

# Introduction

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## About this Workshop

Securing the data stored in your MySQL Server against failures is key towards achieving Regulatory Compliance. This workshop covers the installation, configuration and testing of MySQL High Availability architectures. We will go through how to setup and run different Highly Availability Solutions.

Estimated Workshop Time: 1 hours 30 minutes (This estimate is for the entire workshop - it is the sum of the estimates provided for each of the labs included in the workshop.)

Your Free Tier server should be accessible for a couple of days after this workshop so what you do not finish when following instruction will be able to be covered later at your own pace.

## Prerequisite

For working on this workshop you will need a clean computer to run on. We should have provided you with a link on setting up a free account on Oracle Cloud Infrastructure (OCI).

If you have not set it up, then please go through the following steps:

- [OCI Free Tier Setup](#)

## Objectives

In this workshop, you will learn how to work with

- MySQL Enterprise Edition
- MySQL Shell
- MySQL High Availability
- MySQL Router

## Learn More

- [MySQL Home Page](#)
- [MySQL Replication](#)
- [MySQL Group Replication](#)
- [MySQL Shell](#)
- [MySQL ReplicaSet](#)
- [MySQL InnoDB Cluster](#)
- [MySQL InnoDB ClusterSet](#)

## Acknowledgements

- **Author** - Dale Dasker, MySQL Solution Engineering
- **Last Updated By/Date** - Dale Dasker, August 2022

# Create your Virtual Cloud Network and Related Components

## Introduction

### Create your VCN and subnets

The first step when deploying a Compute in Oracle Cloud Infrastructure (OCI) is to setup a Virtual Cloud Network. The VCN will be used to connect your linux instance to the internet. You will configure all the components needed to create your virtual network.

*Estimated Time:* 10 minutes

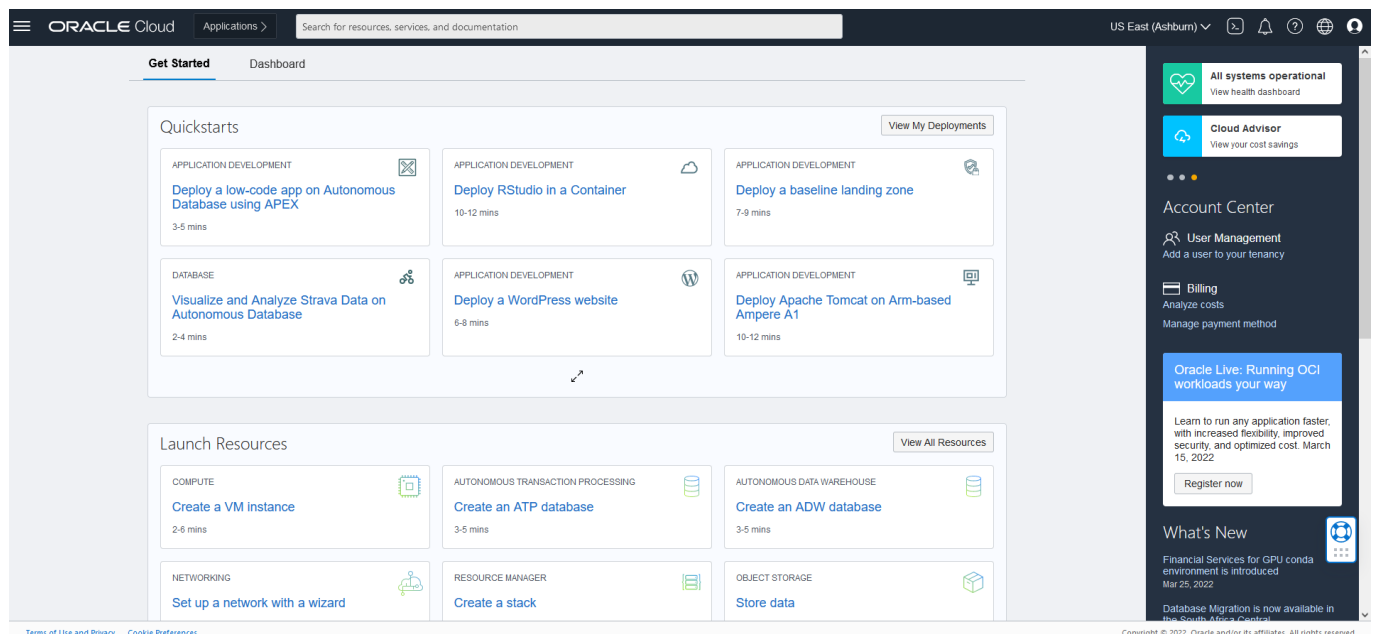
## Objectives

In this lab, you will be guided through the following tasks:

