



Automatización en OCI

Herramientas para agilizar despliegues en OCI

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Beneficios de Automatización

- Productividad/Menos tiempo gastado del talento
- Colaboración / Empoderamiento
- Ahorro de Costos (Recurso innecesario)
- Reusabilidad
- Reducir complejidad
- Errores / Confiabilidad
- Simultaneidad, Volumen (Migraciones)
- Continuidad



“Una buena herramienta mejora la forma en que **trabajas**.
Una gran herramienta mejora la forma en que **piensas**.”
-Jeff Duntemann

Agenda

Prerequisitos

Acceso a Cuenta

- Creación del perfil
- Generación del keypair

Acceso a la Nube

- API
- Ansible
- SDK/CLI
- Resource Manager

Terraform

- Archivos
- Variables
- Componentes
- Avanzados OCI: Backend, Atributos, comandos

Características de Resource Manager

Demo usando Terraform Localmente

Demo usando Resource Manager



ORACLE

Pre-requisitos

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Prerequisites

Cuenta en OCI, por ejemplo, <https://www.oracle.com/cloud/free/>

OCI CLI: <https://docs.oracle.com/en-us/iaas/Content/API/SDKDocs/cliinstall.htm>

JQ, JSON Parser: <https://stedolan.github.io/jq/download/>

Terraform: <https://www.terraform.io/downloads>

SDK, Optional:

Python 3: <https://www.python.org/downloads/>

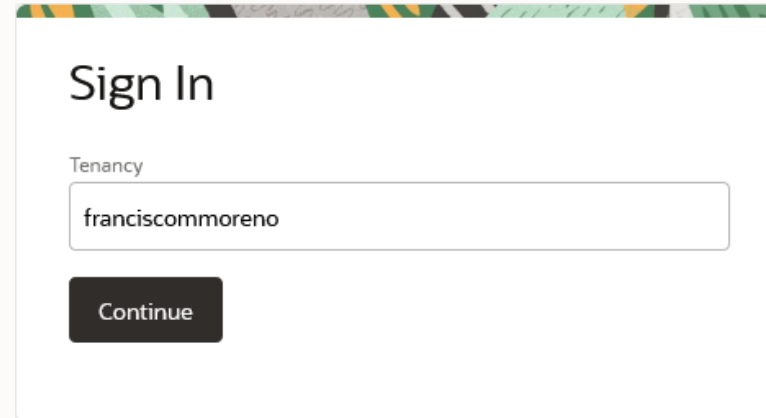
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Acceso a Cuenta

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Perfiles



Sign In

Tenancy

franciscoomoreno

Continue

Navegadores: Chrome, Firefox o Safari (Mac)

OCI Always Free Account:

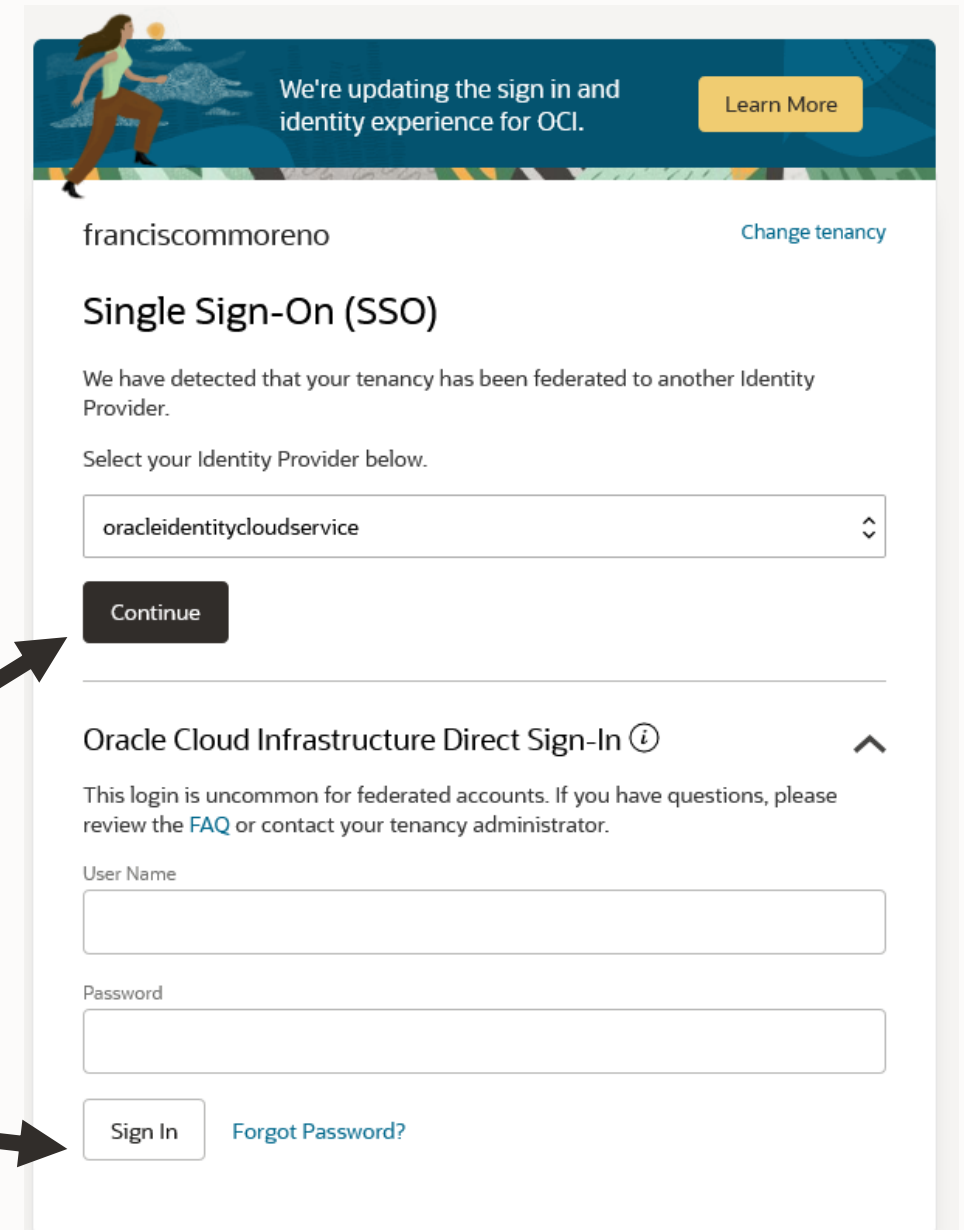
<https://www.oracle.com/cloud/free/>

Oracle Account:

<https://cloud.oracle.com>

<https://cloud.oracle.com/?tenant=<Nombre>>

Tipos Login: SSO or Direct Sign-In.



We're updating the sign in and identity experience for OCI. [Learn More](#)

franciscoomoreno [Change tenancy](#)

Single Sign-On (SSO)

We have detected that your tenancy has been federated to another Identity Provider.

Select your Identity Provider below.

oracleidentitycloudservice

Continue

Oracle Cloud Infrastructure Direct Sign-In ⓘ

This login is uncommon for federated accounts. If you have questions, please review the [FAQ](#) or contact your tenancy administrator.

User Name

Password






Sign In [Forgot Password?](#)

Keypair

ORACLE Cloud

Search resources, services, documentation, ;

US East (Ashburn) ▾



ACTIVE

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

Created: Fri, Jul 23, 2021, 20:27:03 UTC

Multi-factor authentication: Disabled

Email: -

Capabilities

Local password: No

API keys: Yes

Auth tokens: Yes

Profile

[oracleidentitycloudservice/francisco.m.moreno@oracle.com](#)

Tenancy: [franciscommoreno](#)

1

User Settings

[Console Settings](#)

[Sign Out](#)

Customer secret keys: Yes

OAuth 2.0 Client Credentials: Yes

Database Passwords: Yes

Resources

2

Groups

API Keys

Auth Tokens

Customer Secret Keys

Database Passwords

OAuth 2.0 Client Credentials


SMTP Credentials

API Keys

3

Add API Key

Fingerprint	Created
No items found.	
No API Key to display	



Keypair

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 **1** load 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](#) **2** only you can view it.



