection between those two LPGs
- Supporting route rules to enable traffic to flow over the connection
- Supporting security rules to control the types of traffic allowed to and from the instances in the subnets that need to communicate with the other VCN

In this lab, you will:

1. Create Virtual Cloud Network 01.
2. Create Virtual Cloud Network 02.
3. Add a Local Peering Gateway (LPG) to each VCN.
4. Connect the VCNs.
5. Add Route Rules.
6. Add Security Rules.



## Create Virtual Cloud Network 01

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In this section, you will create the first of two VCNs by using the Start VCN Wizard.

### Tasks

1. Log in to the Oracle Cloud Infrastructure (OCI) console.
2. In the console ribbon at the top of the screen, click the Region and select **Germany Central (Frankfurt)**.
3. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
4. In the left navigation pane, under **List Scope** select your *<assigned compartment>*.
5. Click **Start VCN Wizard**.
6. Select the **Create VCN with Internet Connectivity** option, and then click **Start VCN Wizard**.
7. Enter the following values:
  - **VCN Name:** FRA-AA-LAB04-1-VCN-01
  - **Compartment:** Select your *<assigned compartment>*.
  - **VCN CIDR Block:** 172.16.0.0/16
  - **Public Subnet CIDR Block:** 172.16.0.0/24
  - **Private Subnet CIDR Block:** 172.16.1.0/24
8. Leave the default values for the remaining fields. Click **Next**.
9. Review and understand the list of resources that the OCI VCN Wizard will create. Notice that the wizard will configure CIDR block ranges for VCN IP addresses, and for the public and private subnets. It will also set up security list rules and route table rules to enable basic access to the VCN.
10. Click **Create**.
11. When complete, click **View Virtual Cloud Network**.

## Create Virtual Cloud Network 02

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In this section, you will create the second of two VCNs by using the Start VCN Wizard.

### Tasks

1. In the console ribbon at the top of the screen, click the Region and select **Germany Central (Frankfurt)**.
2. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
3. In the left navigation pane, under **List Scope** select your *<assigned compartment>*.
4. Click **Start VCN Wizard**.
5. Select the **Create VCN with Internet Connectivity** option, and then click **Start VCN Wizard**.
6. Enter the following values:
  - **VCN Name:** FRA-AA-LAB04-1-VCN-02
  - **Compartment:** Select your *<assigned compartment>*.
  - **VCN CIDR Block:** 192.168.0.0/16
  - **Public Subnet CIDR Block:** 192.168.0.0/24
  - **Private Subnet CIDR Block:** 192.168.1.0/24
7. Leave the default values for the remaining fields. Click **Next**.
8. Review and understand the list of resources that the OCI VCN Wizard will create. Notice that the wizard will configure CIDR block ranges for VCN IP addresses, and for the public and private subnets. It will also set up security list rules and route table rules to enable basic access to the VCN.
9. Click **Create**.
10. Once complete, click **View Virtual Cloud Network**.

## Add a Local Peering Gateway (LPG) to each VCN

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In this section, you will add LPGs to the VCNs.

### Tasks

1. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
2. In the left navigation pane, under **List Scope** select your *<assigned compartment>*.
3. Select **FRA-AA-LAB04-1-VCN-01**.
4. In the left navigation pane, under **Resources**, click **Local Peering Gateways (0)**.
5. Click **Create Local Peering Gateway**.
6. In the **Name** field, enter: FRA-AA-LAB04-1-LPG-01.
7. Click **Create Local Peering Gateway**.
8. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
9. Select **FRA-AA-LAB04-1-VCN-02**.
10. In the left menu, under **Resources**, click **Local Peering Gateways (0)**.
11. Click **Create Local Peering Gateway**.
12. In the **Name** field, enter: FRA-AA-LAB04-1-LPG-02.
13. Click **Create Local Peering Gateway**.

## Connect the VCNs

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In this section, you will establish the peering connection between the two VCNs.

### Tasks

1. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
2. Select **FRA-AA-LAB04-1-VCN-01**.
3. In the left navigation pane, under **Resources**, click on **Local Peering Gateways (1)**.
4. Click the three dots to the right of **FRA-AA-LAB04-1-LPG-01** to open the Actions menu and select (**Establish Peering Connection**).
5. Click **Browse Below**.
6. Select **FRA-AA-LAB04-1-VCN-02** in **Virtual Cloud Network**.
7. Select **FRA-AA-LAB04-1-LPG-02** from the **Unpeered Peer Gateway** list.
8. Click **Establish Peering Connection**.
9. Wait for the **Peering Status** field to change to **Peered - Connected to a peer**.
10. Verify that **Peer Advertised CIDRs** is 192.168.0.0/16.
11. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
12. Select **FRA-AA-LAB04-1-VCN-02**.
13. In the left menu, under **Resources**, click **Local Peering Gateways (1)**.
14. Verify that **Peering Status** is **Peered - Connected to a peer**.
15. Verify that **Peer Advertised CIDRs** is 172.16.0.0/16.

## Add Route Rules

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In this section, you will add route rules to the route table to allow traffic over the peered connection.

### Tasks

1. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
2. Select **FRA-AA-LAB04-1-VCN-01**.
3. In the left navigation pane, under **Resources**, click **Route Tables (2)**
4. Click **Default Route Table for FRA-AA-LAB04-1-VCN-01**.
5. Click **Add Route Rules**.
6. Select **Local Peering Gateway** under **Target Type**.
7. In the **Destination CIDR Block** field, enter 192.168.0.0/24.
8. Select **FRA-AA-LAB04-1-LPG-01** under **Target Local Peering Gateway in <assigned compartment>**
9. Click **Add Route Rules**.
10. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
11. Select **FRA-AA-LAB04-1-VCN-02**.
12. In the left navigation pane, under **Resources**, click **Route Tables (2)**.
13. Click **Default Route Table for FRA-AA-LAB04-1-VCN-02**.
14. Click **Add Route Rules**.
15. Select **Local Peering Gateway** under **Target Type**.
16. In the **Destination CIDR Block** field, enter 172.16.0.0/24.
17. Select **FRA-AA-LAB04-1-LPG-02** under **Target Local Peering Gateway in <assigned compartment>**
18. Click **Add Route Rules**.



## Add Security Rules

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In this section, you will enable ICMP from the private IP addresses to the public subnet, allowing ping communications.

### Tasks

1. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
2. Select **FRA-AA-LAB04-1-VCN-01**.
3. In the left navigation pane, under **Resources**, click **Security Lists (2)**.
4. Click **Default Security List for FRA-AA-LAB04-1-VCN-01**.
5. Click **Add Ingress Rules**.
6. In the **Source CIDR** field, enter 192.168.0.0/24.
7. Select **ICMP** under **IP Protocol**.
8. In the **Type** field, enter 8.
9. Click **Add Ingress Rules**.
10. From the **Main Menu**, select **Networking**, and then click **Virtual Cloud Networks**.
11. Select **FRA-AA-LAB04-1-VCN-02**.
12. In the left navigation pane, under **Resources**, click **Security Lists (2)**.
13. Click **Default Security List for FRA-AA-LAB04-1-VCN-02**.
14. Click **Add Ingress Rules**.
15. Enter 172.16.0.0/24 in the **Source CIDR** field.
16. In the **IP Protocol** field, select **ICMP**.
17. In the **Type** field, enter 8.
18. Click **Add Ingress Rules**.