- Create Virtual Cloud Network
- Configure security list to allow MySQL incoming connections

## Prerequisites

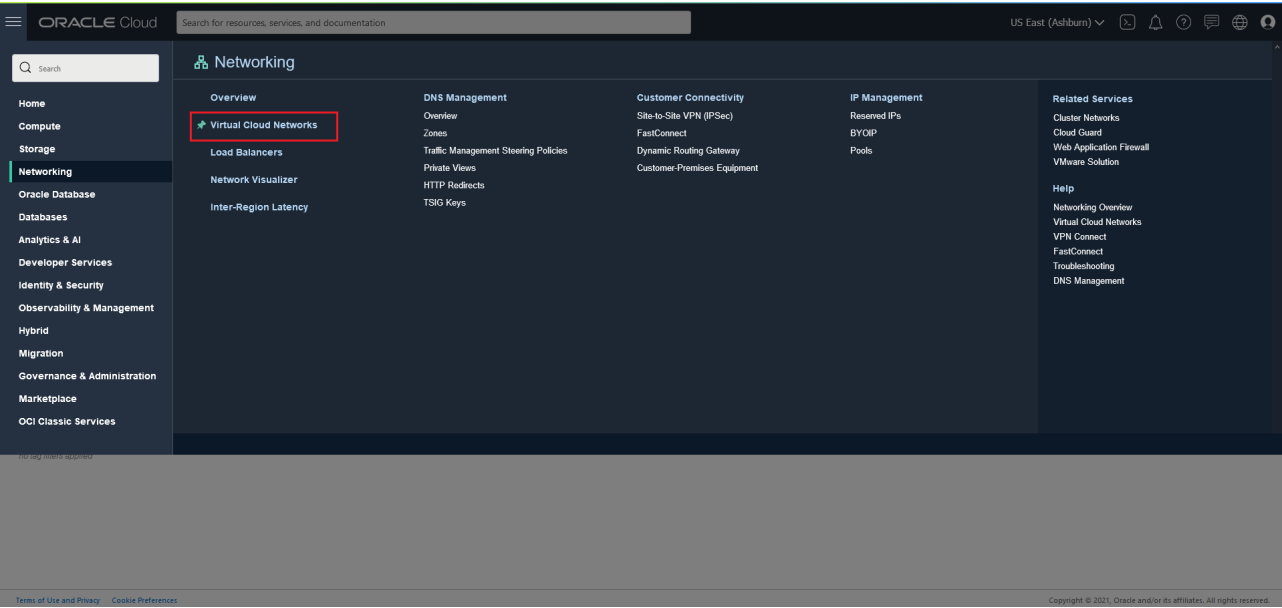
- An Oracle Free Tier or Paid Cloud Account
- A web browser
- Login to OCI to land on OCI Dashboard (This image shows a trial account)