Download Private Key



[Download Public Key](#) **3**

Download both to ~/.oci/

Add

[Cancel](#)

Options:

*Auto

Upload file

Paste file

>Last 2 imply manual activities on your PC

Resources

Groups

API Keys

Auth Tokens

Customer Secret Keys

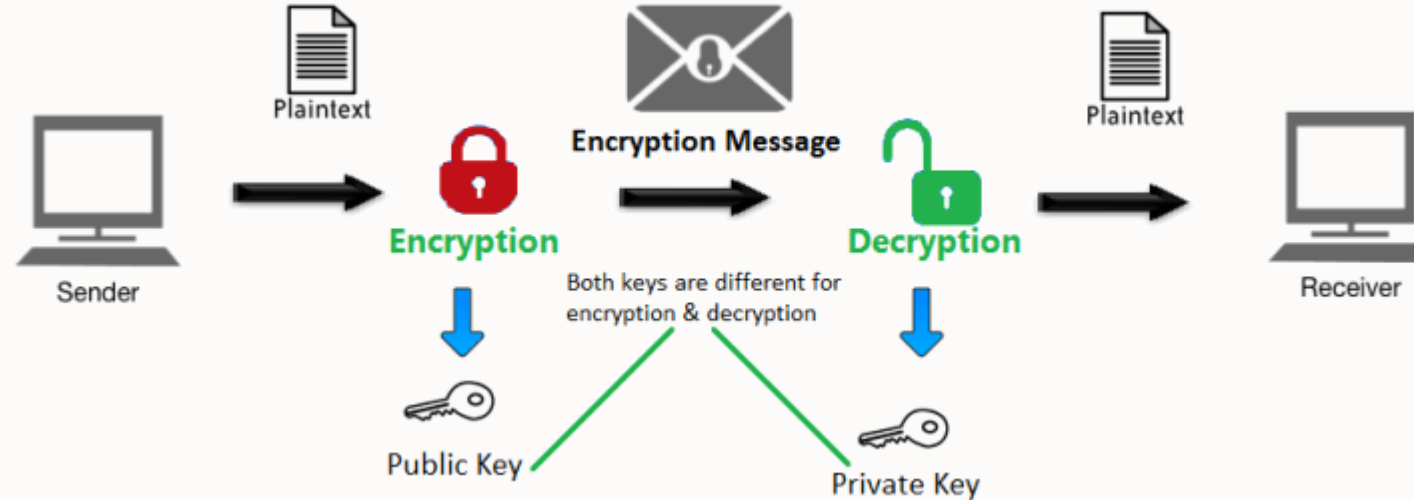
Database Passwords

OAuth 2.0 Client Credentials

SMTP Credentials



Modo Funcionamiento – Llaves Publicas/Privadas



Mas información:

<https://docs.oracle.com/en-us/iaas/Content/GSG/Tasks/creatingkeys.htm>

Keypair

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

1d:6d:f7:0e:d4:dd:ce:a7:67:00:83:fa:e6:df:ac:76

Configuration File Preview *Read-Only*

```
[DEFAULT]
user=ocid1.user.oc1..aaaaaaa7gbwah7ik66csdbjyraxgklrwzk6qtgq266wat2y3krp
franjwq
fingerprint=1d:6d:f7:0e:d4:dd:ce:a7:67:00:83:fa:e6:df:ac:76
tenancy=ocid1.tenancy.oc1..aaaaaaaakktre6vnlmvoebtn2c23nu7wsrlqphcuy3hml
7qwpfh65icvnvq
region=us-ashburn-1
key_file=<path to your private keyfile> # TODO
```

1

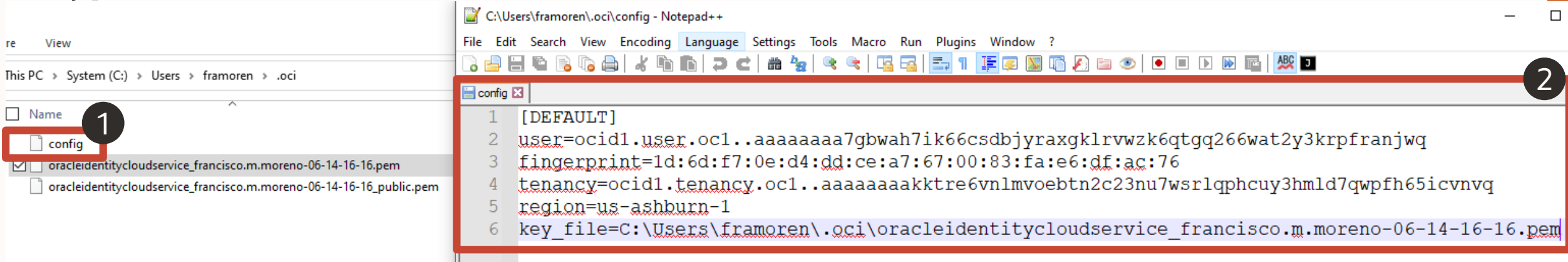
Paste the contents of the text box into your `~/.oci/config` file.

[Copy](#)

Close



Keypair



En ~/.oci/, crear un archivo config (sin extension) y pegar de la ventana anterior.
Es necesario enrutar key_file con el archivo descargado de Private Key

```
Command Prompt

C:\Users\framoren>oci os ns get
{
  "data": "idpebqr1ceyl"
}
```

En un CLI, escribir
oci os ns get
Para comprobar acceso

Opciones:
[Autocompletar \(en PS\).](#)
[Pasos Detallados en Ingles \(Blog\)](#)

Mas information en
<https://docs.oracle.com/en-us/iaas/Content/API/Concepts/cliconcepts.htm>



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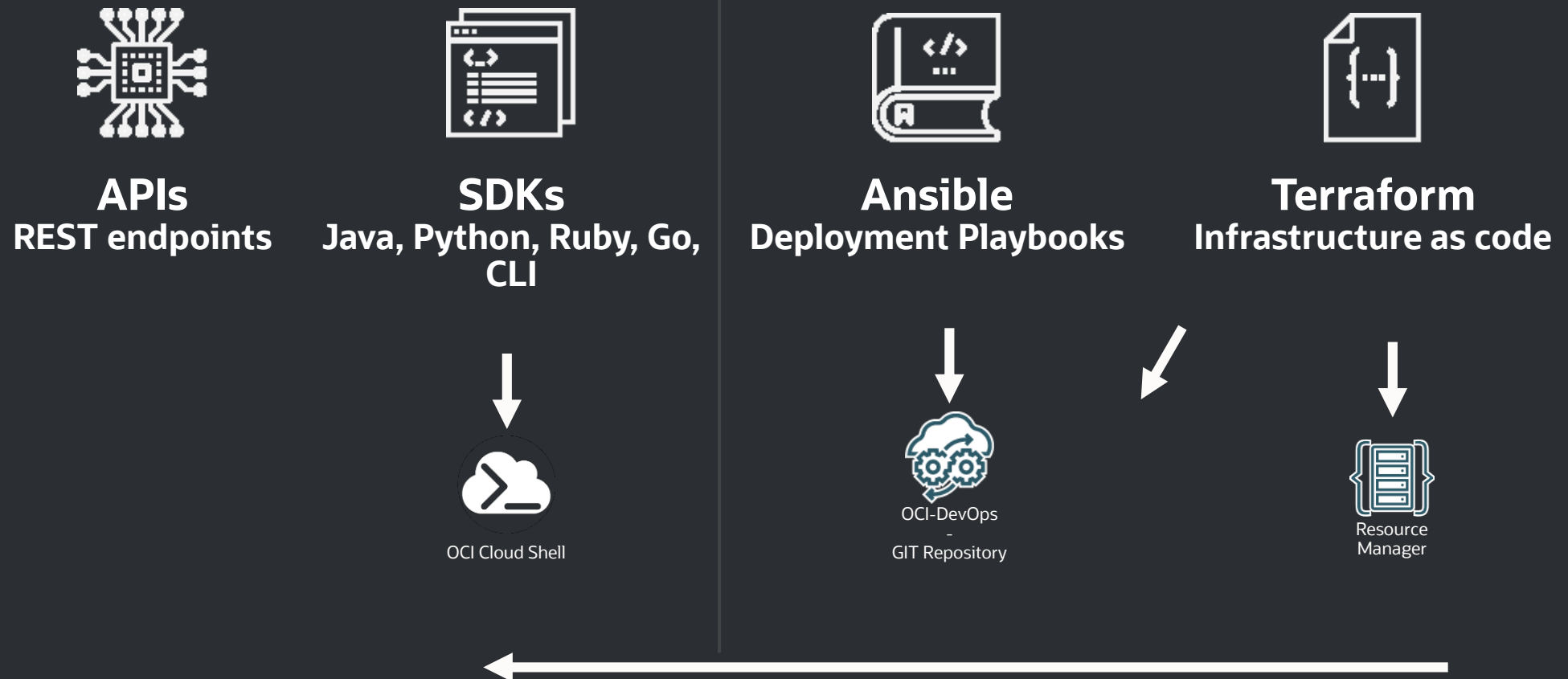
Acceso a Nube

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Acceso

Developer Tools and Resources



API

Consumo REST a endpoints
regionales
Atributos JSON para solicitud y
respuesta

Mas información en:
<https://docs.oracle.com/en-us/iaas/api/>
<https://docs.oracle.com/en-us/iaas/api/#/en/iaas/20160918/Vcn/CreateVcn>

Workspaces API Network Explore

Search Postman

Invite

Upgrade

EXAMPLE

New Import

Overview GET ONE_TIME_INITIALIZATION GET LIST_COMPARTMENTS

OCICollection2 / LIST_COMPARTMENTS

OCICollection2

POST GET_METRICS_SUMMARY_IN...

GET LIST_COMPARTMENTS

OCICollection2

GET ONE_TIME_INITIALIZATION_C...

GET

https://identity.us-ashburn-1.oc1.oraclecloud.com/20160918/compartments?compartmentId=ocid1.tenancy.oc1..aaaaa...

