

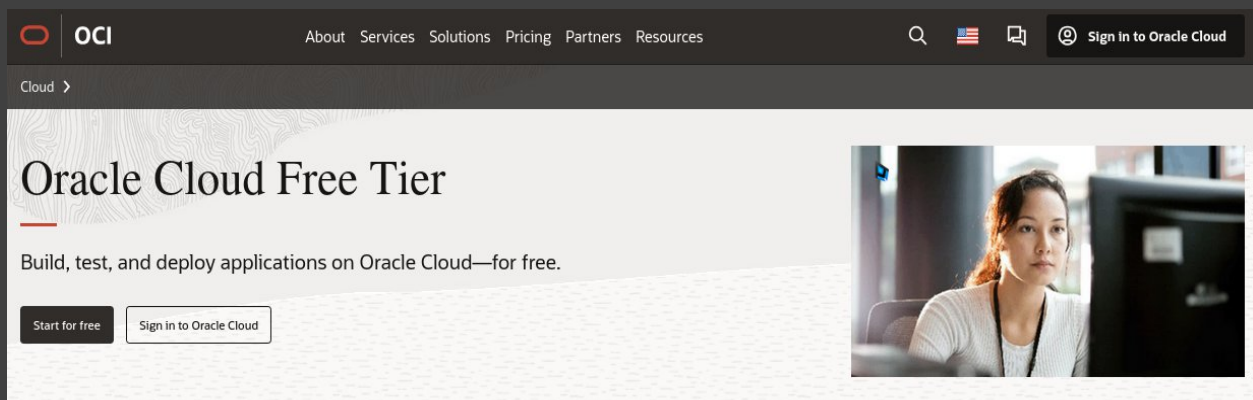
# How to set and spine up a VM instance on Oracle Cloud Infrastructure

This document will take you through a step by step guide on how to setup a Virtual Machine Instance on Oracle Cloud. This will be beneficial if wanna start with homelab or you are new into cloud and you want a platform to practice cloud related topics with hands on practice in a lab environment. Lets get straight to it.

## First step

The first thing you need is to make sure that you have an oracle cloud account, visit their official website to create one.

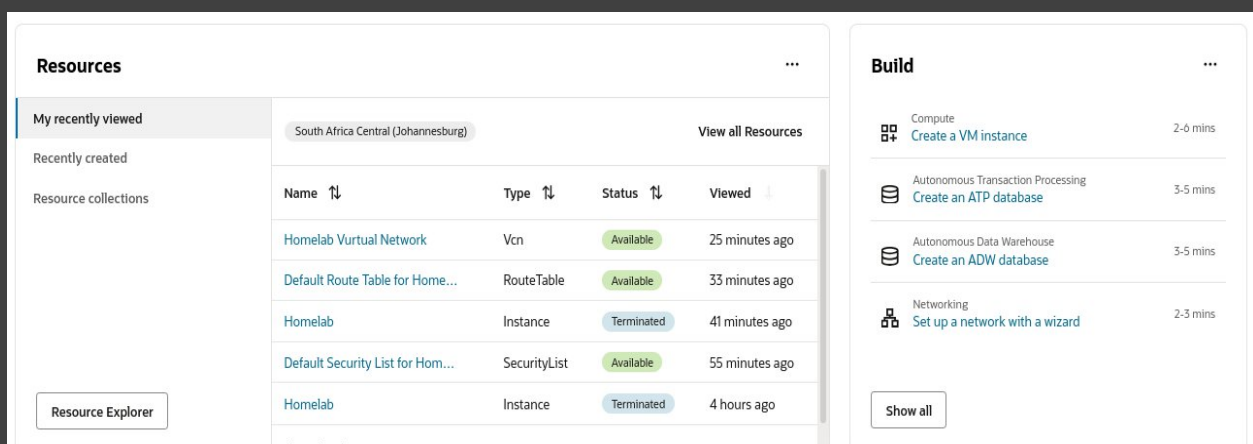
Website: <https://www.oracle.com/cloud/free/>