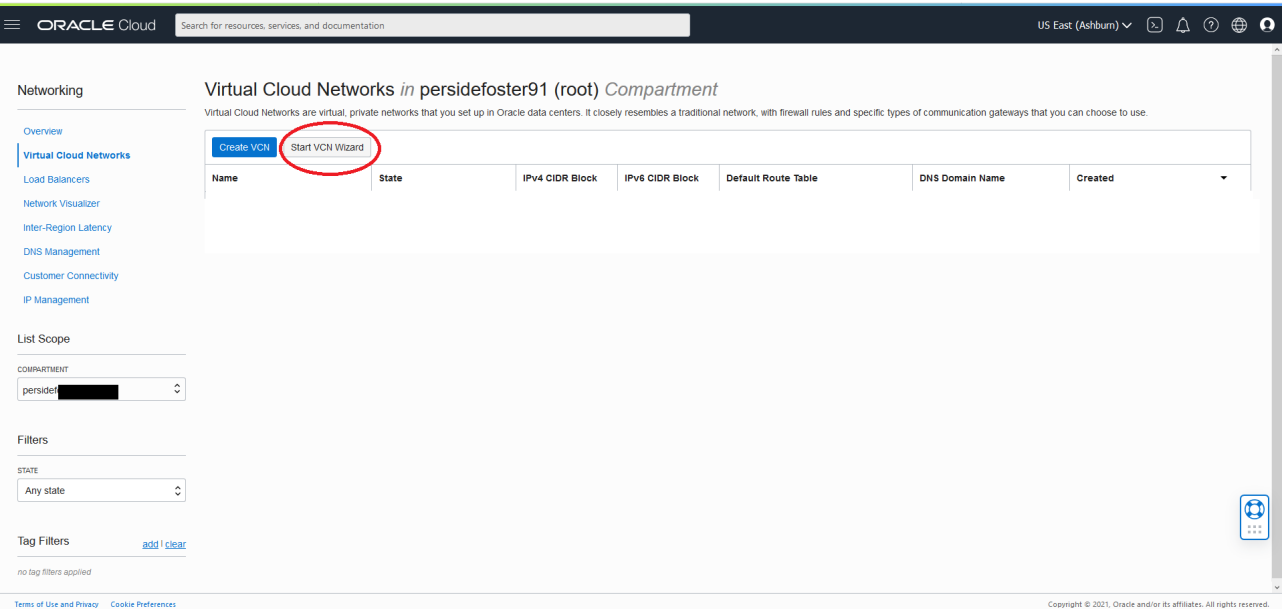
## Task 1: Create Virtual Cloud Network

1. Click Navigation Menu  
Select Networking

Select Virtual Cloud Networks

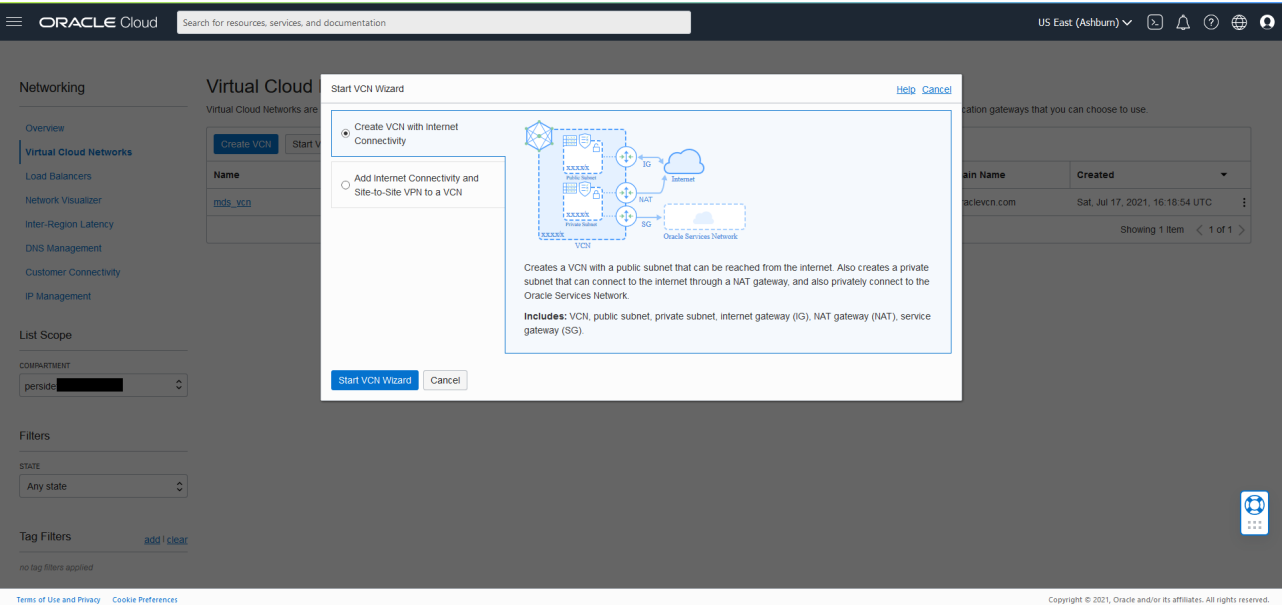


2. Click **Start VCN Wizard**



3. Select 'Create VCN with Internet Connectivity'

Click 'Start VCN Wizard'