Params Authorization Headers (7) Body Pre-request Script Tests Settings

Query Params

KEY	VALUE
<input checked="" type="checkbox"/> compartmentId	ocid1.tenancy.oc1..aaaaaaaaktre6vnlmvoebtn2c...
Key	Value

Body Cookies Headers (8) Test Results

Pretty Raw Preview Visualize JSON

```
[
  {
    "compartmentId": "ocid1.tenancy.oc1..aaaaaaaaktre6vnlmvoebtn2c23nu7wsrlqphcuy3hmlD7qwpfh65icvnm...",
    "id": "ocid1.compartment.oc1..aaaaaaaq3wolunv5ud2qpwynjzuvpfe12yrra5t2ktp53gyy2ezbng2bxq",
    "name": "ManagedCompartmentForPaaS",
    "description": "idcs-e3d63af536384f72b5b841f611550988|23738367|francisco.m.moreno@oracle.com-803...",
    "timeCreated": "2021-07-23T20:37:02.354Z",
    "freeformTags": {},
    "definedTags": {},
    "lifecycleState": "ACTIVE"
  }
]
```

OCIEnvironment

VARIABLE	INITIAL VALUE	CURRENT VALUE
tenancyId	ocid1.tenancy.oc1..aaaaaaaal32hpbj5vofrsbblgamixhhhlvisfnafemmfdeybpwgwec4ziszq...	ocid1.tenancy.oc1..aaaaaaaaktre6vnlmvoebtn2c23nu7wsrlqphcuy3hmlD7qwpfh65icvnmvq
authUserId	ocid1.user.oc1..aaaaaaaev3zmjvz6g3st6wgywjuj5alxpcwctrs4sc7cmnwzdsim4xeuiq...	ocid1.user.oc1..aaaaaaa7gbwah7ik66csdypraxgklrvwk6qtgq266wat2y3krpfranjwq
keyFingerprint	3c:4f:e5:d2:96:a1:3e:55:3c:a6:f9:cc:25:33:72:d0	1d:6d:f7:0e:d4:dd:ce:a7:67:00:83:fa:e6:df:ac:76

Globals

VARIABLE	INITIAL VALUE	CURRENT VALUE
jsrsasign		/* * jsrsasign(all) 8.0.12 (2018-04-22) (c) 2010-2018 Kenji Urushima kjur.github.com/jsrsasign/license */ /*! Copyright (c) 2011,...

Use variables to reuse values and protect sensitive data

Store sensitive data in variable type secret to keep its values masked on the screen. Learn more about variable type

Work with the current value of a variable to prevent sharing sensitive values with your team. Learn more about variable values



Authentication
Encription
Digital Signature



SDK

Llamadas al API desde diferentes lenguajes, con librerías OCI

Por ejemplo,

<https://docs.oracle.com/en-us/iaas/api/#/en/iaas/20160918/Vcn/CreateVcn>

docs.oracle.com/en-us/iaas/api/#/en/iaas/20160918/NetworkSecurityGroup/CreateNetworkSecurityGroup

IPSecConnection

IPSecConnectionDeviceConfig

IPSecConnectionDeviceStatus

IPSecConnectionTunnel

IPSecConnectionTunnelErrorDetails

IPSecConnectionTunnelSharedSecret

Ipv6

LetterOfAuthority

LocalPeeringGateway

MeasuredBootReport

NatGateway

NetworkingTopology

NetworkSecurityGroup

NetworkSecurityGroupReference

ChangeNetworkSecurityGroupCompartment

CreateNetworkSecurityGroup

DeleteNetworkSecurityGroup

GetNetworkSecurityGroup

ListNetworkSecurityGroups

UpdateNetworkSecurityGroup

NetworkSecurityGroupVnic

PeerRegionForRemotePeering

PrivateIp

PublicIp

PublicIpPool

RemotePeeringConnection

RouteTable

Java SDK Python SDK Go SDK TypeScript SDK .NET SDK Ruby SDK

```
# This is an automatically generated code sample.
# To make this code sample work in your Oracle Cloud tenancy,
# please replace the values for any parameters whose current values do not fit
# your use case (such as resource IDs, strings containing 'EXAMPLE' or 'unique_id', and
# boolean, number, and enum parameters with values not fitting your use case).

import oci

# Create a default config using DEFAULT profile in default location
# Refer to
# https://docs.cloud.oracle.com/en-us/iaas/Content/API/Concepts/sdkconfig.htm#SDK_and_CLI_Configuration_File
# for more info
config = oci.config.from_file()

# Initialize service client with default config file
core_client = oci.core.VirtualNetworkClient(config)

# Send the request to service, some parameters are not required, see API
# doc for more info
create_network_security_group_response = core_client.create_network_security_group(
    create_network_security_group_details=oci.core.models.CreateNetworkSecurityGroupDetails(
        compartment_id="ocid1.test.oc1..<unique_ID>EXAMPLE-compartmentId-Value",
        vcn_id="ocid1.test.oc1..<unique_ID>EXAMPLE-vcnId-Value",
        defined_tags={
            'EXAMPLE_KEY_1fLJ0': {
                'EXAMPLE_KEY_lXbje': 'EXAMPLE--Value'
            },
            display_name="EXAMPLE-displayName-Value",
            freeform_tags={
                'EXAMPLE_KEY_XduNu': 'EXAMPLE_VALUE_gaE4cvp0ZIQuYb16uxqm'
            },
            opc_retry_token="EXAMPLE-opcRetryToken-Value"
        )
    )

# Get the data from response
print(create_network_security_group_response.data)
```

Responses



SDK – Ejemplo Python

Requisitos:

Tener un SDK, ejemplo, Java, Python, Go, etc.
Tener configurado el Perfil OCI

Tips:

Existen un cantidad de scripts para ejecutar
Oficiales:

<https://github.com/oracle/learning-library>

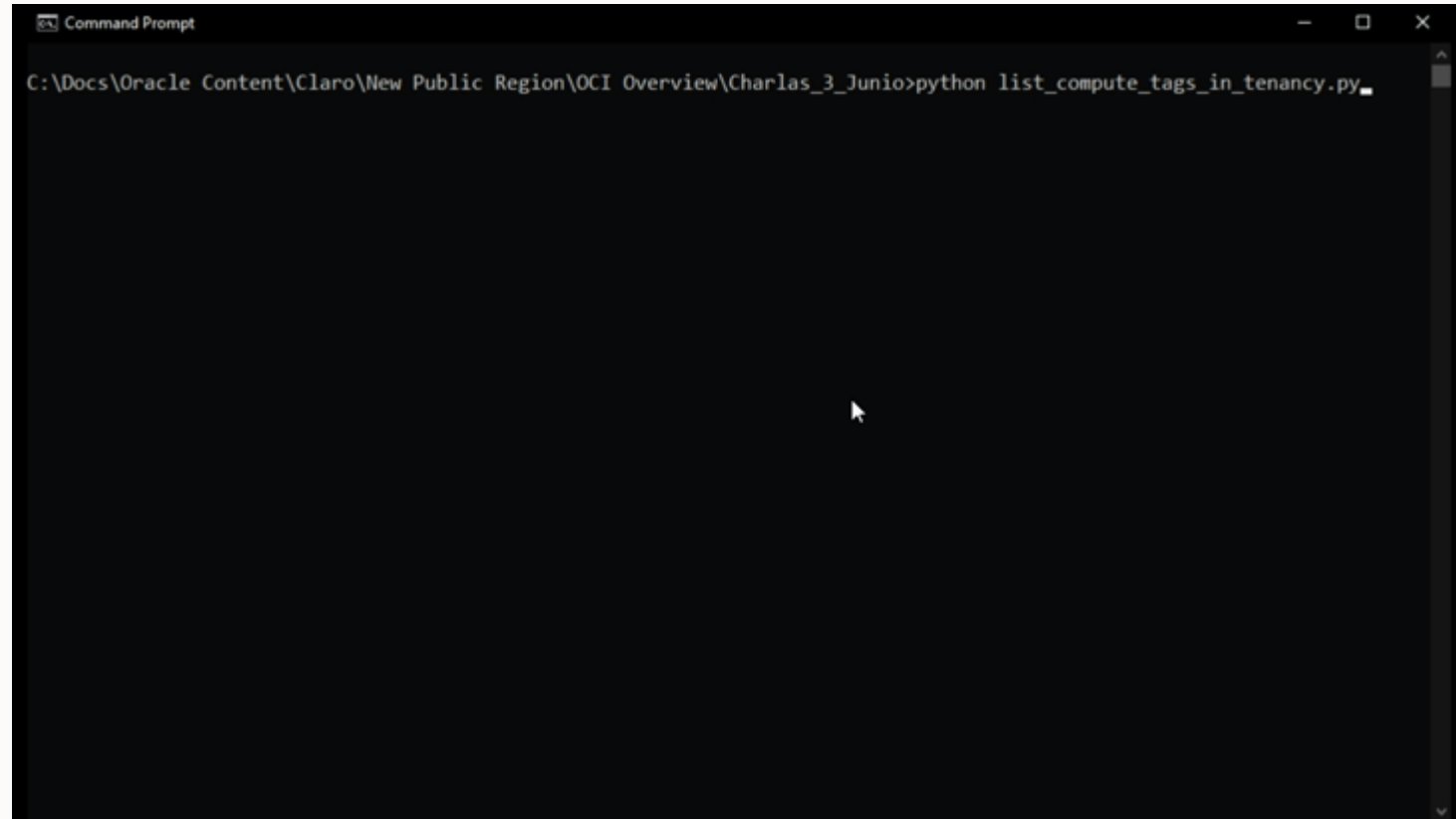
<https://github.com/oracle/oci-python-sdk>

Blogs:

<https://www.oc-blog.com/oci-scripts-and-example-code/>

Este ejemplo es de

https://github.com/oracle/oci-python-sdk/tree/master/examples/list_resources_in_tenancy

A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The command prompt shows the current directory as "C:\Docs\Oracle Content\Claro\New Public Region\OCI Overview\Charlas_3_Junio" and the command "python list_compute_tags_in_tenancy.py" has been entered. The cursor is at the end of the command line. The background of the command prompt is black with white text.