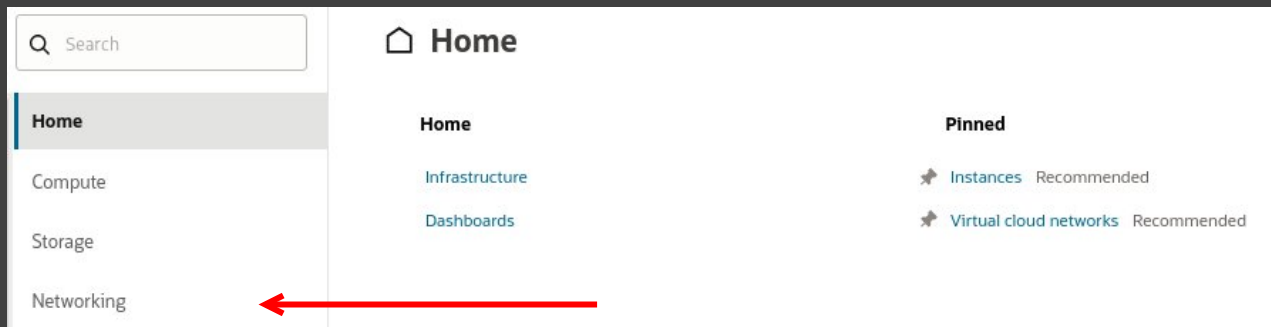
NOTE: will be asked for you banking details but that is only for billing for services that are not free

## Second Step

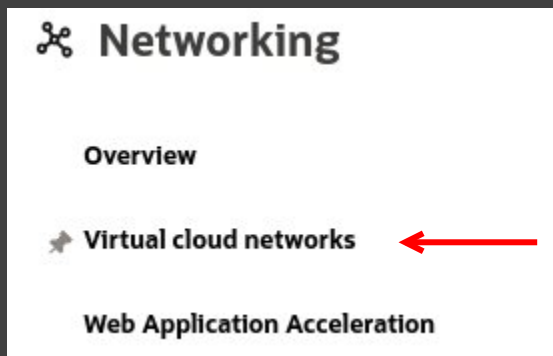
You will be greeted with a dashboard that looks like this. This is you infrastructure home page where you will see all your recent viewed resources.



Before you can create any VM instance. We first need to create a Virtual Cloud Network. So move to the networking page to create a new VCN because we gonna need it when we create a VM instance.



Select Virtual Cloud Network Option



Select create “Create VCN”



Now this is a critical moment you wanna pay attention to. You gonna have to give you network a name that best suits your VM name or idea like “ Homelab Virtual Network”

The screenshot shows the form for creating a VCN. It has two main fields: 'Name' and 'Create In Compartment'. The 'Name' field is empty and has a 'Required' label next to it. The 'Create In Compartment' dropdown menu is set to 'm1 (root)'.

Now you need to set a Private IP for you network and that can be anything from 10.0.0.0/16. Something like 10.84.0.0/16 or 10.25.0.0/16 just leave the last 2 octats available for subnetting. Let me make it easy for you to understand this: you can say 10.<any\_number\_of\_choice>.0.0/16

This way /16 you will get way more IP Addresses

Remember that this number of choice should not exceed 255

**IPv4 CIDR Blocks**

You can assign up to 5 IPv4 CIDR blocks to a VCN. There must be at least one IPv4 CIDR block assigned to a VCN. [Learn more.](#)