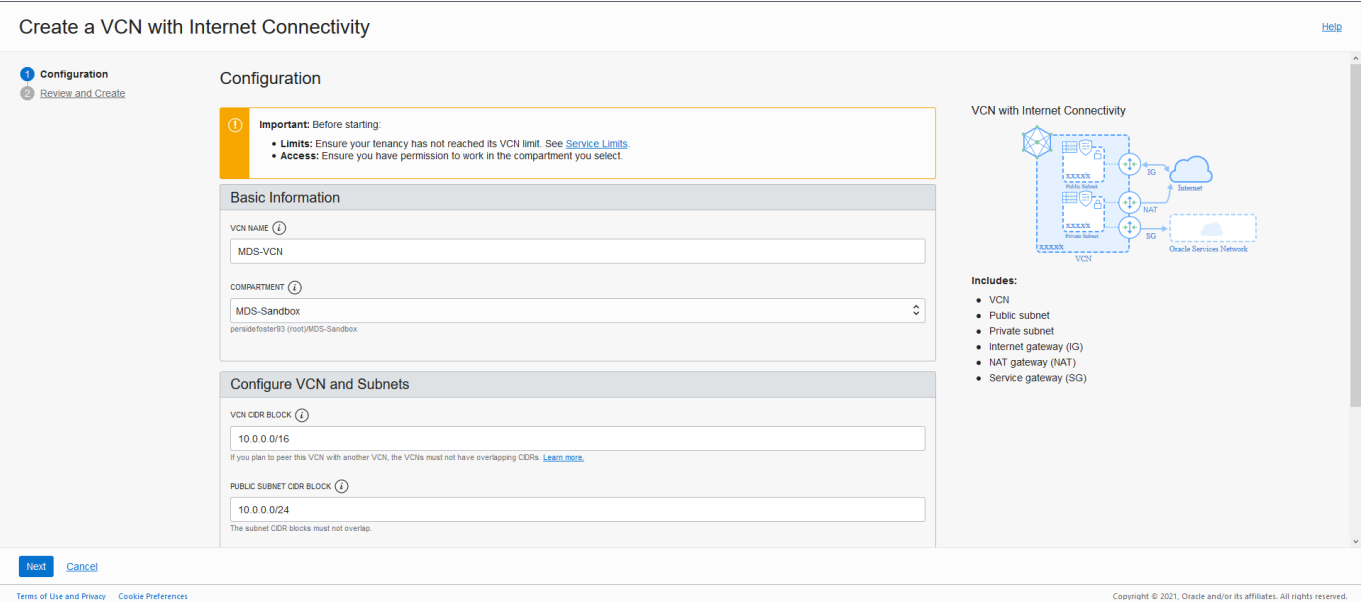


4. Create a VCN with Internet Connectivity

On Basic Information, complete the following fields:

VCN Name: `<copy>myvcn</copy>` Compartment: Select **(root)**

Your screen should look similar to the following



5. Click 'Next' at the bottom of the screen

6. Review Oracle Virtual Cloud Network (VCN), Subnets, and Gateways

Click 'Create' to create the VCN

1 Configuration

2 Review and Create

### Create a VCN with Internet Connectivity

1

Important: Before starting:

- **Limits:** Ensure your tenancy has not reached its VCN limit. See [Service Limits](#)
- **Access:** Ensure you have permission to work in the compartment you select.

Basic Information

VCN NAME

MDS-VCN

COMPARTMENT

MDS-Sandbox

persidefooster93 / (root)/MDS-Sandbox

Configure VCN and Subnets

VCN CIDR BLOCK

10.0.0.0/16

If you plan to peer this VCN with another VCN, the VCNs must not have overlapping CIDRs. [Learn more](#).

PUBLIC SUBNET CIDR BLOCK

10.0.0.0/24

The subnet CIDR blocks must not overlap.

