

DBRE

Database Reliability Engineering



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LAD Partner Enablement



Safe Harbor Statement

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About Our Live Sessions

What is DBRE?

IaC

Basics

1st Deploy – Compute Instances

2nd Deploy – DB with DG

Performance ADB

Basics

Benchmarks





What is DBRE?

Database Reliability Engineering is a subfield of SRE.

The way SRE holistically deals with the reliability of all the systems for a company, DBRE deals with all the systems of the data infrastructure of a company.



laC

Infrastructure-as-code



Infrastructure-as-Code → Terraform

➤ Terraform

- Open Source
- Cloud Agnostic Tool
- Build versioned Infra
- Declarative Configuration
- Deploy Faster
- Ideal for repetitive tasks

➤ OCI Resource Manager

➤ OCI Cloud Shell

➤ Startup Pack for OCI Resources

Example:

- Networks
- Compute instances
- Databases

Terraform Basics

init - command is used to initialize a working directory containing Terraform configuration files. This is the first command that should be run after writing a new Terraform configuration or cloning an existing one from version control. It is safe to run this command multiple times.

plan - The terraform plan command is used to create an execution plan. Terraform performs a refresh, unless explicitly disabled, and then determines what actions are necessary to achieve the desired state specified in the configuration files.

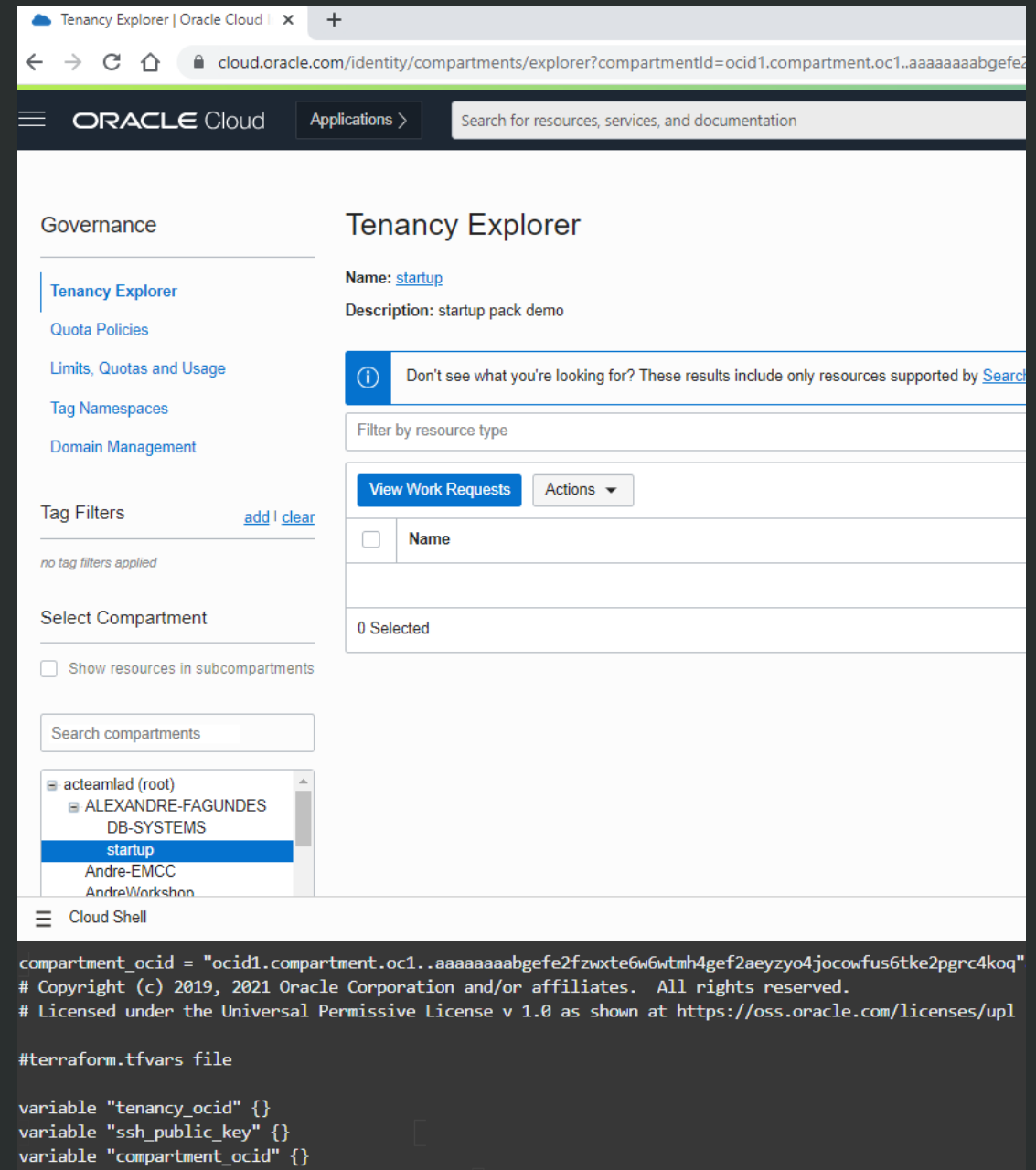
apply - The terraform apply command is used to apply the changes required to reach the desired state of the configuration, or the pre-determined set of actions generated by a terraform plan execution plan.

destroy - The terraform destroy command is used to destroy the Terraform-managed infrastructure.

