

Forget Cloud Front-Ends

Let's Terraform Everything

October 18, 2023

hroug **23**
annual conference

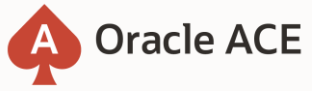
Gianni Ceresa

Working with *data*,
Business Analytics
and EPM tools
for more than
15 years



Oracle ACE
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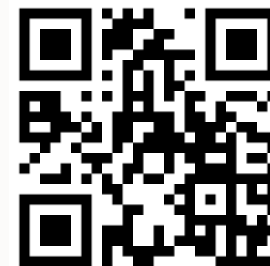
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DISCLAIMER



I'm in no way an expert in Terraform or claim to be one

- I did try it
- I did use it and keep using it
- So far I didn't crash "the Cloud"
- I also manage to not lose anything I already had in my cloud account (huge achievement...)

Forget Cloud Front-Ends

Let's Terraform Everything

Or ... How I did learn Terraform myself

You already did use the Oracle Cloud, right?

To forget cloud front-ends, you first need to have seen it...


Creating a new OCI Compute Instance

What is a compute instance?

It is like a virtual machine running in the cloud, not much different.

Creating a new OCI Compute Instance

- Requires a Virtual Cloud Network, with at least a subnet
 - Create a new VCN, using the wizard to make it quicker

 The screenshots are from 10 months ago, some screens are a bit different now, but all parameters should still be there...

Create a new Virtual Cloud Network (VCN)

Networking

Overview

Virtual Cloud Networks

Web Application Acceleration

Load Balancers

DNS Management

Customer Connectivity

IP Management

Network Command Center

List Scope

Compartment

UKOUG22

datalysis (root)/UKOUG22

Filters

State

Virtual Cloud Networks *in UKOUG22 Compartment*

A Virtual Cloud Network is a virtual private network that you set up in Oracle data centers. It closely resembles a traditional network, with firewall rules and specific types of communication gateways that you can choose to use.

Create VCN

Start VCN Wizard

Name	State	IPv4 CIDR Block	IPv6 Prefix	Default Route Table	DNS Domain Name	Created
No items found.						
						Showing 0 Items < 1 of 1 >

Create a new Virtual Cloud Network (VCN)

Create a VCN with Internet Connectivity

[Help](#)

- 1 Configuration
- 2 [Review and Create](#)

Configuration

ⓘ Resource availability checked successfully.

Close

Basic Information

VCN Name ⓘ

my-new-vcn

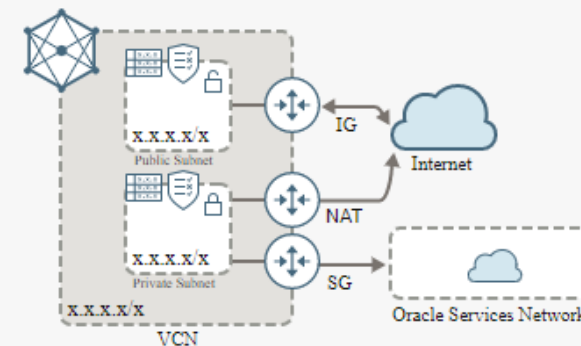
Compartment ⓘ

UKOUG22

datalysis (root)/UKOUG22

Configure VCN and Subnets

VCN with Internet Connectivity



Includes:

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

Next

[Cancel](#)

Create a new Virtual Cloud Network (VCN)

Create a VCN with Internet Connectivity

[Help](#)

- 1 Configuration
- 2 [Review and Create](#)

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 ⓘ

10.0.10.0/24

The subnet CIDR blocks must not overlap.

Private Subnet CIDR Block ⓘ

10.0.20.0/24

The subnet CIDR blocks must not overlap.

DNS Resolution

Use DNS hostnames in this VCN

Required for instance hostname assignment if you plan to use VCN DNS or a third-party DNS. This choice cannot be changed after the VCN is created. [Learn more.](#)

- Internet gateway (IG)
- NAT gateway (NAT)
- Service gateway (SG)

Next

[Cancel](#)

Create a new Virtual Cloud Network (VCN)

Create a VCN with Internet Connectivity

[Help](#)

- 1 [Configuration](#)
- 2 **Review and Create**

Review and Create

Oracle Virtual Cloud Network (VCN)

Name: my-new-vcn

Compartment: UKOUG22

Tags: VCN: VCN-2022-11-24T14:42:23

CIDR: 10.0.0.0/16

DNS Label: mynewvcn

DNS Domain Name: mynewvcn.oraclevcn.com

Subnets

Public Subnet

Subnet Name: Public Subnet-my-new-vcn

CIDR: 10.0.10.0/24

[Previous](#)

Create

[Cancel](#)





Create a new Virtual Cloud Network (VCN)

Create a VCN with Internet Connectivity

[Help](#)

- 1 [Configuration](#)
- 2 **Review and Create**

 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 
- ▶ Update Private Subnet (1 resolved) Done 

[View Virtual Cloud Network](#)



Creating a new OCI Compute Instance

- Requires a Virtual Cloud Network, with at least a subnet
 - Create a new VCN, using the wizard to make it quicker
- Need to select every single option for the compute instance
 - OS (image)
 - Shape (kind of CPU, number of CPUs and RAM)
 - Networking details
 - SSH key
 - ...

Create a new Compute Instance

Create compute instance

Create an instance to deploy and run applications, or save as a reusable Terraform stack for creating an instance with Resource Manager.

Name

my-new-instance

Create in compartment

UKOUG22

datalysis (root)/UKOUG22

Placement

[Edit](#)

Availability domain: AD-1 Always Free-eligible

Capacity type: On-demand capacity

Fault domain: Let Oracle choose the best fault domain

Image and shape

[Edit](#)

Image: Oracle Linux 8

Shape: VM.Standard.A1.Flex Always Free-eligible

Image build: 2022.10.04-0

OCPU count: 1

Create

Save as stack

[Cancel](#)



Create a new Compute Instance

Create compute instance

Networking [Collapse](#)

[Networking](#) is how your instance connects to the internet and other resources in the Console. To make sure you can [connect to your instance](#), assign a public IP address to the instance.

Primary network

- Select existing virtual cloud network Create new virtual cloud network Enter subnet OCID

Virtual cloud network in **UKOUG22** [\(Change Compartment\)](#)

my-new-vcn

Subnet

An IP address from a public subnet and an [internet gateway](#) on the VCN are required to make this instance accessible from the internet.

- Select existing subnet Create new public subnet

Subnet in **UKOUG22** ⓘ [\(Change Compartment\)](#)

Public Subnet-my-new-vcn (regional)

Public IPv4 address

- Assign a public IPv4 address Do not assign a public IPv4 address

Create

Save as stack

[Cancel](#)

Create a new Compute Instance

Create compute instance

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 files (.pub) Paste public keys No SSH keys

SSH public keys

☁️ Drop .pub files here. [Browse](#)

oci-compute.pub ×

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

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

Use in-transit encryption

[Encrypts data](#) in transit between the instance, the boot volume, and the block volumes.

Create

Save as stack

[Cancel](#)

Create a new Compute Instance



PROVISIONING

my-new-instance

Start Stop Reboot **Terminate** More actions ▾

Instance information

Shielded instance

Oracle Cloud Agent

Notifications

Tags

General information

Availability domain: AD-1

Fault domain: FD-2

Region: eu-zurich-1

OCID: ...owy3va [Show](#) [Copy](#)

Launched: Thu, Nov 24, 2022, 14:45:59 UTC

Compartment: datalysis (root)/UKOUG22

Capacity type: On-demand

Instance details

Virtual cloud network: Loading...

Instance access

The instance must be running before you can connect to it.

Primary VNIC

Private IP address: Loading...

Network security groups: Loading...

Subnet: Loading...

