ORACLE
Cloud Infrastructure

Resource Manager

Level 100

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Safe Harbor Statement

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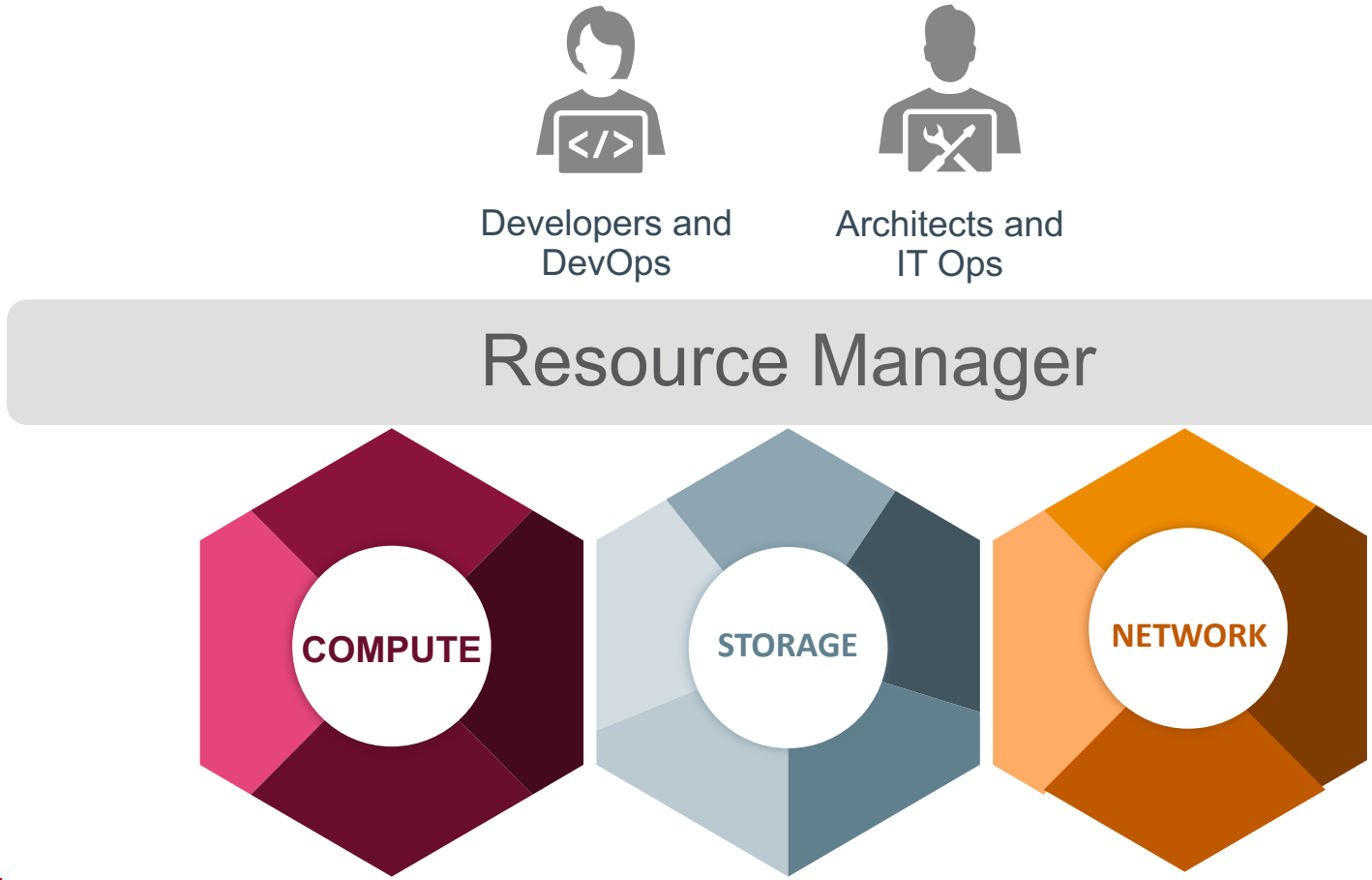
Objectives