<https://www.terraform.io/docs/commands/>

How can we do that?

DEMO



Tenancy Explorer | Oracle Cloud | x +

cloud.oracle.com/identity/compartments/explorer?compartmentId=ocid1.compartment.oc1..aaaaaaaabgefe2

ORACLE Cloud Applications > Search for resources, services, and documentation

Governance

- Tenancy Explorer
- Quota Policies
- Limits, Quotas and Usage
- Tag Namespaces
- Domain Management

Tag Filters [add](#) | [clear](#)

no tag filters applied

Select Compartment

☐ Show resources in subcompartments

Search compartments

- acteamlad (root)
 - ALEXANDRE-FAGUNDES DB-SYSTEMS
 - startup**
 - Andre-EMCC
 - AndreWorkshop

Cloud Shell

Tenancy Explorer

Name: [startup](#)

Description: startup pack demo

Don't see what you're looking for? These results include only resources supported by [Search](#)

Filter by resource type

[View Work Requests](#) [Actions](#) ▼

<input type="checkbox"/>	Name
0 Selected	

```
compartment_ocid = "ocid1.compartment.oc1..aaaaaaaabgefe2fzwxte6w6wtmh4gef2aeyzyo4jocowfus6tke2pgrc4koq"
# Copyright (c) 2019, 2021 Oracle Corporation and/or affiliates. All rights reserved.
# Licensed under the Universal Permissive License v 1.0 as shown at https://oss.oracle.com/licenses/upl

#terraform.tfvars file

variable "tenancy_ocid" {}
variable "ssh_public_key" {}
variable "compartment_ocid" {}
```



Tenancy Explorer | Oracle Cloud

cloud.oracle.com/identity/compartments/explorer?compartmentId=ocid1.compartment.oc1..aaaaaaaabgefe2fzwxt6w6wtmh4gef2aeyzo4jocowfus6tke2pgrc4koq®ion=sa

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- Breno
- BrenoBDS

Cloud Shell

Tenancy Explorer

Name: [startup](#)

Description: startup pack demo

Don't see what you're looking for? These results include only resources supported by [Search](#). Updates made to resources might not immediately appear in your results.

Filter by resource type

[View Work Requests](#) Actions

<input type="checkbox"/>	Name	Compartment
<input type="checkbox"/>	Web-Server-02 (Boot Volume)	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	Web-Server-01 (Boot Volume)	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	subnet.subnet.oraclevcn.com	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	0.10.in-addr.arpa	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	Default DHCP Options for subnet	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	subnet	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	Web-Server-02	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	Web-Server-01	acteamlad (root)/ALEXANDRE-FAGUNDES/startup
<input type="checkbox"/>	subnet.igw	acteamlad (root)/ALEXANDRE-FAGUNDES/startup