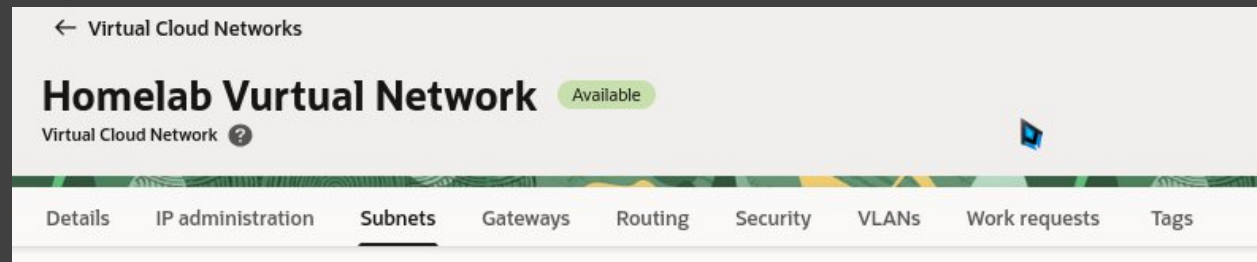
IPv4 CIDR Blocks

Required

Then click **Create VCN** button.

### Third Step

Now select the new Virtual Cloud Network you just created and look for a section that says “**Subnets**” and click create subnet button to create a new subnet for you network to separate or segment your network for better security and management.



Choose:

- Name: Public-Subnet
- CIDR Block: 10.84.1.0/24 or 10.25.1.0/24 or whatever you selected when creating your VCN. If your IP was 10.84.0.0/16 then here you will set it as 10.84.1.0/24 – this way you have created a separate network from you VCN
- Subnet Type: Public Subnet
- Route Table: Default (**we'll edit soon**)
- Security List: Default

Now move to the “**Gateways**” to create an internet gateway for VM to communicate to the internet (remote connection) via SSH or if planning to host something and you will need to access it via the internet.

Details IP administration Subnets **Gateways** Routing Security VLANs Work requests Tags

## Internet Gateways

Search and Filter

Applied filters: Compartment [mkmahwete360 \(root\)](#)

Create Internet Gateway

Name	State	Route Table	Created
Homelab-Gateway	Available	—	Aug 28, 2025, 20:20 UTC

Page 1 of 1 (1 - 1 of 1 total items)

All you are required is to just give your gateway a name then click create internet gateway.

### Forth step

Go to Route Tables → Click Default Route Table for Homelab-VCN.

- Then Add this rules:
  - Destination CIDR Block: 0.0.0.0/0
  - Target: Internet Gateway Homelab-IGW or the name of your internet gateway.

← Virtual Cloud Networks

## Homelab Virtual Network

Virtual Cloud Network

Available

Details IP administration Subnets Gateways **Routing** Security VLANs Work requests Tags

## Route Tables

Search and Filter

Applied filters: Compartment [mkmahwete360 \(root\)](#)

Create Route Table

Name	State	Number of Rules	Created
<a href="#">Default Route Table for Homelab Virtual Network</a>	Available	1	Aug 28, 2025, 19:54 UTC

← Homelab Virtual Network

## Default Route Table for Homelab Virtual Network

Route Table ? Available

Details **Route Rules** Tags

### Route Rules

Traffic within the VCN is handled by the VCN's local routing by default. Intra-VCN routing allows you more control over routing between subnets. [Learn more](#). If you're having trouble, use [Network Path Analyzer](#) to check your connections.

Search and Filter

Add Route Rules Actions

<input type="checkbox"/>	Destination ^	Target Type	Target	Route Type	Description
<input type="checkbox"/>	0.0.0.0/0	Internet Gateway	Homelab-Gateway	Static	So that the VM can communicate via the internet

Now that you are done with Networking its time to setup a new VM to practice or for your lab.