Private DNS record: Disable

Internal FQDN: -

Launch options



Create a new Compute Instance



RUNNING

my-new-instance

[Start](#) [Stop](#) [Reboot](#) [Terminate](#) [More actions ▾](#)

Instance information

Shielded instance

Oracle Cloud Agent

Notifications

Tags

General information

Availability domain: AD-1

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Region: eu-zurich-1

OCID: ...owy3va [Show](#) [Copy](#)

Launched: Thu, Nov 24, 2022, 14:45:59 UTC

Compartment: datalysis (root)/UKOUG22

Capacity type: On-demand

Instance details

Virtual cloud network: [my-new-vcn](#)

Instance access

You [connect to a running Linux instance](#) using a Secure Shell (SSH) connection. You'll need the private key from the SSH key pair that was used to create the instance.

Public IP address: 140.238.219.218 [Copy](#)

Username: opc

Primary VNIC

Private IP address: 10.0.10.146

Network security groups: None [Edit](#) [i](#)

Subnet: [Public Subnet-my-new-vcn](#)

Private DNS record: Enable



Creating a new OCI Compute Instance

- Requires a Virtual Cloud Network, with at least a subnet
 - Create a new VCN, using the wizard to make it quicker
- Need to select every single option for the compute instance
 - OS (image)
 - Shape (kind of CPU, number of CPUs and RAM)
 - Networking details
 - SSH key
 - ...

When creating 1 compute instance it's fine, when creating 2 compute instances it's still fine ...

Where is the problem?

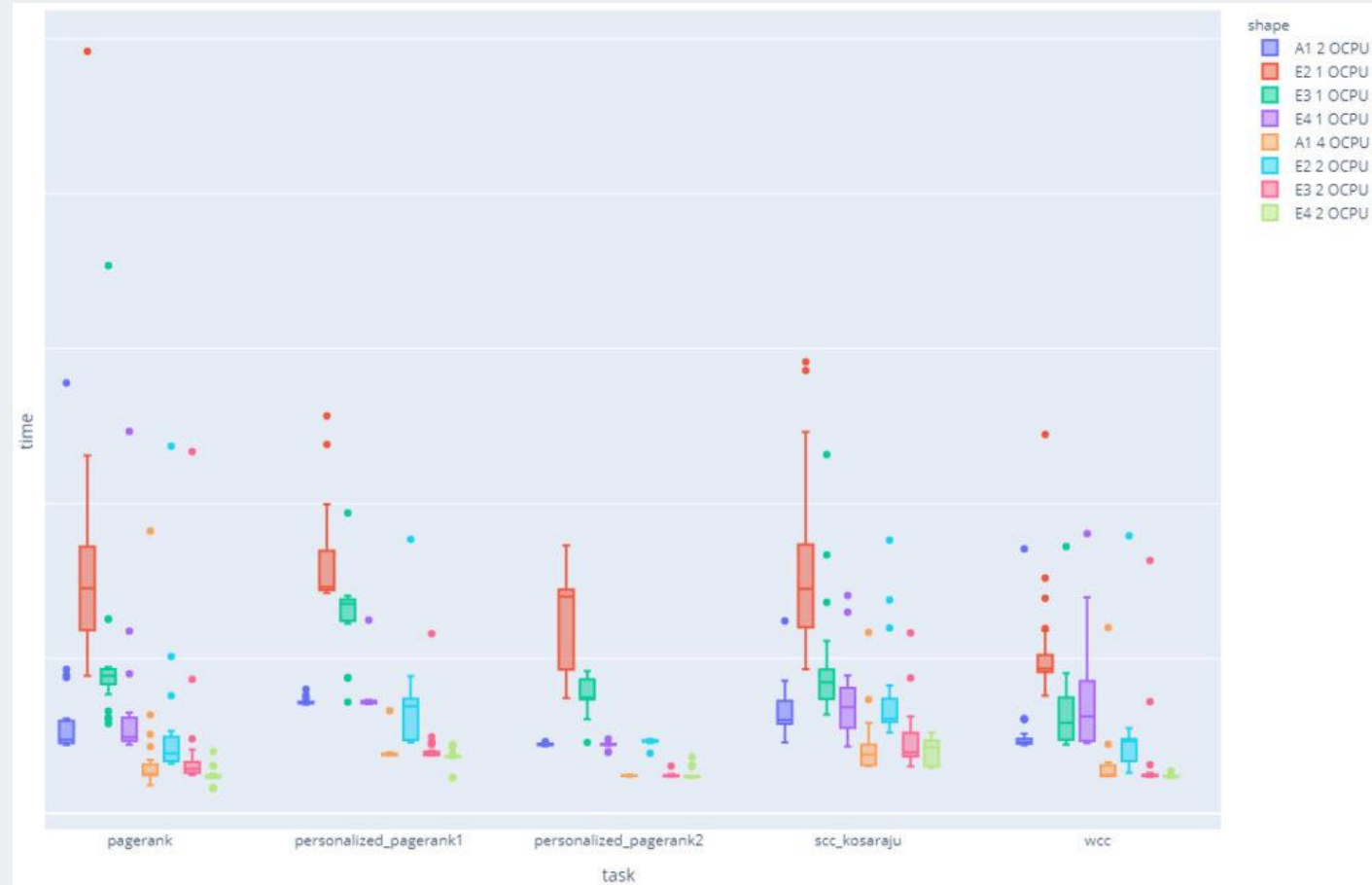
Creating many new OCI Compute Instances

What about when you need to create 8 different shapes of compute instances, install the same environments to execute some tests and repeat all that 5-10 times to compare the results and decide what environment perform the best?

For example:

When Oracle launched the A1 shape with ARM cpus.
How to evaluate how it did perform compared to the existing AMD cpus?

Luckily Terraform exists!



Getting rid of cloud front-ends

Now that you saw a fraction of the cloud front-ends letting you create, manipulate, destroy cloud objects, it's time to look at what could replace them

Terraform: an infrastructure as code tool

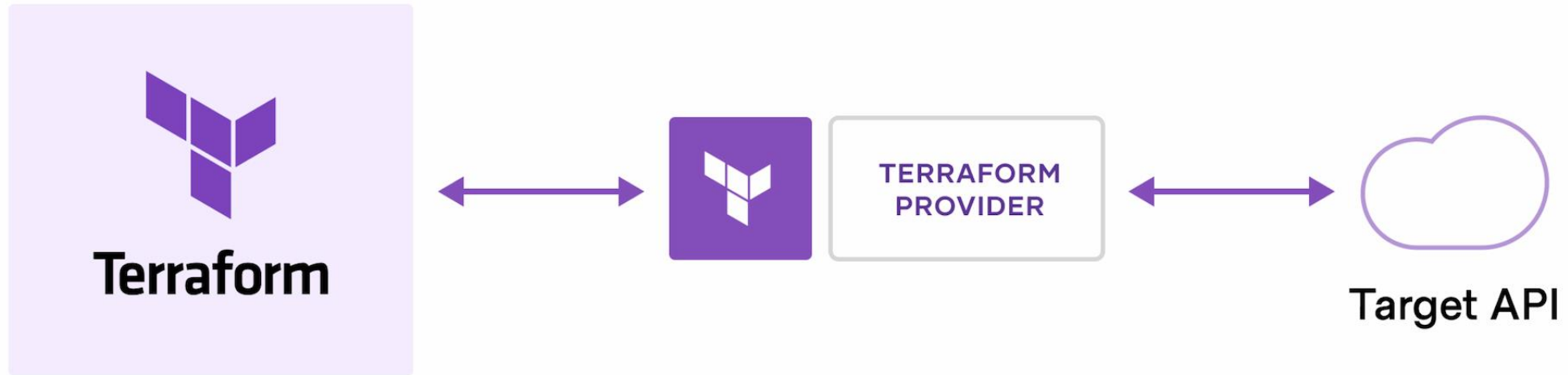
How does Terraform work?