CLI

Requisitos:

Tener instalado el OCI CLI

Tener configurado el perfil OCI

Tips:

Usar variables de entorno

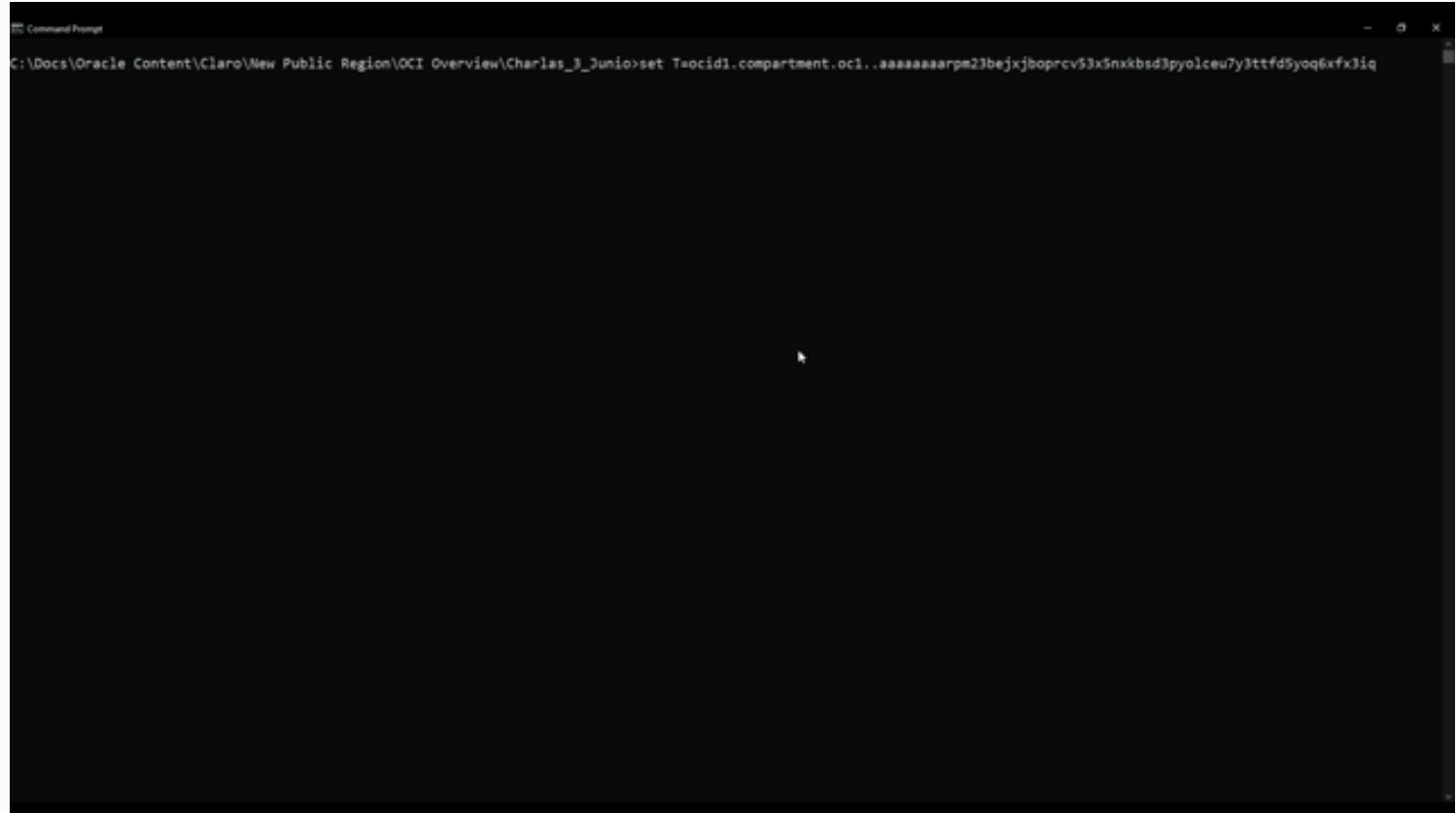
Usar cadenas de ejecución –si aplica–

>> Variables de Entorno

>> Variables parseadas de JSON

Ejemplo, en Windows (CLI):

```
oci iam compartment list|jq ".data[] | select( .name | contains(\"TestTerraform\"))\"|jq .\"id\" > TempFile  
set /p T= < TempFile  
oci compute instance list -c %T%
```



CLI

1. Categoría
2. Componente
3. Comandos
4. Opciones del Comando

Mas información en

https://docs.oracle.com/en-us/iaas/tools/oci-cli/2.12.11/oci_cli_docs/index.html

docs.oracle.com/en-us/iaas/tools/oci-cli/2.12.11/oci_cli_docs/cmdref/compute/instance.html

Docs » compute » instance

instance

Description

A compute host. The image used to launch the instance determines its operating system and other software. The shape specified during the launch process determines the number of CPUs and memory allocated to the instance. For more information, see [Overview of the Compute Service](#).

To use any of the API operations, you must be authorized in an IAM policy. If you're not authorized, talk to an administrator. If you're an administrator who needs to write policies to give users access, see [Getting Started with Policies](#).

Warning: Oracle recommends that you avoid using any confidential information when you supply string values using the API.

Available Commands

- [action](#)
- [attach-vnic](#)
- [change-compartment](#)
- [detach-vnic](#)
- [get](#)
- [get-windows-initial-creds](#)
- [launch](#)
- [list](#)
- [list-vnics](#)
- [terminate](#)
- [update](#)

Previous Next

Docs » compute » instance » get

get

Description

Gets information about the specified instance.

Usage

```
oci compute instance get [OPTIONS]
```

Required Parameters

--instance-id [text]

The OCID of the instance.

Optional Parameters

--from-json [text]

Provide input to this command as a JSON document.

The **--generate-full-command-json-input** option can be used with this command option. The key names are pre-processed names (converted to camelCase format, e.g. compartment-id). The values of the keys need to be populated by the user before using the command. For any command option that accepts multiple values, the values should be provided as a JSON array.

Options can still be provided on the command line. If both the command line and the command line specification are used, the command line specification takes precedence.



Conceptos

Herramienta	Hashicorp Terraform	Redhat Ansible	Diferencias
	Infrastructure-as-a-Code IaC	Configuration Management	
Enfoque	Orquestación de despliegue	Enfocado en configuración y parchado	
Objetivo Principal	Despliega y retira provisión de recursos completos de nube	Instala software y despliegue de aplicaciones sin agentes	
Programación	Declarativo	Imperativo	Declarativo: Se especifica el resultado. Imperativo: Secuencia de operaciones.
Infraestructura	Immutable	Mutable	Mutable: Actualiza o modifica Immutable: No permite actualización, se tiene que volver a desplegar.
Idempotencia	Si	Si	No duplica recursos la misma acción.
Ciclo de vida	Si	No	



ORACLE Cloud

Cloud Classic >

Search resources, services, documentation, and marketplace

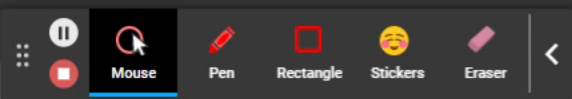
US East (Ashb



Cloud Shell

ANSIBL

```
francisco_@cloudshell:ansible-example (us-ashburn-1)$ ansible-playbook sample.yaml
```