### Fiftieth step

The most important and critical step is out of the way now lets setup our VM. What you need is to move to the compute page

Search

Home

Home

Compute ←

Storage

Networking

Infrastructure

Dashboards

Pinned

★ Instances Recommended

★ Virtual cloud networks Recommended

Select instances

Compute

Compute

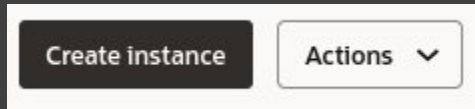
Overview

★ Instances ←

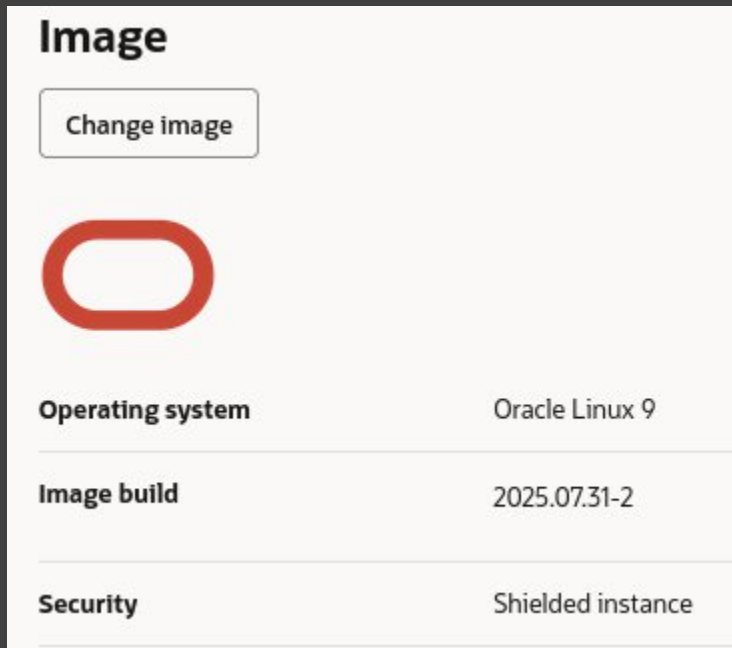
Instance Maintenance

MK Mahwete

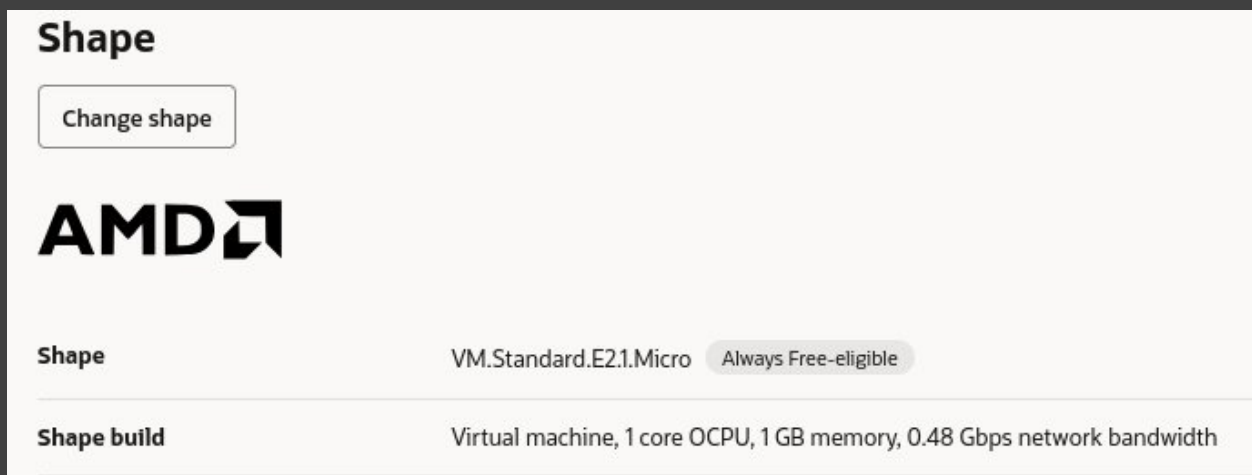
Click create instance button



Now give you instance a name or leave it as it is. You need to select an image of your choice by clicking on change image button



If you are in South Africa like I am, be aware that the Arm based CPU is not yet available in our region. So no need to change the shape and move on to the next step



I highly recommend that you select **Shielded instance** for a more secure VM and move to the next step

## Security

You can enable either shielded instances or confidential computing but not both, simultaneously.