Some important points first:

- Terraform is not an Oracle product, it is from HashiCorp
 - It is cloud-agnostic
 - Oracle Cloud is not the only cloud provider you can use with Terraform

- There is a lot of content available online
 - <https://developer.hashicorp.com/terraform/intro>
 - <https://developer.hashicorp.com/terraform/tutorials/oci-get-started>
 - <https://docs.oracle.com/en-us/iaas/developer-tutorials/tutorials/home.htm>

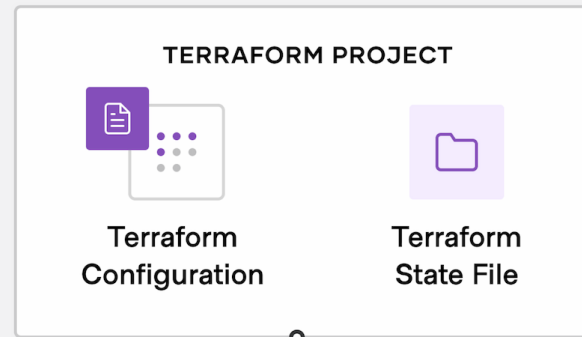
How does Terraform work?



How does Terraform work?

Write

Define infrastructure in configuration files



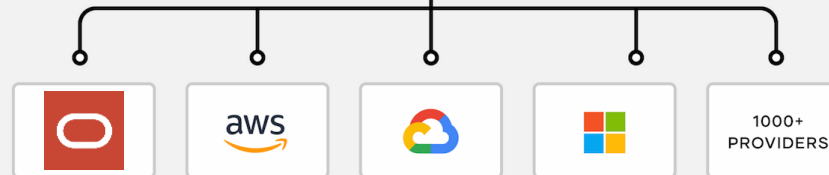
Plan

Review the changes Terraform will make to your infrastructure

```
$ terraform plan
...
Terraform will perform
the following actions
```

Apply

Terraform provisions your infrastructure and updates the state file.



Terraform important commands

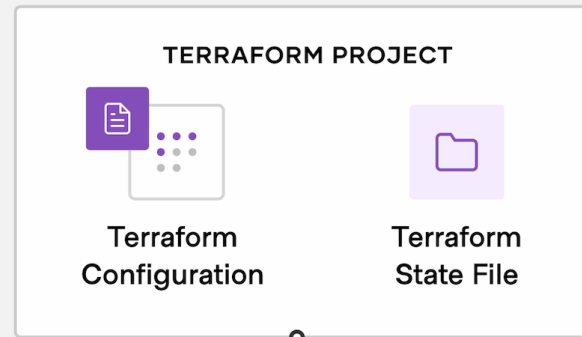
terraform plan

- The plan action doesn't perform any change, it only evaluate all the required changes and allows to review what will be created, edited, deleted.
- It is very important because it doesn't represent any risk of breaking things.
- Sometime, when editing an existing object, it will be fully deleted and recreated instead of edited. Because this behaviour can be destructive (think at a compute instance that you did configure and where you are running some application: replacing it would make you lose everything)

How does Terraform work?

Write

Define infrastructure in configuration files



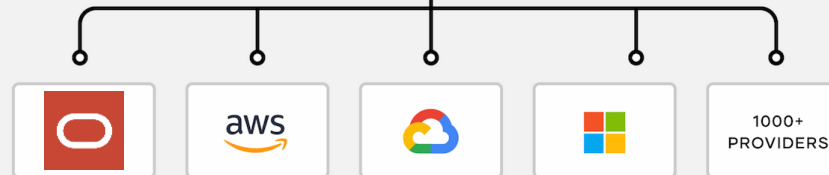
Plan

Review the changes Terraform will make to your infrastructure

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$ terraform plan
...
Terraform will perform
the following actions
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Apply

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Terraform important commands

terraform plan

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terraform apply

- Just like plan, by default it does calculate all the required tasks to be performed without applying them directly.
- It does prompt a YES / NO question to confirm if you want to apply the changes for real.

Terraform important commands

terraform plan

- The plan action doesn't perform any change, it only evaluate all the required changes and allows to review what will be created, edited, deleted.
- It is very important because it doesn't represent any risk of breaking things.
- Sometime, when editing an existing object, it will be fully deleted and recreated instead of edited. Because this behaviour can be destructive (think at a compute instance that you did configure and where you are running some application: replacing it would make you lose everything)

terraform apply

- Just like plan, by default it does calculate all the required tasks to be performed without applying them directly.
- It does prompt a YES / NO question to confirm if you want to apply the changes for real.

Both commands accept a `-destroy` attribute

- The meaning is quite obvious: instead of making the configuration it will destroy it all.

Terraform State

- All your Terraform code is disconnected from reality
 - It does represent elements and dependencies between them
 - It isn't related to a specific, existing, object
- The Terraform State (file) is the connection between your code and reality
 - Terraform identifiers are mapped to real objects (using OCID in Oracle Cloud)
 - Extra metadata is also stored (status etc.)

Terraform State

```
# JupyterHub [VM.Standard.E2.2]
resource "oci_core_instance" "compute_instance-jupyterhub" {
  # Required
  compartment_id      = var.compartment_ocid
  availability_domain = data.oci_identity_availability_domain.EU-ZURICH-1-AD-1.name
  shape               = "VM.Standard.E2.2"

  # Optional
  display_name = "JupyterHub"
  metadata = {
    ssh_authorized_keys = chomp(file(var.ssh_public_keys.compute))
  }

  lifecycle {
    prevent_destroy = true
  }
}
```



ORACLE Cloud Search resources, services, documentation, and Marketplace Switzerland North (Zurich) ▾

Compute ▸ Instances ▸ Instance details

JupyterHub

Start Stop Reboot **Terminate** More actions ▾

Instance information | Shielded instance | Oracle Cloud Agent | Notifications | Tags

General information

Availability domain: AD-1
Fault domain: FD-3
Region: eu-zurich-1
OCID: ...wvaheq [Show](#) [Copy](#)
Launched: Sun, Mar 22, 2020, 14:00:51 UTC
Compartment: datalysis (root)
Capacity type: On-demand

Instance access

The instance must be running before you can connect to it.

Public IP address: [Copy](#)
Username: opc

Primary VNIC

Private IP address: 10.0.1.12
Network security groups: None [Edit](#) [i](#)
Subnet: [Public Subnet 10.0.1.0/24](#)

STOPPED

Terraform State

- All your Terraform code is disconnected from reality
 - It does represent elements and dependencies between them
 - It isn't related to a specific, existing, object
- The Terraform State (file) is the connection between your code and reality
 - Terraform identifiers are mapped to real objects (using OCID in Oracle Cloud)
 - Extra metadata is also stored (status etc.)
- Terraform without a State doesn't know what already exists or not in your cloud tenancy
 - It will try to recreate everything
- It is possible to map Terraform identifiers to existing objects OCID by code
 - Making Terraform State aware of already existing objects

```
terraform import oci_core_instance.compute_instance-jupyterhub
ocid1.instance.oc1.eu-zurich-1...wvaheq
```

Where does Terraform fit in the already long list of tools?

There are many tools out there doing similar/same/other things

- Ansible
- python OCI CLI
- Chef, Puppet, ...

If you google this topic you find lot of "opinions"

There isn't an answer, that I would call universal, to questions like:

- *X vs Y*
- *Should I use X or Y?*
- *Is X better than Y?*

Where does Terraform fit in the already long list of tools?

My personal choice (and opinion) is to pick a tool by type of activity I want to do

Infrastructure

- Terraform
- Manually via the web interface

Installation, configuration, customization of the environment (inside the OS)

- Ansible
- cloud-init
- Custom scripts

Both can be chained

- Terraform executing Ansible on the newly created instances

All this is very nice, but ...