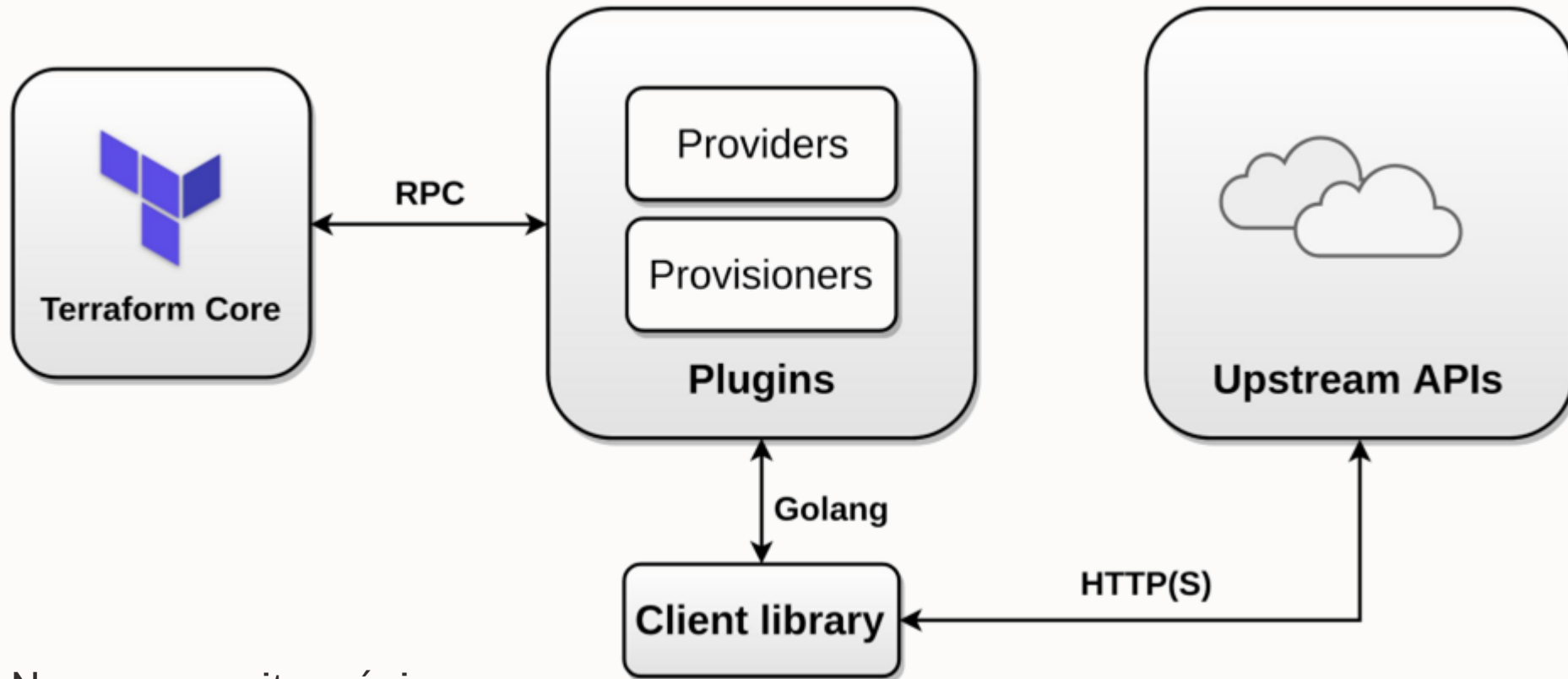
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Terraform

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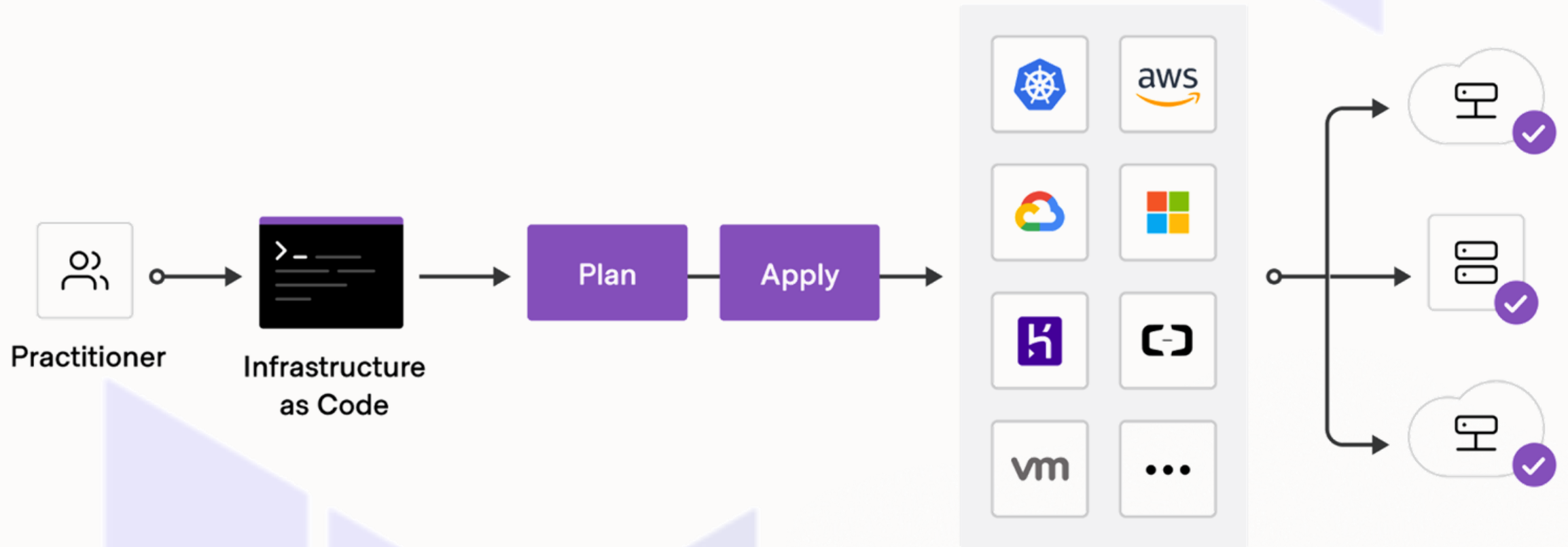
Terraform – Herramienta Agnóstica de Nube *



* No es una varita mágica.
Provee un lenguaje común para orquestar recursos nube y/o otros proveedores.

HashiCorp

Terraform



Archivos

terraform.state
ARCHIVO ESTADO



VARIABLES
terraform.tfvars

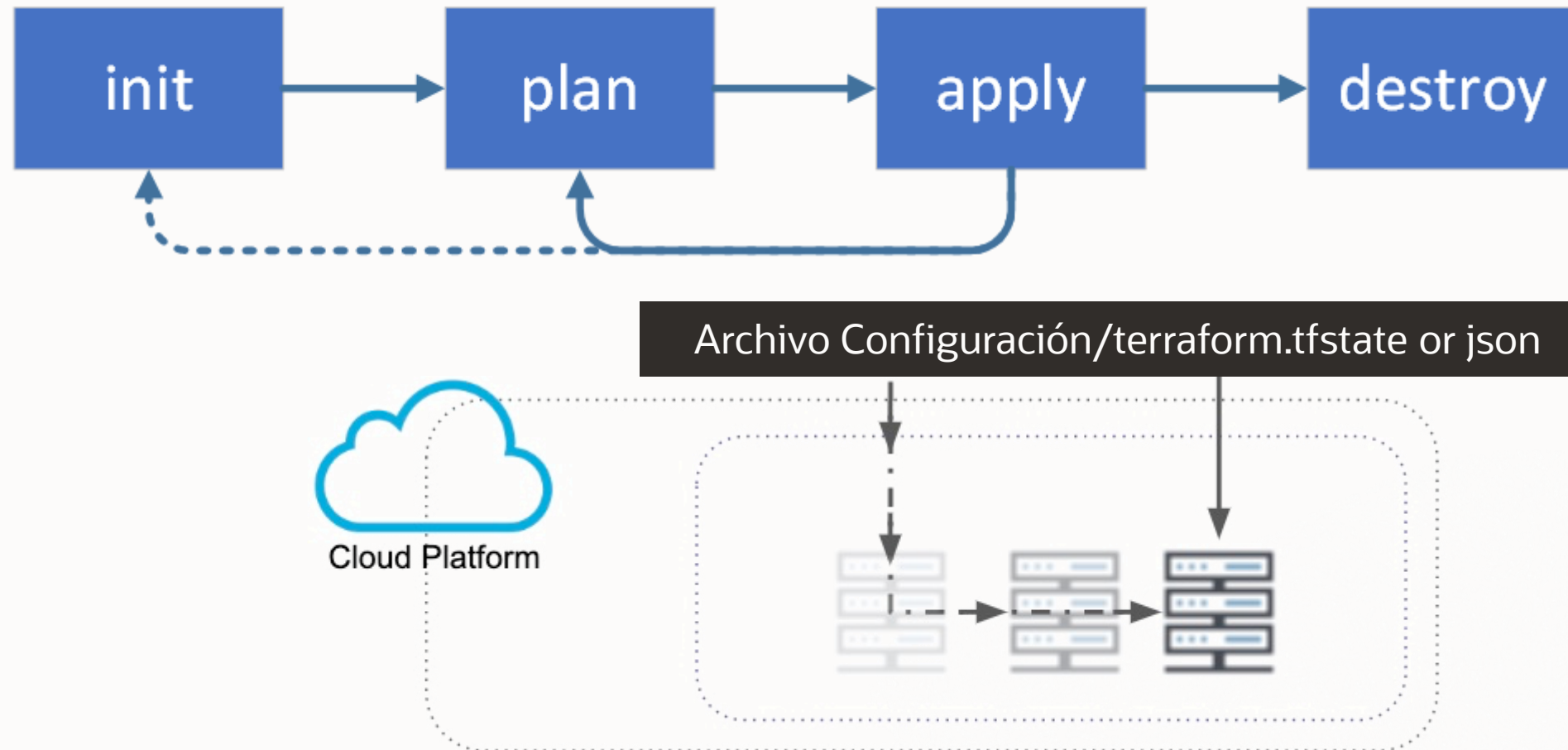
terraform-provider.tf

CODIGO

terraform- instances.tf



Terraform – Simple Flujo de trabajo



Variables

ENTRADA

Definición variables: desde el CLI, archivo, variables de entorno.