After completing this lesson, you should be able to:

- Describe the basic components of Resource Manager
- Describe the benefits of Resource Manager
- Prepare Terraform files for Resource Manager
- Resource Manager Demo

Introducing the Oracle Cloud Infrastructure Resource Manager

Manage your infrastructure resources using Terraform



Resource Manager Benefits

- Automate and standardize your infrastructure and easily replicate environments
- Deep integration with OCI Platform and its services
- Seamlessly manages state files and improves team collaboration
- Fully managed service for the Terraform engine
- You only pay for the underlying compute, storage, network or any other resource you provision using Resource Manager.

Resource Manager Components

You can think of the Resource Manager as Terraform-as-a-Service for Oracle Cloud Infrastructure resources. Once you have your terraform files ready and your variables file adjusted for Resource Manager you can start building **Stacks** and executing **Jobs:**

Stack - Represents a set of OCI resources you want to create in a compartment. Each Stack has a *configuration*, which is a set of Terraform files that specify the resources you want to manage together using the Resource Manager.

Job - Represents a request to take a Terraform Action on a Stack. Resource Manager provides three job-types: **plan, apply and destroy**

Resource Manager - Access Control & Permissions

- To use the Resource Manager, you must have the required OCI Identity and Access Management (IAM) permissions.

- Following are example policy statements that grant a group called ADMIN-XYZ the ability to manage all the Resource Manager resources in the tenancy:

```
Allow group ADMIN-XYZ to manage orm-stacks in tenancy
Allow group ADMIN-XYZ to manage orm-jobs in tenancy
```

- DEV-XYZ is a developer group is able to read Stacks and to execute Jobs - except for destroy – only within in a specific compartment:

```
Allow group DEV-XYZ to use orm-stacks in compartment XYZ
Allow group DEV-XYZ to use orm-jobs in compartment XYZ where target.job.operation !=
'DESTROY'
```

Prepare your Terraform files to work with Resource Manager

- With the Resource Manager all that is required is an OCI Identity and Access Management (IAM) permissions.

- You can omit the user OCID, private key, fingerprint, and tenancy OCID from provider configuration.

Open Source OCI Terraform Provider

```
variable "user_ocid" {}
variable "fingerprint" {}
variable "private_key_path" {}
variable "private_key_password" {}

provider "oci" {
  tenancy_ocid         = "${var.tenancy_ocid}"
  user_ocid            = "${var.user_ocid}"
  fingerprint          = "${var.fingerprint}"
  private_key_path     = "${var.private_key_path}"
  private_key_password = "${var.private_key_password}"
  region               = "${var.region}"
}
```