How to learn Terraform?

How to learn and get started with Terraform?

There are tutorials, “step by step” instructions, on both HashiCorp and Oracle website

The documentation is detailed and cover all the options available

You can start from scratch and just try to build your cloud infrastructure from nothing

Or ...

How to learn and get started with Terraform?

A reversed approach:

- Creating a cloud object by hand, in the web interface
 - Allows to see the required values
 - What options are offered
- Export an existing cloud object to a Terraform definition file
- Reading the Terraform code, comparing with what has been entered in the web interface and what says the documentation
- Create a new object in Terraform and explore the actions Terraform wants to perform

Learning based on existing objects, created by you, to have code you know and can fully understand instead of a random “hello world” example

Seeing it in action

Terraform: installation

(I do use an Oracle Linux 9 WSL image to run Terraform)

```
# install the developers repository
```

```
sudo dnf install -y oraclelinux-developer-release-el9
```

```
# check if Terraform is available
```

```
sudo dnf list 'terraform*'
```

```
# install Terraform and the Terraform OCI provider
```

```
sudo dnf install -y terraform terraform-provider-oci
```

```
# the OCI provider is installed in /usr/bin/terraform-provider-oci_v<version_number>
```

Terraform: authentication

Terraform needs to connect to the cloud provider and because of that an authentication mechanism should be used

My preference is for an API key:

- Login to your cloud tenancy
- Go to Profile > My Profile > API Keys
- Download a new private key OR upload a public key
- Copy the configuration file preview, edit by adding the correct path to the private key
- Save as `~/.oci/config` (the private key can also be saved in `~/.oci` with `chmod 600` to protect it)
 - This is the default location where Terraform will look for authentication details if not explicitly provided in a different way

Get an API key and prepare Terraform authentication

The screenshot shows the Oracle Cloud console dashboard. At the top, there is a navigation bar with the Oracle Cloud logo, a search bar, and the region 'Switzerland North (Zurich)'. A red arrow points from the search bar area to the 'Profile' menu on the right. The 'Profile' menu is open, showing the user's email 'oracleidentitycloudservice/gianni.ceresa@datalysis.ch' and various settings options like 'Tenancy: datalysis', 'Service user Console', 'User settings', 'Console settings', and 'Sign out'. Below the navigation bar, there are sections for 'Service links' (PINNED, RECENTLY VISITED, RECOMMENDED) and 'Quickstarts' (FEATURED, APPLICATION DEVELOPMENT). A 'View my deployments' button is visible in the Quickstarts section. On the right side, there is a 'Cost savings opportunities' widget showing 'CHF 10,000.00 Free Trial credits' and 'CHF 5,641.52 used' vs 'CHF 4,358.48 left' with a progress bar. Below that is an 'OCI mobile app' widget.

...oracle.com/.../ocid1.user.oc1..aaaaaaa57rrj46virxd3zolzqg3nilvy4tqldqw766tsmn4g5x...

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Get an API key and prepare Terraform authentication

Capabilities

Local password: No

API keys: Yes

Auth tokens: Yes

[View Configuration file](#) ⓘ

SMTP credentials: Yes

Customer secret keys: Yes

OAuth 2.0 Client Credentials: Yes

Database Passwords: Yes

Resources

Groups

API Keys

Auth Tokens

Customer Secret Keys

Database Passwords

OAuth 2.0 Client Credentials

SMTP Credentials

API Keys

Add API Key

Fingerprint

Created

ab:13:33:2b:24:2e:0f:66:7e:fd:eb:7d:b0:52:0b:89

Wed, May 19, 2021, 10:35:57 UTC

41:c1:5f:08:50:b6:a9:1b:a8:85:a6:36:ea:e5:7a:8c

Sun, May 23, 2021, 17:47:45 UTC

Displaying 2 API Keys

Get an API key and prepare Terraform authentication

Capabilities

Local

API ke

Auth t

[View C](#)

Add API Key

[Help](#)

Note: An API key is an RSA key pair in PEM format used for signing API requests. You can generate the key pair here and download the private key. If you already have a key pair, you can choose to upload or paste your public key file instead. [Learn more](#)

Generate API Key Pair Choose Public Key File Paste Public Key

Public Key



Download the private key. It will not be shown again. After you download it, [change the file permissions](#) so only you can view it.

✓ Download Private Key

↓ [Download Public Key](#)

Add

[Cancel](#)

Remember to download and keep the private key



Get an API key and prepare Terraform authentication

Capabilities

Local

API ke

Auth t

View C

Configuration File Preview

[Help](#)

Note: This configuration file snippet includes the basic authentication information you'll need to use the SDK, CLI, or other OCI developer tool. Paste the contents of the text box into your `~/.oci/config` file and update the `key_file` parameter with the file path to your private key. If you already have a **Default** profile in your config profile, you'll need to perform some additional steps. [Learn more](#)

Select API Key Fingerprint

2d:95:f1:cd:ee:51:89:48:4e:fe:f9:30:90:e6:b0:ec

Configuration File Preview *Read-only*

```
[DEFAULT]
user=ocid1.user.oc1..aaaaaaa57rj46virxd3zolzqg3nilvy4tqldqw766tscmn4g5xwygbnwkq
fingerprint=2d:95:f1:cd:ee:51:89:48:4e:fe:f9:30:90:e6:b0:ec
tenancy=ocid1.tenancy.oc1..aaaaaaaaxkrfbzdi72pukgwprkjer2lro6l7k5kmcips7syvku54mkkv4boq
region=eu-zurich-1
key_file=<path to your private keyfile> # TODO
```

Paste the contents of the text box into your `~/.oci/config` file.

[Copy](#)

Close



Displaying 3 API Keys

Resources

Groups

API Keys

Auth Tokens

Customer Secret Keys

Database Passwords

OAuth 2.0 Client Credentials

SMTP Credentials

Get an API key and prepare Terraform authentication

```
Command Prompt  x  gianni@ThinkPadX1c9-GC:~  x  +  v  -  □  x

[gianni@ThinkPadX1c9-GC ~]$ cat ~/.oci/config
[DEFAULT]
user=ocid1.user.oc1..aaaaaaa57rrj46virxd3zolzqg3nilvy4tqldqw766tscmn4g5xwygbnwkq
fingerprint=2d:95:f1:cd:ee:51:89:48:4e:fe:f9:30:90:e6:b0:ec
tenancy=ocid1.tenancy.oc1..aaaaaaaaxkrfbzdi72pukgwprkjer2lro6l7k5kmcips7syvku54mkkv4boq
region=eu-zurich-1
key_file=/home/gianni/.oci/oracleidentitycloudservice_gianni.ceres-11-24-14-37.pem
[gianni@ThinkPadX1c9-GC ~]$ |
```