Tipos de variables:

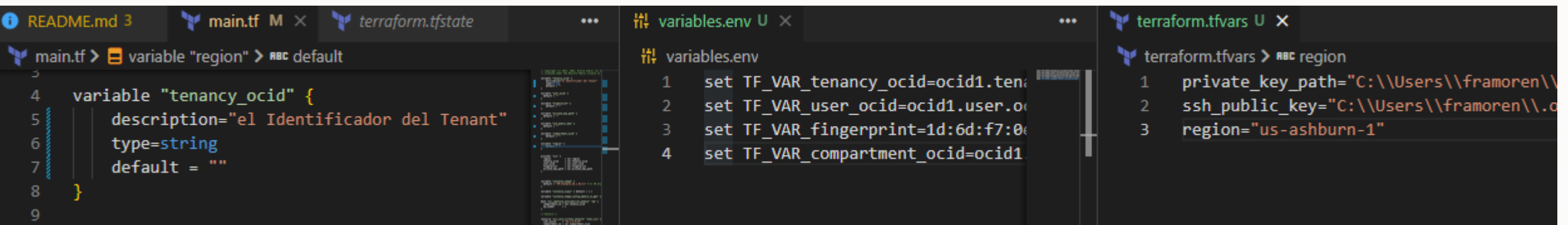
Simple: string, number, bool

Construidas: list, set, map, object, tuple.

Validación de ingreso: regexp, nulos,

SALIDA

Atributos: sensible



The screenshot displays three open files in a code editor:

- main.tf**: Shows a Terraform variable definition for `tenancy_ocid`.

```
variable "tenancy_ocid" {  
  description = "el Identificador del Tenant"  
  type = string  
  default = ""  
}
```
- variables.env**: Shows environment variable assignments for Terraform variables.

```
set TF_VAR_tenancy_ocid=ocid1.ten  
set TF_VAR_user_ocid=ocid1.user.oc  
set TF_VAR_fingerprint=1d:6d:f7:0e  
set TF_VAR_compartment_ocid=ocid1
```
- terraform.tfvars**: Shows specific variable values for a region.

```
private_key_path="C:\\Users\\framoren\\  
ssh_public_key="C:\\Users\\framoren\\  
region="us-ashburn-1"
```



Componentes

```
provider "oci" {  
  region      = var.region  
  tenancy_ocid = var.tenancy_ocid  
  user_ocid   = var.user_ocid  
  fingerprint = var.fingerprint  
  private_key_path = var.private_key_path  
}  
# See https://docs.oracle.com/iaas/images/  
data "oci_core_images" "test_images" {  
  compartment_id = var.compartment_ocid  
  operating_system = "Oracle Linux"  
  operating_system_version = "8"  
  shape = var.instance_shape  
  sort_by = "TIMECREATED"  
  sort_order = "DESC"  
}  
/* Network */  
resource "oci_core_virtual_network" "test_vcn" {  
  cidr_block = "10.1.0.0/16"  
  compartment_id = var.compartment_ocid  
  display_name = "testVCN"  
  dns_label = "testvcn"  
}  
output "Public_IP_LoadBalancer" {  
  value = "http://${oci_load_balancer_load_balancer.free_ip_address}"  
}
```

variable
provider
data
resource
output

Module

Carpeta con código y tiene entrada y salida similar

Terraform solo accede a los archivos TF de la carpeta actual, no ingresa a los valores internos

Conceptos Avanzados

Remote Backend

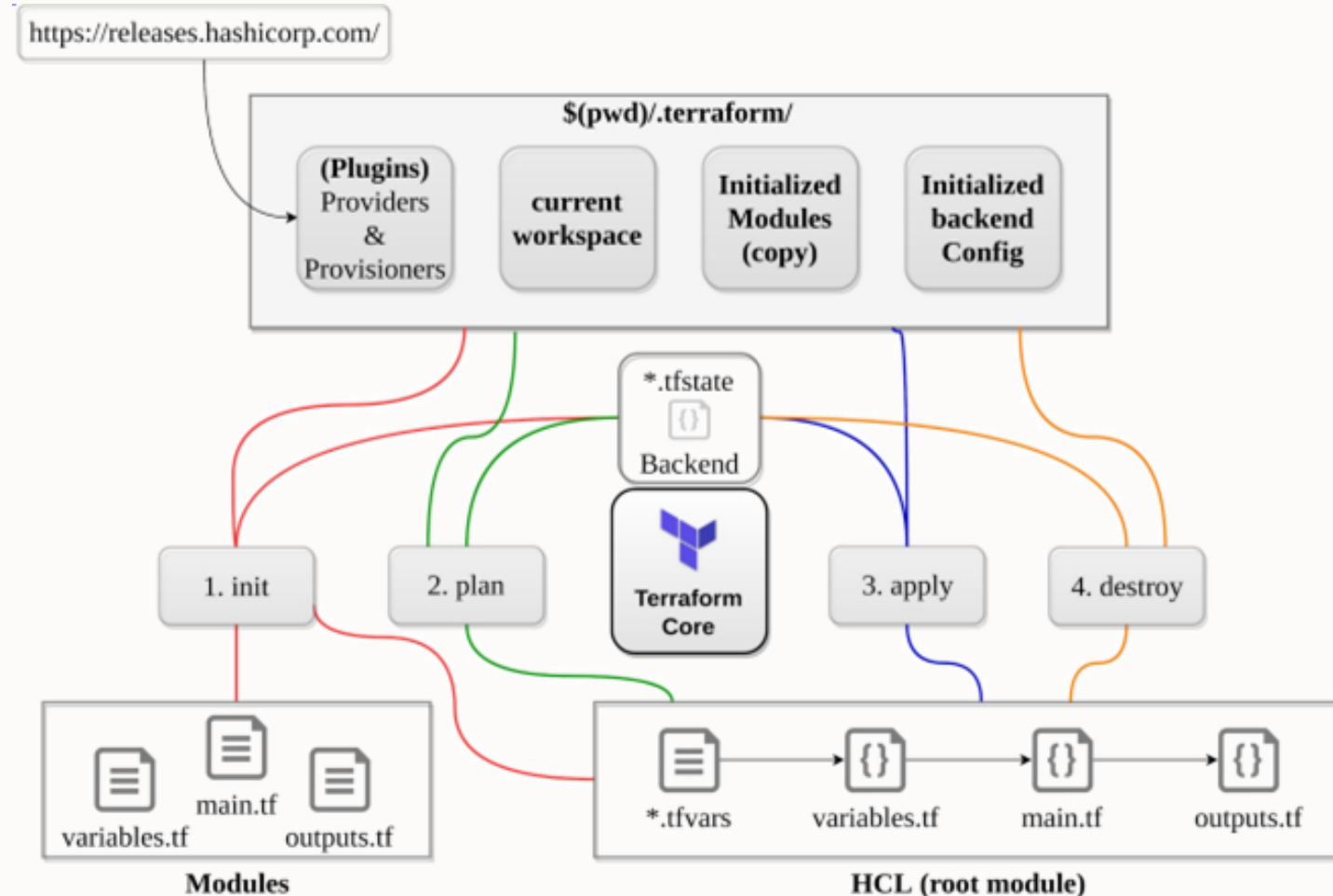
Providers: Local y Remote

Comandos: fmt, validate, taint, import, lock

Opciones: parallelism

Workspaces

Anidación: Export/Import state files





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Resource Manager

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Vista General

Que es?

- Terraform como Servicio
- Usa IaC para automatizar aprovisionamiento de todos los recursos OCI
- Soporte completo CLI, SDK y Consola

Que problemas solucionar?

- Administración del estado de la infraestructura
- La ejecución paralela puede conducir a resultados de infraestructura indeseables
- Controles de acceso limitados en torno a la ejecución de comandos Terraform