VCN with Internet Connectivity

Includes:

- VCN
- Public subnet
- Private subnet
- Internet gateway (IG)
- NAT gateway (NAT)
- Service gateway (SG)

Next

Cancel

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7. The Virtual Cloud Network creation is completing

ORACLE Cloud

Search for resources, services, and documentation

US East (Ashburn)

Help

1 Configuration

2 Review and Create

### Create a VCN with Internet Connectivity

Creating Resources

Virtual Cloud Network creation complete

Create Virtual Cloud Network (1 resolved)

Done

Create Subnets (2 resolved)

Done

Create Internet Gateway (1 resolved)

Done

Create NAT Gateway (1 resolved)

Done

Create Service Gateway (1 resolved)

Done

Create Route Table for Private Subnet (1 resolved)

Done

Create Security List for Private Subnet (1 resolved)

Done

Update Route Tables (2 resolved)

Done

VCN with Internet Connectivity

Includes:

- VCN
- Public subnet
- Private subnet
- Internet gateway (IG)
- NAT gateway (NAT)
- Service gateway (SG)

View Virtual Cloud Network

https://cloud.oracle.com/limits

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8. Click 'View Virtual Cloud Network' to display the created VCN

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Help

Networking > Virtual Cloud Networks > Virtual Cloud Network Details

VCN

AVAILABLE

Move Resource

Add Tags

Terminate

VCN Information

Tags

Compartment: MDS-Sandbox

Created: Wed, May 12, 2021, 19:04:13 UTC

IPv4 CIDR Block: 10.0.0.0/16

IPv6 CIDR Block: No Value

OCID: ocid1.vcn.oc4..dbr13a Show Copy

DNS Resolver: MDS-VCN

Default Route Table: Default Route Table for MDS-VCN

DNS Domain Name: mdsvcn.oraclevcn.com

Resources

Subnets in MDS-Sandbox Compartment

Create Subnet

Name	State	IPv4 CIDR Block	Subnet Access	Created
Private Subnet-MDS-VCN	Available	10.0.1.0/24	Private (Regional)	Wed, May 12, 2021, 19:04:15 UTC
Public Subnet-MDS-VCN	Available	10.0.0.0/24	Public (Regional)	Wed, May 12, 2021, 19:04:15 UTC

Showing 2 items < 1 of 1 >

Subnets (2)

CIDR Blocks (1)

Route Tables (2)

Internet Gateways (1)

Dynamic Routing Gateways (0)

Network Security Groups (0)

Security Lists (2)

DHCP Options (1)

1 Oracle Developer Gateway (0)

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# Task 2: Configure security list to allow MySQL incoming connections

1. On myvcn page under 'Subnets in (root) Compartment', click '**Public Subnet-myvcn**'

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Cloud Classic >

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Networking > Virtual Cloud Networks > myvcn > Subnet Details

S

AVAILABLE

Public Subnet-myvcn

EditMove ResourceAdd TagsTerminate

Subnet Information

Tags

OCID: ...ivakna Show Copy

IPv4 CIDR Block: 10.0.0.0/24

Virtual Router Mac Address: 00:00:17:E6:B5:8E

Subnet Type: Regional

Compartment: DaleDasker-Sandbox

DNS Domain Name: sub04112049310... Show Copy

Subnet Access: Public Subnet

DHCP Options: Default DHCP Options for myvcn

Route Table: Default Route Table for myvcn

Resources

Security Lists (1)

Logs

Tag filtersadd | clear

no tag filters applied

Security Lists

Add Security List

Name	State	Compartment	Created	
Default Security List for myvcn	Available	DaleDasker-Sandbox	Mon, Apr 11, 2022, 20:49:42 UTC	

Showing 1 Item < 1 of 1 >

2. On Public Subnet-myvcn page under 'Security Lists', click '**Security List for Public Subnet-myvcn**'

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Cloud Classic >

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Networking > Virtual Cloud Networks > myvcn > Security List Details

SL

AVAILABLE

Default Security List for myvcn

Move ResourceAdd TagsTerminate

Security List Information

Tags

OCID: ...wx22da Show Copy

Created: Mon, Apr 11, 2022, 20:49:42 UTC

Compartment: DaleDasker-Sandbox

Resources

Ingress Rules (3)