Export the existing cloud objects to a Terraform configuration

Terraform export/discovery of existing objects (with state file)

```
Command Prompt | gianni@ThinkPadX1c9-GC:~ |
INFO 2022/11/24 15:58:07.667931 [INFO] ==> Importing resource 'oci_core_default_dhcp_options.export_Default-DHCP-Options-for-my-new-vcn'
oci_core_default_dhcp_options.export_Default-DHCP-Options-for-my-new-vcn: Importing from ID "ocid1.dhcpoptions.oc1.eu-zurich-1.aaaaaaa4iidtervnx7kyzszgv275cmnubztvwkrpctuqhy4skdkdbqjcjca"...
oci_core_default_dhcp_options.export_Default-DHCP-Options-for-my-new-vcn: Import prepared!
  Prepared oci_core_default_dhcp_options for import
oci_core_default_dhcp_options.export_Default-DHCP-Options-for-my-new-vcn: Refreshing state... [id=ocid1.dhcpoptions.oc1.eu-zurich-1.aaaaaaa4iidtervnx7kyzszgv275cmnubztvwkrpctuqhy4skdkdbqjcjca]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

INFO 2022/11/24 15:58:08.912771 [INFO] ==> Importing resource 'oci_core_nat_gateway.export_NAT-Gateway-my-new-vcn'
oci_core_nat_gateway.export_NAT-Gateway-my-new-vcn: Importing from ID "ocid1.natgateway.oc1.eu-zurich-1.aaaaaaaawqnuopl67w6shydq4qoy27urxfvsea3n5s276adnribcwvvz2zra"...
oci_core_nat_gateway.export_NAT-Gateway-my-new-vcn: Import prepared!
  Prepared oci_core_nat_gateway for import
oci_core_nat_gateway.export_NAT-Gateway-my-new-vcn: Refreshing state... [id=ocid1.natgateway.oc1.eu-zurich-1.aaaaaaaawqnuopl67w6shydq4qoy27urxfvsea3n5s276adnribcwvvz2zra]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

INFO 2022/11/24 15:58:10.399185 [INFO] ==> Importing resource 'oci_core_route_table.export_Route-Table-for-Private-Subnet-my-new-vcn'
|
```

Terraform export/discovery of existing objects (with state file)

```
Command Prompt x gianni@ThinkPadX1c9-GC:~ x + v - □ X
INFO 2022/11/24 15:58:19.221385 [INFO] Optional TF attribute 'description' not found in source
INFO 2022/11/24 15:58:19.221414 [INFO] Optional TF attribute 'tcp_options' not found in source
INFO 2022/11/24 15:58:19.221433 [INFO] Optional TF attribute 'udp_options' not found in source
INFO 2022/11/24 15:58:19.221449 [INFO] Optional TF attribute 'description' not found in source
INFO 2022/11/24 15:58:19.221477 [INFO] Optional TF attribute 'tcp_options' not found in source
INFO 2022/11/24 15:58:19.221481 [INFO] Optional TF attribute 'udp_options' not found in source
INFO 2022/11/24 15:58:19.221486 [INFO] ==> Generating resource 'oci_core_service_gateway.export_Service-Gateway-my-new-vcn'
INFO 2022/11/24 15:58:19.221514 [INFO] Optional TF attribute 'route_table_id' not found in source
INFO 2022/11/24 15:58:19.221543 [INFO] ==> Generating resource 'oci_core_instance.export_my-new-instance_1'
INFO 2022/11/24 15:58:19.221636 [INFO] Optional TF attribute 'async' not found in source
INFO 2022/11/24 15:58:19.221652 [INFO] Optional TF attribute 'is_live_migration_preferred' not found in source
INFO 2022/11/24 15:58:19.221656 [INFO] Optional TF attribute 'capacity_reservation_id' not found in source
INFO 2022/11/24 15:58:19.221692 [INFO] Optional TF attribute 'assign_private_dns_record' not found in source
INFO 2022/11/24 15:58:19.221716 [INFO] Optional TF attribute 'vlan_id' not found in source
INFO 2022/11/24 15:58:19.221739 [INFO] Optional TF attribute 'dedicated_vm_host_id' not found in source
INFO 2022/11/24 15:58:19.221766 [INFO] Optional TF attribute 'ipxe_script' not found in source
INFO 2022/11/24 15:58:19.221790 [INFO] Optional TF attribute 'is_pv_encryption_in_transit_enabled' not found in source
INFO 2022/11/24 15:58:19.221826 [INFO] Optional TF attribute 'preserve_boot_volume' not found in source
INFO 2022/11/24 15:58:19.221866 [INFO] Optional TF attribute 'boot_volume_size_in_gbs' not found in source
INFO 2022/11/24 15:58:19.221888 [INFO] Optional TF attribute 'kms_key_id' not found in source
INFO 2022/11/24 15:58:19.223523 Found 13 'core' resources. Generated under '/home/gianni/terraform_export/core.tf'
INFO 2022/11/24 15:58:19.223529 Time taken for discovery: 1.58971993s, generating state: 0s
INFO 2022/11/24 15:58:19.223530 === COMPLETED ===
INFO 2022/11/24 15:58:19.223532 ===== PERFORMANCE SUMMARY New Branch =====
INFO 2022/11/24 15:58:19.223534 Total resources: 13
INFO 2022/11/24 15:58:19.223536 Total time taken for discovering all services: 1.589759249s
INFO 2022/11/24 15:58:19.223538 Total time taken for generating state of all services: 18.602531757s
INFO 2022/11/24 15:58:19.223540 Total time taken by entire export: 20.195837395s
[gianni@ThinkPadX1c9-GC ~]$ |
```

Terraform export/discovery of existing objects (with state file)

```
Command Prompt x gianni@ThinkPadX1c9-GC:~/te x + v - □ X
[gianni@ThinkPadX1c9-GC terraform_export]$ ll
total 100
drwxr-xr-x 3 gianni gianni 4096 Nov 24 15:58 .
drwx----- 9 gianni gianni 4096 Nov 24 15:37 ..
-rw-r--r-- 1 gianni gianni 14031 Nov 24 15:58 core.tf
-rw-r--r-- 1 gianni gianni 38 Nov 24 15:58 provider.tf
drwxr-xr-x 3 gianni gianni 4096 Nov 24 15:58 .terraform
-rw-r--r-- 1 gianni gianni 252 Nov 24 15:58 .terraform.lock.hcl
-rw-r--r-- 1 gianni gianni 31357 Nov 24 15:58 terraform.tfstate
-rw-r--r-- 1 gianni gianni 24993 Nov 24 15:58 terraform.tfstate.tmp.backup
-rw-r--r-- 1 gianni gianni 513 Nov 24 15:58 vars.tf
[gianni@ThinkPadX1c9-GC terraform_export]$ |
```

Modify the export configuration to add changes

Add new Ingress Rule to an existing VCN Security List

Created: Thu, Nov 24, 2022, 14:44:17 UTC

Resources

Ingress Rules (3)

Egress Rules (1)