Resource Manager

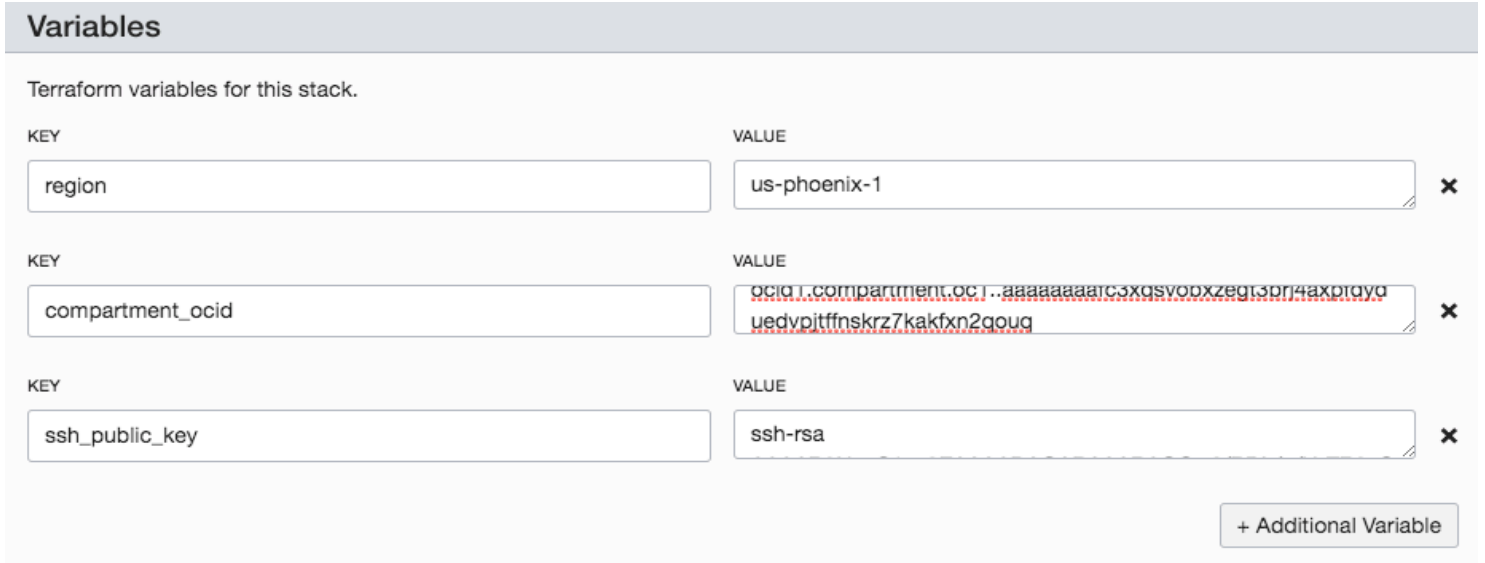
```
variable "region" {}
variable "compartment_ocid" {}

provider "oci" {
  region = "${var.region}"
}
```

Resource Manager Variables

Resource Manager give you a possibility to enter extra variables to help with your deployment. Here is an example of adding a public ssh key:

Terraform Resource Manager file

```
variable "region" {}
variable "compartment_ocid" {}
variable “ssh_public_key” {}
```



Resource Manager Workflow: Step 1

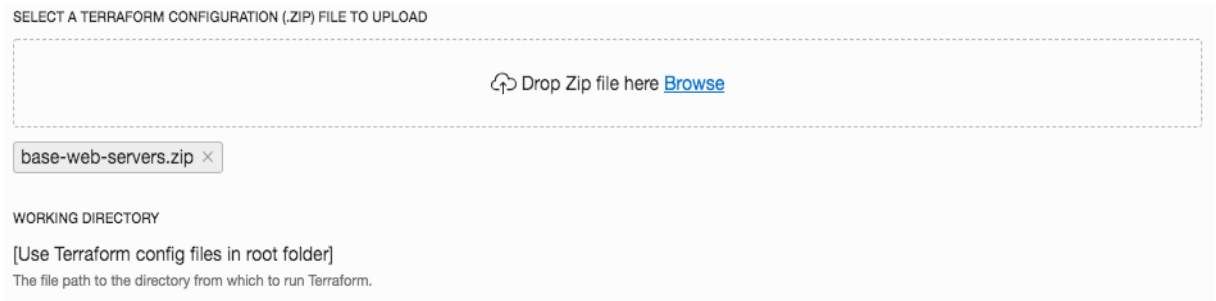
Define configuration

Terraform

Define configuration

Create a Stack

Run a Job



- Create the Terraform configuration for resources
- Write optional Terraform modules
- Create a zip file containing the Terraform files
- Avoid supplying confidential information in your configuration like passwords and SSH keys.