Shielded instance



[Shielded instances](#) harden the firmware security on bare metal hosts and virtual machines (VMs) to defend against malicious boot level software. Shielded instances use a combination of Secure Boot, Measured Boot, and the Trusted Platform Module (TPM) to harden the firmware security. On some instances, these options must be enabled together. In these cases, when you select one option, any other required options are automatically selected. After a shielded instance is launched, only the name of the instance can be changed.

## Sixth step

This is why the first step was important because now you just select and skip. Networking is very important in cloud computing.

Give your network interface card a name of your choice for this VM

A [virtual network interface card \(VNIC\)](#) connects your instance to a [virtual cloud network \(VCN\)](#) and endpoints in and outside the VCN. Having a public IP accessible from the internet.

VNIC name

Primary network

- ☒ Select existing virtual cloud network
- ☐ Create new virtual cloud network
- ☐ Specify OCID

Virtual cloud network compartment  
[redacted] (root)

Virtual cloud network  
Homelab Virtual Network

Subnet

- ☒ Select existing subnet
- ☐ Create new public subnet

Subnet compartment  
[redacted] (root)

Subnet  
Public Subnet

Now you need to set an IP address for you VM and if you are new to networking you can set an automatic IP to the VM

## Primary VNIC IP addresses

Private IPv4 address

- ☒ Automatically assign private IPv4 address
- ☐ Manually assign private IPv4 address

Automatically assign public IPv4 address



If you're not sure whether you need a public IP address, you can always assign one later.

IPv6 addresses



Assign IPv6 addresses from subnet prefixes

You can only assign one IPv6 address per subnet prefix at first instance creation. Subnets can have more than one IPv6 prefix.

This part is very important because if you miss it you wont be able to remote login into your server. So **please download the private key** before you move on to the next step

## Add SSH keys

Generate an [SSH key pair](#) to connect to the instance using a Secure Shell (SSH) connection, or upload a public key that you already have.

- ☒ Generate a key pair for me
- ☐ Upload public key file (.pub)
- ☐ Paste public key
- ☐ No SSH keys

Download the private key so that you can connect to the instance using SSH. It will not be shown again.

Download private key

Download public key



Now its time to set storage volume. Select specify boot volume to set the amount of space you want

## Boot volume

A [boot volume](#) is a detachable device that contains the image used to boot the compute instance.

Specify a custom boot volume size and performance setting

☒

[Volume performance](#) varies with volume size. Default boot volume size: 46.6 GB. When you specify a custom boot volume size, service limits apply.

Boot volume size (GB)	50
Boot volume performance (VPU)	10

IOPS	3000 IOPS
Throughput	24 MB/s
Target volume performance	Balanced

Press **next** and preview your VM then press Create and wait for your VM to be online then you ready to login to it.

## Last step

Now that you are done and your VM is up and running, so login to it via SSH. Remember the private key you downloaded. We gonna need it to login but before that we need to change its permission to read only. Open your terminal and move to a directory you downloaded the key and type the following command:

```
(mk-mahwete@lenovo-s145)-[~]
$ sudo chmod 400 ssh-key-2025-08-28.key
```

Then now your key is ready to be used. Use the following command to ssh or connect to your VM

```
(mk-mahwete@lenovo-s145)-[~]
$ ssh -i ssh-key-2025-08-28.key ubuntu@129.151.169.197
```

MK Mahwete

Replace 129.151.169.197 with the public IP address of your VM and to find it go to our instance page and look where it says public IP

Create instance		Actions					
<input type="checkbox"/>	Name	State	Public IP	Private IP	Shape	OCPU count	Memory (GB)
<input type="checkbox"/>	Homelab <small>Always Free</small>	Terminated	129.151.169.197		VM.Standard.E2.1.Micro	1	1

Note: This instance I am showing here have been terminated and deleted