Ingress Rules

Add Ingress Rules

Edit

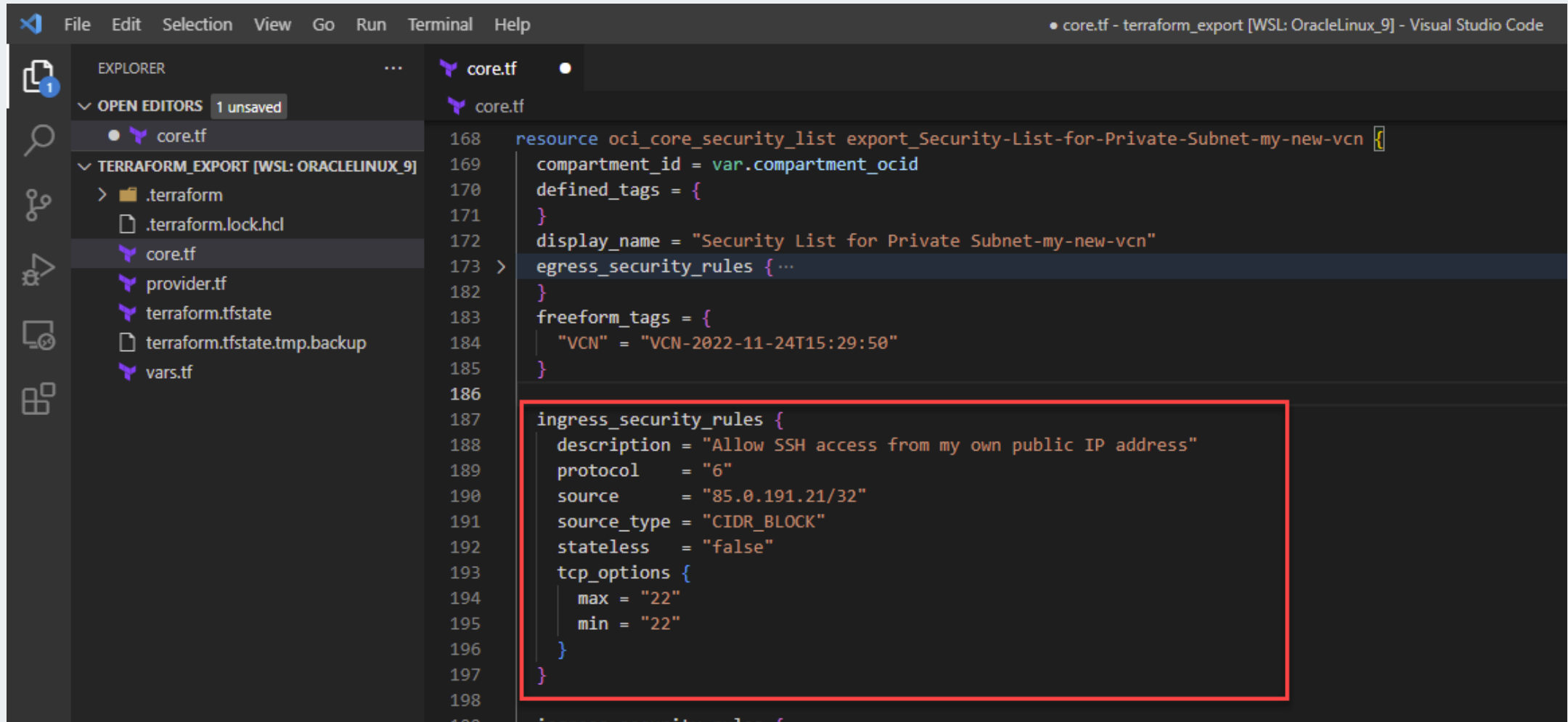
Remove

<input type="checkbox"/>	Stateless ▾	Source	IP Protocol	Source Port Range	Destination Port Range	Type and Code	Allows	Description
<input type="checkbox"/>	No	10.0.0.0/16	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 >

Add new Ingress Rule to an existing VCN Security List



The screenshot shows the Visual Studio Code interface with a Terraform configuration file named `core.tf` open. The code defines a resource `oci_core_security_list` for a VCN security list. The `ingress_security_rules` block is highlighted with a red box, showing the configuration for an SSH rule.

```
168 resource oci_core_security_list export_Security-List-for-Private-Subnet-my-new-vcn {
169     compartment_id = var.compartment_ocid
170     defined_tags = {
171     }
172     display_name = "Security List for Private Subnet-my-new-vcn"
173     egress_security_rules { ...
182     }
183     freeform_tags = {
184     | "VCN" = "VCN-2022-11-24T15:29:50"
185     }
186
187     ingress_security_rules {
188     | description = "Allow SSH access from my own public IP address"
189     | protocol    = "6"
190     | source      = "85.0.191.21/32"
191     | source_type = "CIDR_BLOCK"
192     | stateless   = "false"
193     | tcp_options {
194     | | max = "22"
195     | | min = "22"
196     | }
197     }
198
199     ingress_security_rules {
```

Add new Ingress Rule to an existing VCN Security List

```
Command Prompt x gianni@ThinkPadX1c9-GC:~/t/ x + v - □ X
[gianni@ThinkPadX1c9-GC terraform_export]$ terraform plan
oci_core_private_ip.export_my-new-instance: Refreshing state... [id=ocid1.privateip.oc1.eu-zurich-1.ab5heljrysqpihm7dzbe
sjfrcke2ulkon3ts6owsmfhcklevvmwe6x4tbkca]
oci_core_vcn.export_my-new-vcn: Refreshing state... [id=ocid1.vcn.oc1.eu-zurich-1.aaaaaaaa73hf3saaxre7pwebmqi4tdhbqbdjpa
kc6ucumosdzls3nazfl7da]
oci_core_internet_gateway.export_Internet-Gateway-my-new-vcn: Refreshing state... [id=ocid1.internetgateway.oc1.eu-zuric
h-1.aaaaaaaa2hdxiwnkwingnpdinchis5dt7fo2wv7lzgdqiepmqpadtfcz72uxq]
oci_core_subnet.export_Public-Subnet-my-new-vcn: Refreshing state... [id=ocid1.subnet.oc1.eu-zurich-1.aaaaaaaa3h5zcspakg
xan26crqvlpcdky7re4fec2qvvhwo123ynhiuzbjmq]
oci_core_default_dhcp_options.export_Default-DHCP-Options-for-my-new-vcn: Refreshing state... [id=ocid1.dhcpoptions.oc1.
eu-zurich-1.aaaaaaaa4iidtervnx7kyzszgv275cmnubztvwkrpctuqhy4skdkdbqjca]
oci_core_service_gateway.export_Service-Gateway-my-new-vcn: Refreshing state... [id=ocid1.servicegateway.oc1.eu-zurich-1
.aaaaaaaaappdw74jzdfalfhst4e7mpmh6iqdtxfoyk24ach73cfrna577tykq]
oci_core_default_security_list.export_Default-Security-List-for-my-new-vcn: Refreshing state... [id=ocid1.securitylist.o
c1.eu-zurich-1.aaaaaaaaj5nykzjtltdmzafcrsnztnodqpc23ghnbmm7m5xzzjwgivdia]
oci_core_security_list.export_Security-List-for-Private-Subnet-my-new-vcn: Refreshing state... [id=ocid1.securitylist.oc
1.eu-zurich-1.aaaaaaaanauakuxarhdv732see5rs3hjgetwsx5i64t42tvj2rsvgti6j4oa]
oci_core_nat_gateway.export_NAT-Gateway-my-new-vcn: Refreshing state... [id=ocid1.natgateway.oc1.eu-zurich-1.aaaaaaaawqn
uopl67w6shydq4qoy27urxfvsea3n5s276adnribcwwvz2zra]
oci_core_instance.export_my-new-instance_1: Refreshing state... [id=ocid1.instance.oc1.eu-zurich-1.an5heljr73hf3sac5lzmw
nqqgw4hsopjsw3rxn67b5ndnnzgd4qunaowy3va]
oci_core_default_route_table.export_Default-Route-Table-for-my-new-vcn: Refreshing state... [id=ocid1.routetable.oc1.eu-
zurich-1.aaaaaaaaxilalrrzzqzprfcgfd5lryjbzvfasdjino66gpn3d6b4qisdnzq]
oci_core_route_table.export_Route-Table-for-Private-Subnet-my-new-vcn: Refreshing state... [id=ocid1.routetable.oc1.eu-z
urich-1.aaaaaaaoromlyphw6lo7jtcwtgdez4ofjff4uqfwvb5mluxhnhv7jrb6tjq]
oci_core_subnet.export_Private-Subnet-my-new-vcn: Refreshing state... [id=ocid1.subnet.oc1.eu-zurich-1.aaaaaaa73nglzkmn
ym3pem5x4okbd3flzgbxvuvcd4rmqj6zjzlz3rfjq]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:
```


Add new Ingress Rule to an existing VCN Security List

```
Command Prompt  x  gianni@ThinkPadX1c9-GC:~/t/  x  +  v  -  □  X

# oci_core_security_list.export_Security-List-for-Private-Subnet-my-new-vcn will be updated in-place
~ resource "oci_core_security_list" "export_Security-List-for-Private-Subnet-my-new-vcn" {
  id          = "ocid1.securitylist.oc1.eu-zurich-1.aaaaaaaanauakuxarhdv732see5rs3hjgetwsx5i64t42tvj2rsvgti6j4o
a"
  # (7 unchanged attributes hidden)

+ ingress_security_rules {
+   description = "Allow SSH access from my own public IP address"
+   protocol    = "6"
+   source      = "85.0.191.21/32"
+   source_type = "CIDR_BLOCK"
+   stateless   = false

+   tcp_options {
+     max = 22
+     min = 22
+   }
+ }

  # (5 unchanged blocks hidden)
}

Plan: 0 to add, 1 to change, 0 to destroy.

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if
you run "terraform apply" now.
[gianni@ThinkPadX1c9-GC terraform_export]$ |
```