Resource Manager Workflow: Step 2

Create a Stack

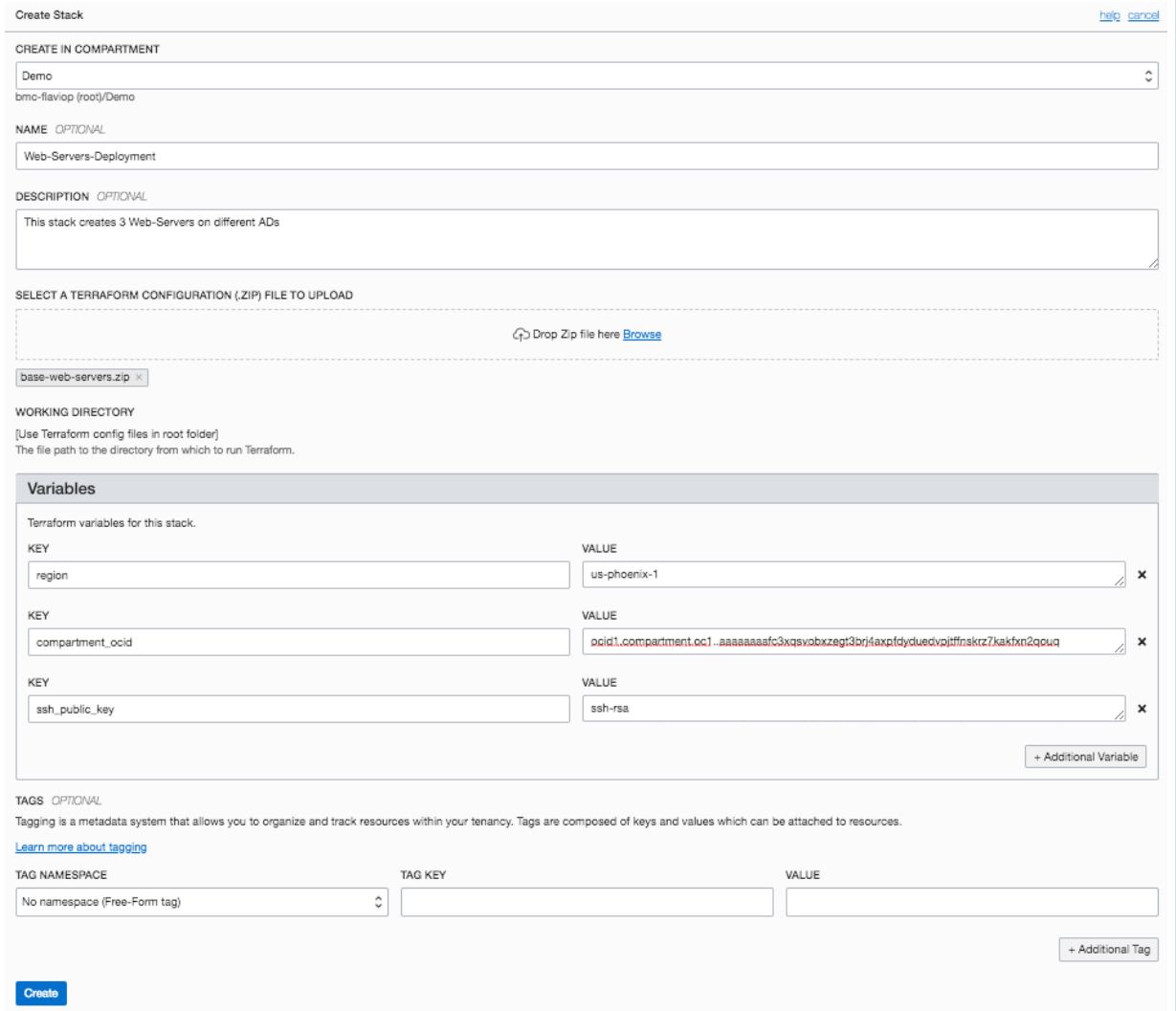
Terraform

Define configuration

Create a Stack

Run a Job

- Stack represents a set of resources you manage within a compartment
- Each Stack maps to Terraform configuration files and a Terraform state file