Egress Rules (1)

Ingress Rules

Add Ingress RulesEditRemove

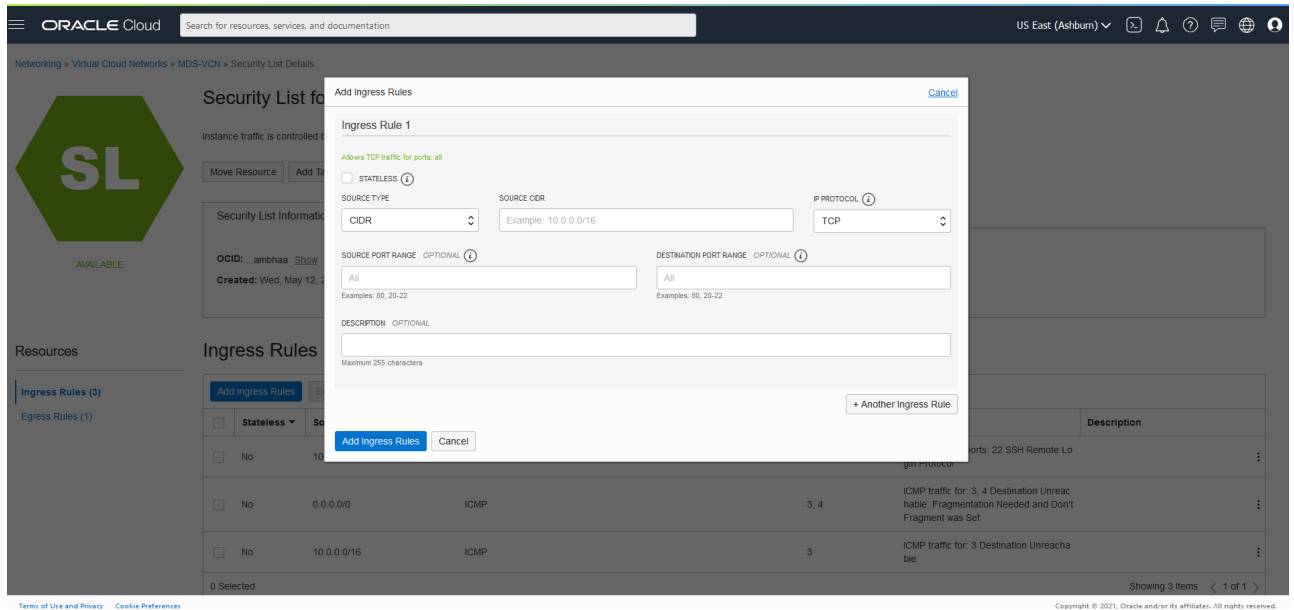
	Stateless	Source	IP Protocol	Source Port Range	Destination Port Range	Type and Code	Allows	Description	
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	22		TCP traffic for ports: 22 SSH Remote Login Protocol		
<input type="checkbox"/>	No	0.0.0.0/0	ICMP			3, 4	ICMP traffic for: 3, 4 Destination Unreachable: Fragmentation Needed and Don't Fragment was Set		
<input type="checkbox"/>	No	10.0.0.0/16	ICMP			3	ICMP traffic for: 3 Destination Unreachable		