Add new Ingress Rule to an existing VCN Security List

```
Command Prompt x gianni@ThinkPadX1c9-GC:~/t/ x + v - □ X
[gianni@ThinkPadX1c9-GC terraform_export]$ terraform apply
oci_core_private_ip.export_my-new-instance: Refreshing state... [id=ocid1.privateip.oc1.eu-zurich-1.ab5heljrysqpihm7dzbe
sjfrcke2ulkon3ts6owsmfhcklevvmwe6x4tbkca]
oci_core_vcn.export_my-new-vcn: Refreshing state... [id=ocid1.vcn.oc1.eu-zurich-1.aaaaaaaa73hf3saaxre7pwebmqi4tdhbqbdjpa
kc6ucumosdzls3nazfl7da]
oci_core_nat_gateway.export_NAT-Gateway-my-new-vcn: Refreshing state... [id=ocid1.natgateway.oc1.eu-zurich-1.aaaaaaaawqn
uopl67w6shydq4qoy27urxfvsea3n5s276adnribcwwvz2zra]
oci_core_internet_gateway.export_Internet-Gateway-my-new-vcn: Refreshing state... [id=ocid1.internetgateway.oc1.eu-zuric
h-1.aaaaaaaa2hdxiwnkwingnpdinchis5dt7fo2wv7lzgdqiepmqpadtfcz72uxq]
oci_core_service_gateway.export_Service-Gateway-my-new-vcn: Refreshing state... [id=ocid1.servicegateway.oc1.eu-zurich-1
.aaaaaaaappdw74jzdfalfhst4e7mpmh6iqdtxfoyk24ach73cfrna577tykq]
oci_core_default_security_list.export_Default-Security-List-for-my-new-vcn: Refreshing state... [id=ocid1.securitylist.o
c1.eu-zurich-1.aaaaaaaaj5nykzjtltdmzafcrsnztnodqpc23ghnbmm7m5xzzjwgivdia]
oci_core_default_dhcp_options.export_Default-DHCP-Options-for-my-new-vcn: Refreshing state... [id=ocid1.dhcpoptions.oc1.
eu-zurich-1.aaaaaaaa4iidtervnx7kyzszgv275cmnubzvtvwrpctuqhy4skdkdbqjcjca]
oci_core_subnet.export_Public-Subnet-my-new-vcn: Refreshing state... [id=ocid1.subnet.oc1.eu-zurich-1.aaaaaaaa3h5zcspakg
xan26crqvlpcdky7re4fec2qvvhwo123ynhiuzbjmq]
oci_core_security_list.export_Security-List-for-Private-Subnet-my-new-vcn: Refreshing state... [id=ocid1.securitylist.oc
1.eu-zurich-1.aaaaaaaanauakuxarhvd732see5rs3hjgetwsx5i64t42tvj2rsvgti6j4oa]
oci_core_default_route_table.export_Default-Route-Table-for-my-new-vcn: Refreshing state... [id=ocid1.routetable.oc1.eu-
zurich-1.aaaaaaaaxilaalrrzzqzprfcgfd5lryjzbzvfasdjino66gpn3d6b4qisdnzq]
oci_core_instance.export_my-new-instance_1: Refreshing state... [id=ocid1.instance.oc1.eu-zurich-1.an5heljr73hf3sac5lzmw
nqqgw4hsopjsw3rxn67b5ndnnzgd4qunaowy3va]
oci_core_route_table.export_Route-Table-for-Private-Subnet-my-new-vcn: Refreshing state... [id=ocid1.routetable.oc1.eu-z
urich-1.aaaaaaaoromlyphw6lo7jtcwtgdez4ofjff4uqfwwb5mluxhnhv7jrb6tjq]
oci_core_subnet.export_Private-Subnet-my-new-vcn: Refreshing state... [id=ocid1.subnet.oc1.eu-zurich-1.aaaaaaaa73nglzkmn
ym3pem5x4okbd3flzgbxvuvvcd4rmqj6zjzlz3rfjq]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:
```

Add new Ingress Rule to an existing VCN Security List

```
Command Prompt  x  gianni@ThinkPadX1c9-GC:~/t/  x  +  v  -  □  X

# oci_core_security_list.export_Security-List-for-Private-Subnet-my-new-vcn will be updated in-place
~ resource "oci_core_security_list" "export_Security-List-for-Private-Subnet-my-new-vcn" {
  id          = "ocid1.securitylist.oc1.eu-zurich-1.aaaaaaaaanaukuxarhdv732see5rs3hjgetwsx5i64t42tvj2rsvgti6j4o
a"
  # (7 unchanged attributes hidden)

+ ingress_security_rules {
+   description = "Allow SSH access from my own public IP address"
+   protocol    = "6"
+   source      = "85.0.191.21/32"
+   source_type = "CIDR_BLOCK"
+   stateless   = false

+   tcp_options {
+     max = 22
+     min = 22
+   }
+ }

  # (5 unchanged blocks hidden)
}

Plan: 0 to add, 1 to change, 0 to destroy.

Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: |
```

Add new Ingress Rule to an existing VCN Security List

```
Command Prompt  x  gianni@ThinkPadX1c9-GC:~/t/  x  +  v  -  □  X

+ description = "Allow SSH access from my own public IP address"
+ protocol    = "6"
+ source      = "85.0.191.21/32"
+ source_type = "CIDR_BLOCK"
+ stateless   = false

+ tcp_options {
  + max = 22
  + min = 22
}
}

# (5 unchanged blocks hidden)
}

Plan: 0 to add, 1 to change, 0 to destroy.

Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

oci_core_security_list.export_Security-List-for-Private-Subnet-my-new-vcn: Modifying... [id=ocid1.securitylist.oc1.eu-zu
rich-1.aaaaaaaanauakuxarhdv732see5rs3hjgetwsx5i64t42tvj2rsvgti6j4oa]
oci_core_security_list.export_Security-List-for-Private-Subnet-my-new-vcn: Modifications complete after 0s [id=ocid1.sec
uritylist.oc1.eu-zurich-1.aaaaaaaanauakuxarhdv732see5rs3hjgetwsx5i64t42tvj2rsvgti6j4oa]

Apply complete! Resources: 0 added, 1 changed, 0 destroyed.
[gianni@ThinkPadX1c9-GC terraform_export]$ |
```

Add new Ingress Rule to an existing VCN Security List

Resources

Ingress Rules (4)

Egress Rules (1)

Ingress Rules

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	85.0.191.21/32	TCP	All	22		TCP traffic for ports: 22 SSH Remote Login Protocol	Allow SSH access from my own public IP address
<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	TCP	All	22		TCP traffic for ports: 22 SSH Remote Login Protocol	
<input type="checkbox"/>	No	10.0.0.0/16	ICMP			3	ICMP traffic for: 3 Destination Unreachable	

0 Selected

Showing 4 Items < 1 of 1 >

Terraform Modules

Terraform Modules

A module is as simple as a set of Terraform files in a directory

It's a kind of template doing various things, creating multiple things

- Remember the VCN creating wizard? That's what a Terraform Module can do

Allows to reuse things without duplicating again and again the code

List of public existing modules

<https://registry.terraform.io/browse/modules?provider=oci>

You can write your own...

Terraform Modules

I do like my VCNs done in my own way, with my naming convention and rules...