1st sample Deployment

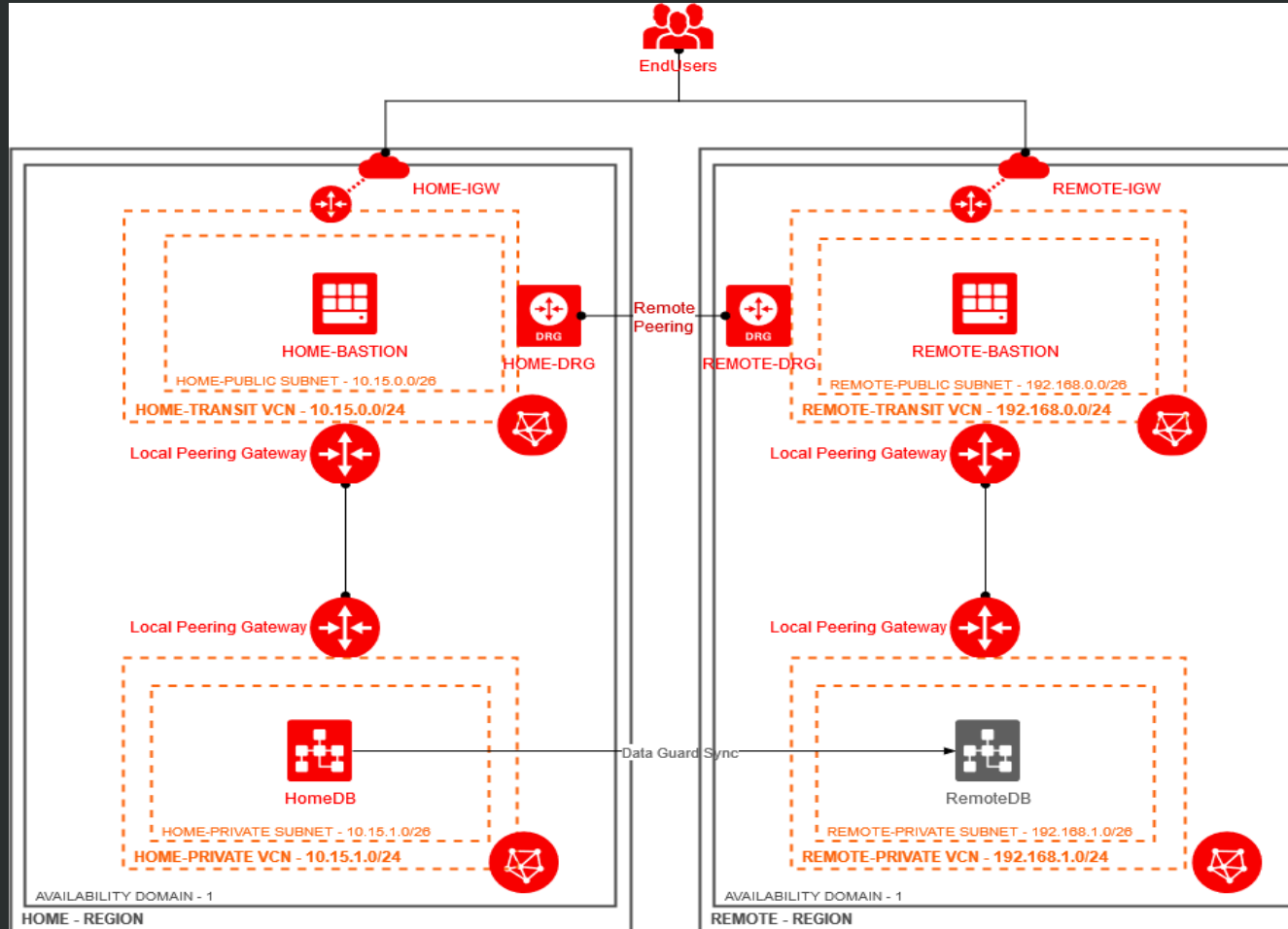
VCN
Subnet
Security List
Route Table
Internet Gateway
Boot Volumes
vNICs
Compute instances

```
oci_core_instance.web-02: Still creating... [20s elapsed]
oci_core_instance.web-01: Still creating... [30s elapsed]
oci_core_instance.web-02: Still creating... [30s elapsed]
oci_core_instance.web-01: Still creating... [40s elapsed]
oci_core_instance.web-02: Still creating... [40s elapsed]
oci_core_instance.web-01: Creation complete after 46s [id=ocid1.instance.oc1.sa-saopaulo-1.antxeljr-fwbk1macrdd3kjfyinvqaxmvjyk7t3xsawppvo35gjk161bi7ehq]
oci_core_instance.web-02: Creation complete after 46s [id=ocid1.instance.oc1.sa-saopaulo-1.antxeljr-fwbk1macq6v13xaluw5quvaxd455tvrhemqihooouhapesbtwkkxq]
```

Apply complete! Resources: 7 added, 0 changed, 0 destroyed.



DB with DG Association



2nd Deployment

- 2 VCNs
- 2 Subnets
- 2 Security Lists
- 2 Route Table
- 2 Internet Gateway
- 2 Boot Volumes
- 4 vNICs
- 2 Compute instances
- 1 Primary DB
- 1 Stand-by DB (Different Region)
- Dataguard Association

Wrap Up – Deploying Resources

Using IaC & Cloud Shell

**Rapidly
Easily
If necessary, repeatedly**

1st deploy

<https://github.com/alefagun/code>

2nd deploy

<https://github.com/alefagun/startup>

—



Performance



Performance

Oracle Autonomous Database through good Database Design

Benchmarks

- The total transactions per second achieved (TPS)
- The average elapsed time in seconds across the 8 benchmark sessions (ELA)
- A cumulative breakdown of where the 8 sessions utilized the elapsed time

Performance Benchmarks

Benchmark 1: Launches 8 parallel sessions

Benchmark 2: 1 + Reduces DML triggers (table creation with DEFAULT ON NULL)

Benchmark 3: 2 + Improve sequences CACHE, drop few indexes

Benchmark 4: 3 + Partitioning

How can we do that?

DEMO

Thank you



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