0 Selected

Showing 3 Items < 1 of 1 >

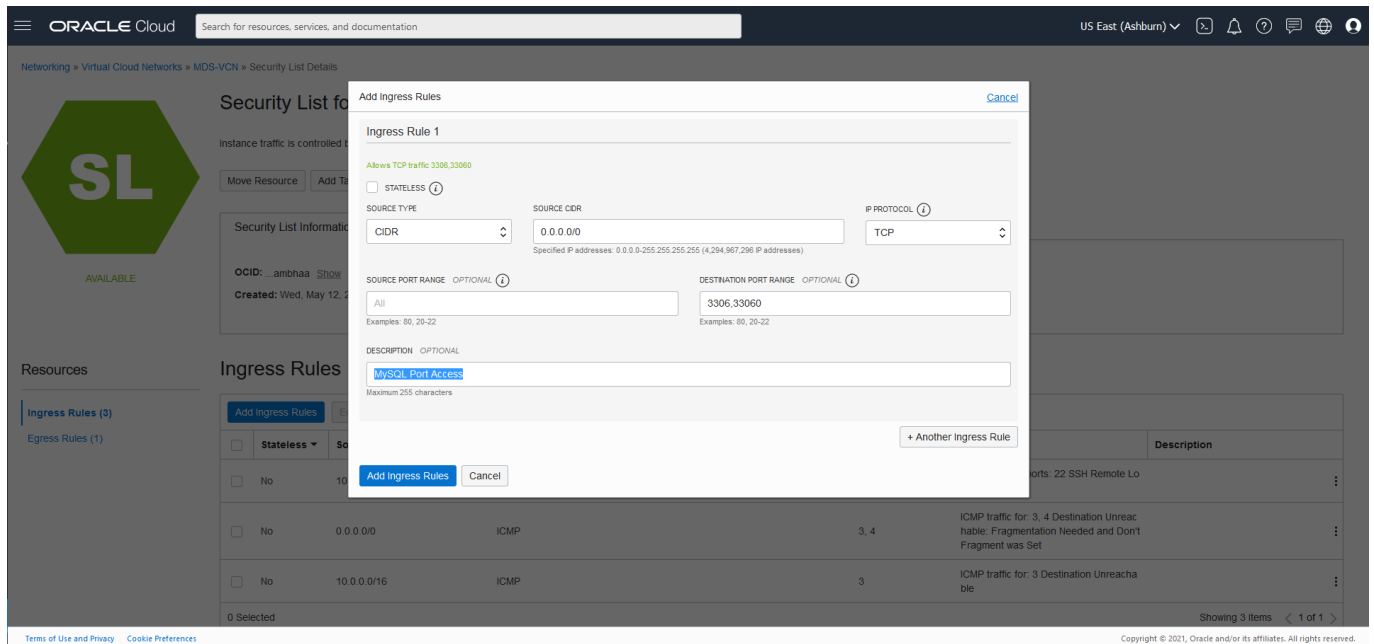
5 / 7

### 3. On Security List for Public Subnet-myvcn page under 'Ingress Rules', click 'Add Ingress Rules'



### 4. On Add Ingress Rules page under Ingress Rule 1

Add an Ingress Rule with Source CIDR `<copy>0.0.0.0/0</copy>` Destination Port Range `<copy>3306,33060</copy>` Description `<copy>MySQL Port Access</copy>` Click 'Add Ingress Rule'



### 5. On Security List for Public Subnet-myvcn page, the new Ingress Rules will be shown under the Ingress Rules List

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Cloud Classic >

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US East (Ashburn)

Networking > Virtual Cloud Networks > myvcn > Security List Details

SL

AVAILABLE

Default Security List for myvcn

Instance traffic is controlled by firewall rules on each Instance in addition to this Security List

Move Resource

Add Tags

Terminate

Security List Information

Tags

OCID: ...wxz2da

Show

Copy

Compartment: DaleDasker-Sandbox

Created: Mon, Apr 11, 2022, 20:49:42 UTC

Resources

Ingress Rules (5)

Egress Rules (1)

Add Ingress Rules

Edit

Remove

<input type="checkbox"/>	Stateless	Source	IP Protocol	Source Port Range	Destination Port Range	Type and Code	Allows	Description
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	22		TCP traffic for ports: 22 SSH Remote Login Protocol	
<input type="checkbox"/>	No	0.0.0.0/0	ICMP			3, 4	ICMP traffic for: 3, 4 Destination Unreachable: Fragmentation Needed and Don't Fragment was Set	
<input type="checkbox"/>	No	10.0.0.0/16	ICMP			3	ICMP traffic for: 3 Destination Unreachable	
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	3306		TCP traffic for ports: 3306	MySQL Port Access
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	33060		TCP traffic for ports: 33060	MySQL Port Access

0 Selected

Showing 5 Items < 1 of 1 >

You may now proceed to the next lab

Acknowledgements

- **Author** - Dale Dasker, MySQL Solution Engineering
- **Last Updated By/Date** - <Dale Dasker, April 2023