That is why I created my own VCN module

- Setup gateways
- My Security Lists
 - Allowing all connections from my home public IP address (updated automatically through a DDNS lookup by Terraform)
- My Network Security Groups
- ...

The screenshot shows the Visual Studio Code interface with a Terraform project. The Explorer view on the left shows a directory structure under 'modules / datalysis-vcn' with files like 'bastions.tf', 'datasources.tf', 'locals.tf', 'outputs.tf', 'README.md', 'variables.tf', 'vcn-gateways.tf', 'vcn-network-security-groups.tf', 'vcn-route-tables.tf', 'vcn-security-lists.tf', 'vcn-subnets.tf', and 'vcn.tf'. A red box highlights this directory. The Editor view on the right shows the content of 'vcn.tf', which is a Terraform module definition. A red box highlights the module code, and a red arrow points from the 'vcn.tf' file in the Explorer to the code in the Editor.

```
1
2 module "vcn" {
3   source = "../modules/datalysis-vcn"
4
5   # Required
6   compartment_id = var.compartment_ocid
7   vcn_name       = "UKOUG22 VCN"
8
9   # Optional
10  vcn_cidr_block = "192.168.0.0/16"
11
12  subnets = [
13    {
14      name           = "Public"
15      public         = true
16      cidr_block     = "192.168.11.0/24"
17      bastion_service = false
18    },
19    {
20      name           = "Private"
21      public         = false
22      cidr_block     = "192.168.22.0/24"
23      bastion_service = false
24    },
25    {
26      name           = "FS"
27      public         = false
28      cidr_block     = "192.168.99.0/24"
29      bastion_service = false
30    }
31  ]
32 }
33
```


Oracle Cloud Stacks available in the Marketplace

Oracle Cloud Marketplace : many stacks available

A stack is just a set of Terraform files, often with a form asking to enter values to customize the installation (set Terraform variables values)

The screenshot displays the Oracle Cloud Marketplace interface. At the top, there is a navigation bar with the Oracle Cloud logo, a search bar, and the region 'Switzerland North (Zurich)'. Below the navigation bar, the 'Marketplace' section is visible, featuring a search bar and a list of application stacks. The left sidebar contains navigation links for 'All Applications', 'Community Applications', and 'Accepted Agreements', along with a 'Filters' section. The main content area shows a grid of application stacks, each with a logo, title, description, and pricing information.

Marketplace

Search resources, services, documentation, and Marketplace

Switzerland North (Zurich)

Marketplace

Search for listings by entering a name, ID, category, or publisher name

All Applications

Curriki
Create, Manage, and Deliver Active Learning Experiences
Type: Stack | Price: Free

ORACLE Enterprise Manager 13c
Oracle Enterpriser Manager 13.5-RU05 - Enterprise Cloud...
Type: Stack | Price: BYOL

ORACLE High Performance Computing
OCI HPC Data Mover / Migration Cluster
All-in-One File System and Object Storage Data Mover / Migration /...
Type: Stack | Price: Free

Standalone - Simplify Microservices on Converged...
Standalone - Simplify Microservices on Converged Oracle Database
Type: Stack | Price: Free

ORACLE Analytics
Oracle Analytics Server - BYOL
Fast Deployment of Oracle

ORACLE Analytics
Oracle Analytics Server - UCM
Fast Deployment of Oracle

ORACLE Logging Analytics
Logging Analytics - Quick Start
Enable Logging Analytics in your

ORACLE Network Data Model
Oracle Spatial Network Data Model
A Spatial Feature of Oracle

Filters [Clear](#)

Type: Stack

Architecture: Any

Roving Edge Exportability: Any

Publisher: Any

Category: Any

Oracle Cloud Marketplace : many stacks available

Marketplace » Oracle Analytics Server - BYOL



Oracle Analytics Server - BYOL

Fast Deployment of Oracle Analytics Server on Oracle Cloud Infrastructure

Oracle Analytics Server

Categories: Business Applications

Type
Stack

Version

OAS 2022 (6.4) 0301... ▾

Compartment

datalysis (root) ▾

Software price per OCPU

BYOL

(Bring your own license)

There are additional fees for the infrastructure usage. ⓘ

I have reviewed and accept the [Oracle standard Terms and Restrictions](#).

Launch Stack

Reminder: Patch the instance once installed.

Overview

Provider

More apps

App by Oracle

Oracle Analytics Server is a complete, modern, analytics platform that helps you make smarter predictions and

Support

Contacts:

Oracle Cloud Marketplace : many stacks available

Marketplace » Oracle Analytics Server - BYOL



Oracle Analytics Server - BYOL

Fast Deployment of Oracle Analytics Server on Oracle Cloud Infrastructure

Oracle Analytics Server

Categories: Business

Name	Date modified	Type	Size
__MACOSX	17/02/2022 13:54	File folder	
computeinstance	04/11/2021 01:21	File folder	
main.tf	04/11/2021 01:32	TF File	2 KB
OASagreement.tf	04/11/2021 00:58	TF File	2 KB
oci_images.tf	06/11/2021 02:10	TF File	1 KB
provider.tf	02/10/2021 01:33	TF File	1 KB
schema.yaml	06/11/2021 02:10	YAML File	9 KB
terraform.tfvars	06/11/2021 02:11	TFVARS File	1 KB
variables.tf	08/11/2021 01:28	TF File	3 KB
versions.tf	04/11/2021 20:29	TF File	1 KB

Software price per OCPU

BYOL

(Bring your own license)

There are additional fees for the infrastructure usage. ⓘ

[the Oracle standard Terms and Restrictions.](#)

Launch Stack

on the instance once installed.

The Marketplace products are often "just" a Terraform stack

Overview

Provider

More apps

App by Oracle

Oracle Analytics Server is a complete modern analytics platform that helps you make smarter predictions and

Support

Contact us

Oracle Cloud Marketplace : many stacks available

Create stack

[Help](#)

- 1 **Stack information**
- 2 [Configure variables](#)
- 3 [Review](#)

Your application will launch as part of a stack that includes the infrastructure resources required to ensure that the application deploys and runs properly.

Stack information



Oracle Analytics Server - BYOL

Oracle Analytics Server deployed on Oracle Cloud Infrastructure compute

Oracle Analytics Server will be installed on the compute instance. Do not use the auto-generated SSH private key in a production environment. Instead, generate your own SSH key-pair and upload the public key for the compute instance. To connect to the compute instance, copy the SSH private key content into a file on your machine and run the following command: `ssh -i <path to the pem file> opc@<Public IP for Oracle Analytics Server compute instance>`

Custom providers

Use custom Terraform providers

[Store custom Terraform providers in a bucket.](#)

Name *Optional*

Oracle Analytics Server - BYOL-20221125122555

Oracle Cloud Marketplace : many stacks available

Create stack

[Help](#)


- 1 [Stack information](#)
- 2 **Configure variables**
- 3 [Review](#)

Configure the variables for the infrastructure resources that this stack will create when you run the apply job for this execution plan.

Oracle Analytics Server Compute Instance

Display Name

A name to identify compute instance generated by this template.

 This variable is required.

Target Compartment

The compartment in which to create all resources generated by this template

Availability Domain

The name of the availability domain in which to create the compute instance.

Shape

The shape for the compute instance.

Boot Volume Size

Oracle Cloud Stacks

You can also write your own stack and load and run in Oracle Cloud

Final words...

Is Terraform something you should look into?

- If you do have some cloud objects, Terraform is something you can look into it
- If you do have everything in the cloud (lot of objects), Terraform is something you **MUST** look into

- Start small, expand more and more in an iterative way
 - Refactoring existing Terraform configuration to automate even more
 - Creating modules for repetitive tasks

- Warning: with an Always Free account it does work, but the account has limits on the number of resources you can create
 - Terraform can't override those limits and will fail in doing the task