Beneficios

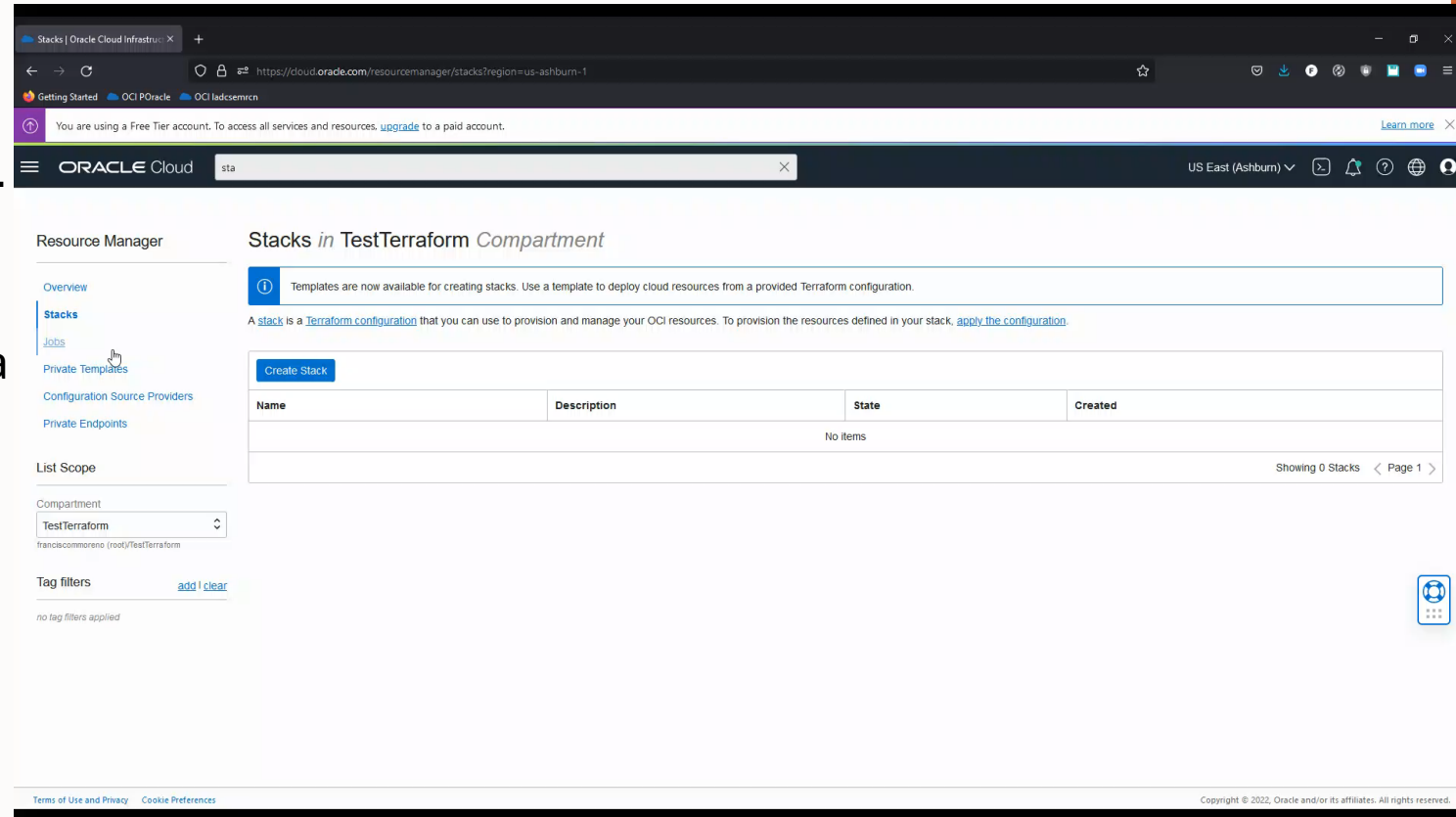
- Automatice y estandarice su infraestructura y replique fácilmente los entornos
- Integración profunda con OCI (es decir, identidad, etiquetado, etc.)
- Administre sin problemas los archivos de estado y mejore la colaboración en equipo

Diferenciador Oracle

- Sin bloqueo, migraciones simples desde y hacia nubes privadas y de terceros
- Construido sobre software de código abierto sin modificar de Terraform para IaC en Oracle Cloud y On Premises
- Soporte local 100% - 1 día para los nuevos servicios y características de OCI

Términos Resource Manager

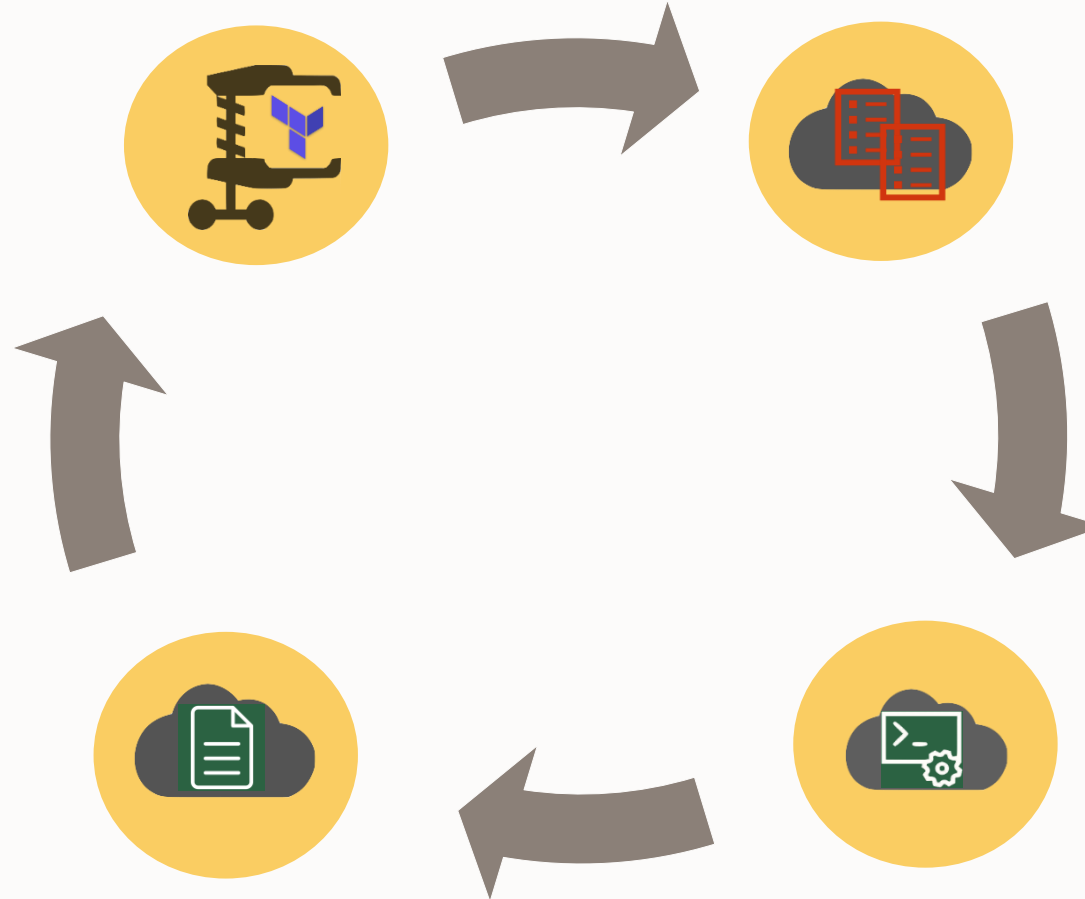
- Un **stack** representa un conjunto de recursos de OCI que se crean en el tenant.
- Cada stack se asigna a un **configuration** de Terraform y un **state file**.
- Un **job** realiza las acciones definidas en la configuración.
- Las posibles acciones son **Plan**, **Apply**, **Destroy** e **Import State**



Como funciona?

Codifica/Actualiza

- Archivos Terraform (Zip)
- Sample templates
- Private templates
- Importar infraestructura
- Repositorio Código Fuente
- Asistente (Wizard)



Crea/Actualiza Stack usando

- Console Web
- SDK
- CLI

Ejecuta Job

- Plan/
 - Apply/
 - Destroy/
 - Import State
- Para aprovisiona y manejar recursos

- Visualiza estado
manejado y recursos
aprovisionados
- Detect Drift



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Demos

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https://github.com/fmorenod81/OCI_TF



Dos opciones de prueba gratuitas

Always Free

Servicios que
puedes usar por
tiempo ilimitado

+

Free Trial

Créditos gratis por
30 días U\$300



Aprenda, explore y cree gratis

Always Free – Productos Incluidos



Autonomous Database

2 x Databases
20 GB each
APEX, Oracle Machine
Learning, ORDS (REST
API)



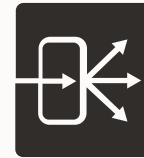
Compute

2 x VMs
1 GB Memory each



Storage

100 GB Block
10 GB Object
10 GB Archive



Networking/ Load Balancing

10 Mbps LB
10 TB Outbound
Data Transfer

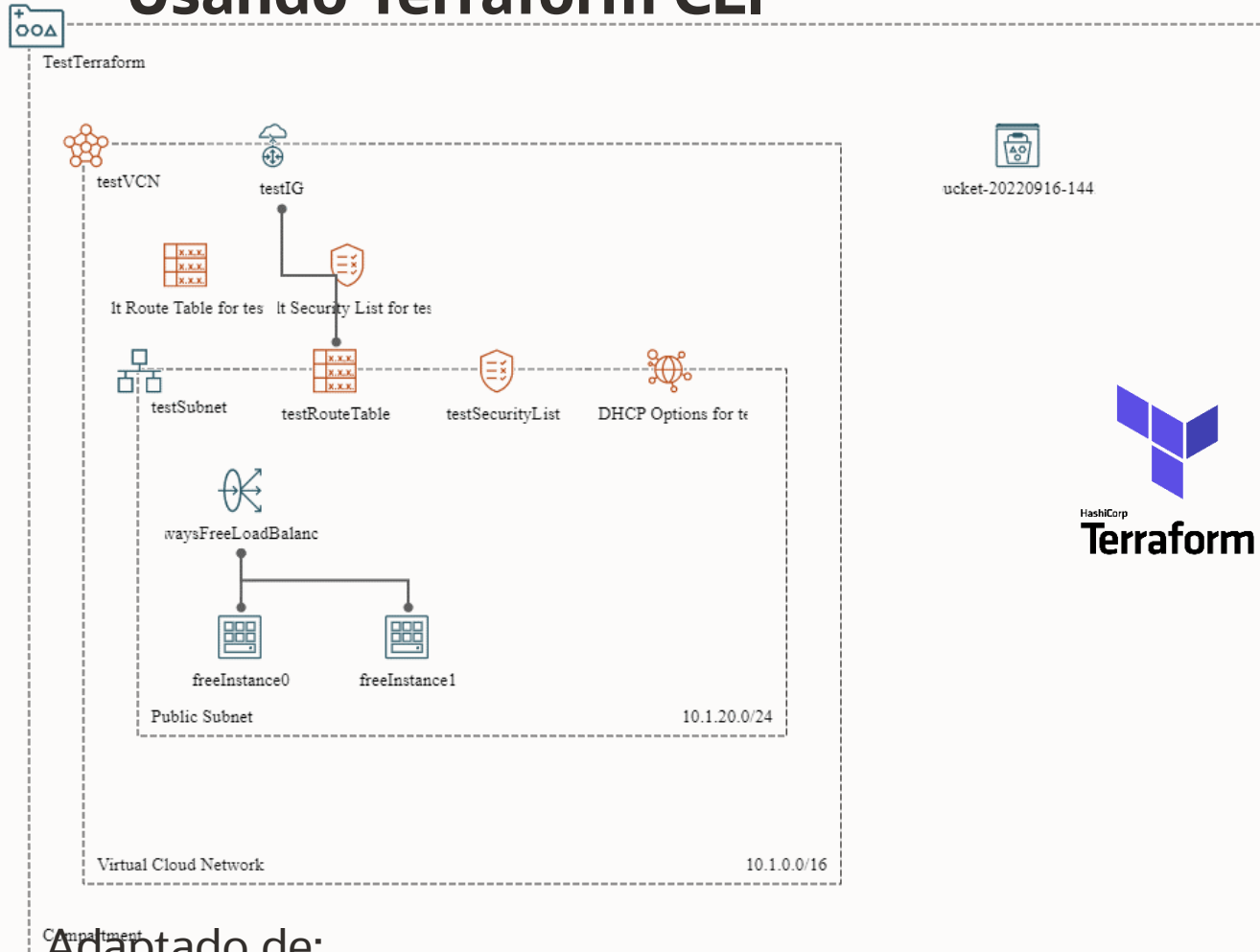


Monitoring / Notifications

500M Metrics Ingestion
1B Metrics Retrieval
Notifications:
1M HTTP, 1K Email

Disponible para todas las cuentas en la nube nuevas y existentes

Usando Terraform CLI



Pasos

(Solo Local)

1. Configurar OCI CLI
 2. Configurar Terraform
- (Todos)

3. Descargar código
4. Cambiar a Desde_CLI
5. Desplegar desde Terraform

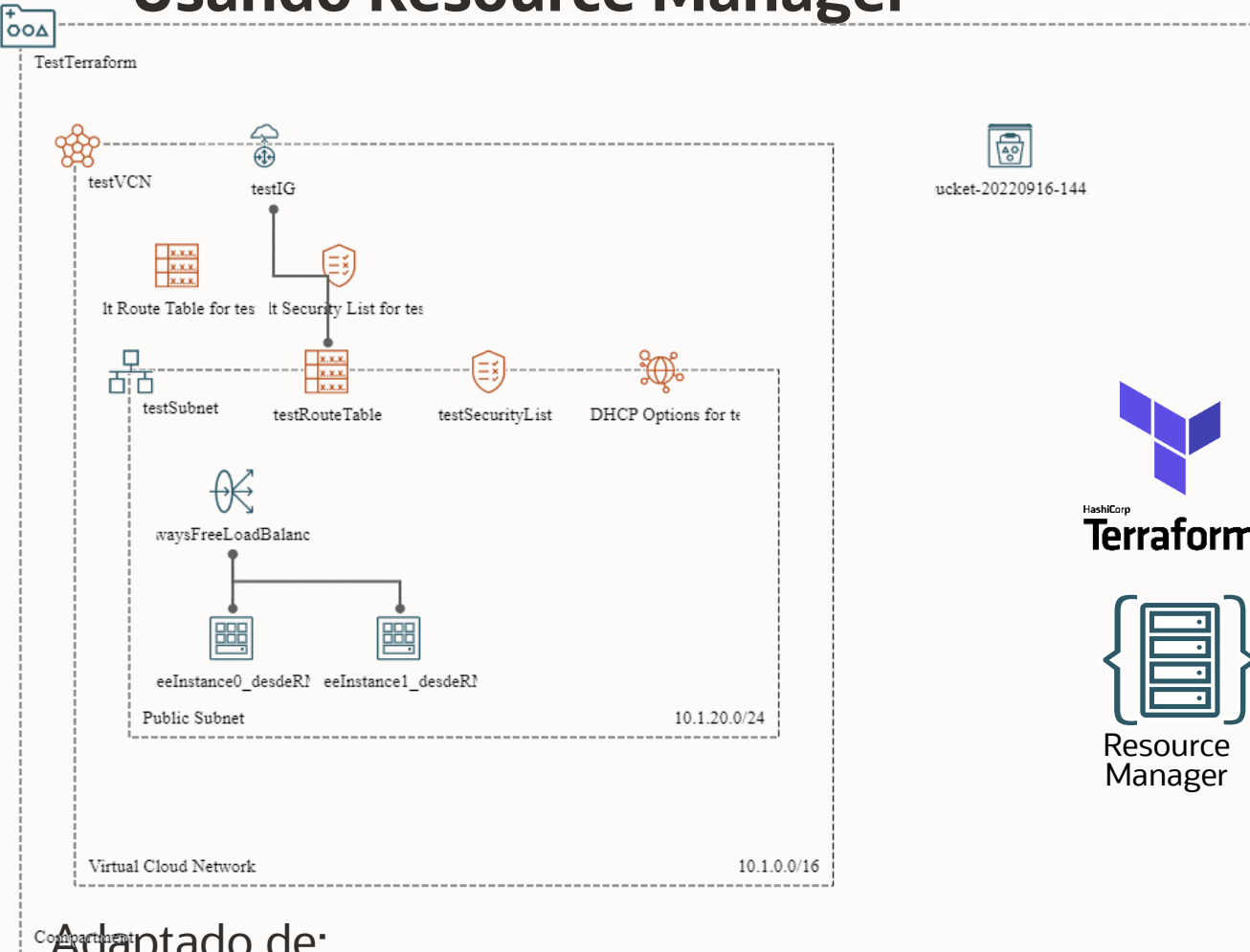
Adaptado de:

https://github.com/oracle/terraform-provider-oci/blob/master/examples/always_free/main.tf

y de:

<http://www.brokedba.com/2020/07/terraform-for-dummies-launch-instance.html>

Usando Resource Manager



Pasos

1. Descargar ZIP
2. Copiar el cloud-init
3. Asignar la llave publica
4. Ejecutar el Resource Manager

Adaptado de:

https://github.com/oracle/terraform-provider-oci/blob/master/examples/always_free/main.tf

y de:


<http://www.brokedba.com/2020/07/terraform-for-dummies-launch-instance.html>

Recursos Oficiales



 MyLearn | Oracle University

coursera

 | A-Team Chronicles

 | LAD Cloud Experts Spanish Blog

Recursos No Oficiales



Oracle Cloud Blog

My personal take on Oracle's Infrastructure and Platform Coolness!!

Referencias Oficiales

Generales:

<https://education.oracle.com/es/>

<https://mylearn.oracle.com/>

<https://www.ateam-oracle.com/>

<https://blogs.oracle.com/lad-cloud-experts-es/>

Especificas:

<https://docs.oracle.com/en-us/iaas/Content/API/Concepts/cliconcepts.htm>

<https://docs.oracle.com/en-us/iaas/Content/GSG/Tasks/creatingkeys.htm>

<https://learn.hashicorp.com/tutorials/terraform/oci-build?in=terraform/oci-get-started>

<https://blogs.oracle.com/cloud-infrastructure/getting-started-with-the-resource-manager-on-oracle-cloud-infrastructure>

<https://blogs.oracle.com/cloud-infrastructure/two-tools-to-bring-your-existing-infrastructure-under-terraform>

<https://blogs.oracle.com/cloud-infrastructure/drift-detection-for-infrastructure-resources-using-resource-manager>

<https://blogs.oracle.com/cloud-infrastructure/create-resource-manager-configuration-and-state-files-by-discovering-existing-compartment-resources>

<https://docs.cloud.oracle.com/en-us/iaas/Content/ResourceManager/Reference/solutions.htm>

<https://oracle.github.io/learning-library/oci-library/>

Referencias Externas

Generales:

<https://www.oc-blog.com>

<https://technology.amis.nl>

<https://k21academy.com>

<https://app.pluralsight.com/library/>

<https://www.udemy.com/>

Especificas:

https://terraformbook.com/TheTerraformBook_sample.pdf

<https://learn.hashicorp.com/tutorials/terraform/associate-study>

<https://k21academy.com/terraform-iac/terraform-beginners-guide/>

<https://events19.linuxfoundation.org/wp-content/uploads/2017/12/Hashicorp-Terraform-Deep-Dive-with-no-Fear-Victor-Turbinsky-TeXuna.pdf>

(Consumo desde Postman)

https://github.com/ashishksingh/postman_collection_for_oci_rest

ORACLE