Resource Manager Workflow: Step 3

Run a Terraform Job

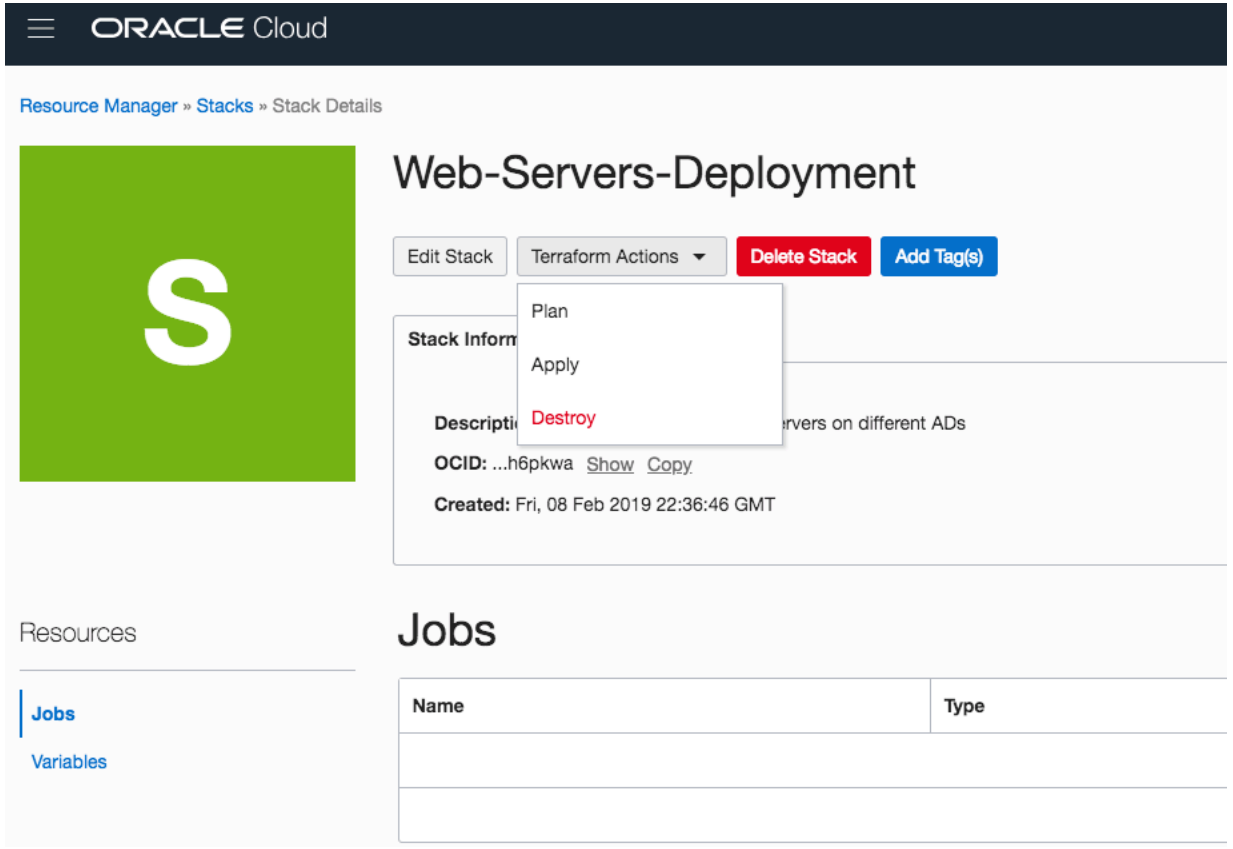
Terraform

Define configuration

Create a Stack

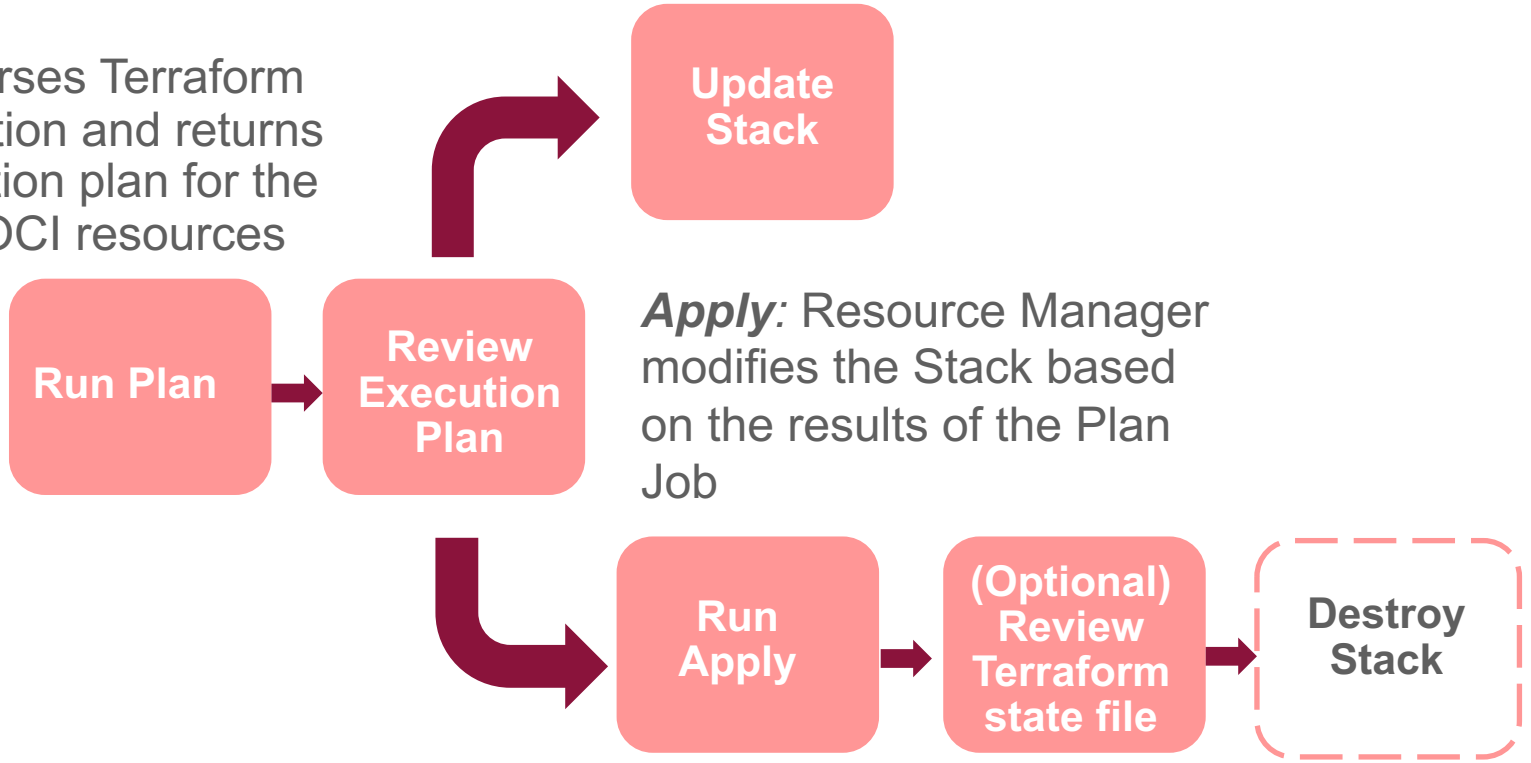
Run a Job

- A Job is a Terraform Action executed against a Stack
- Job actions include Plan, Apply, and Destroy



Resource Manager Execution

Plan : Parses Terraform configuration and returns an execution plan for the effected OCI resources



Apply*:* Resource Manager modifies the Stack based on the results of the Plan Job

Destroy :Terraform deprovisions all of the resources in the Stack

Resource Manager Demo

Summary

- Build on Open Source Software, Resource Manager is fully-managed service that makes easier to use Terraform on Oracle Cloud Infrastructure
- You can leverage your existing Terraform templates to deploy with Resource Manager
- There are no charges for using the Oracle Cloud Infrastructure Resource Manager.
- You can try Resource Manager, by sign up for a free trial OCI account here: https://cloud.oracle.com/tryit and follow the steps on this guide: http://bit.ly/hol-orm
- Resource Manager Documentation: https://docs.cloud.oracle.com/iaas/Content/ResourceManager/Concepts/resourcemanager.htm

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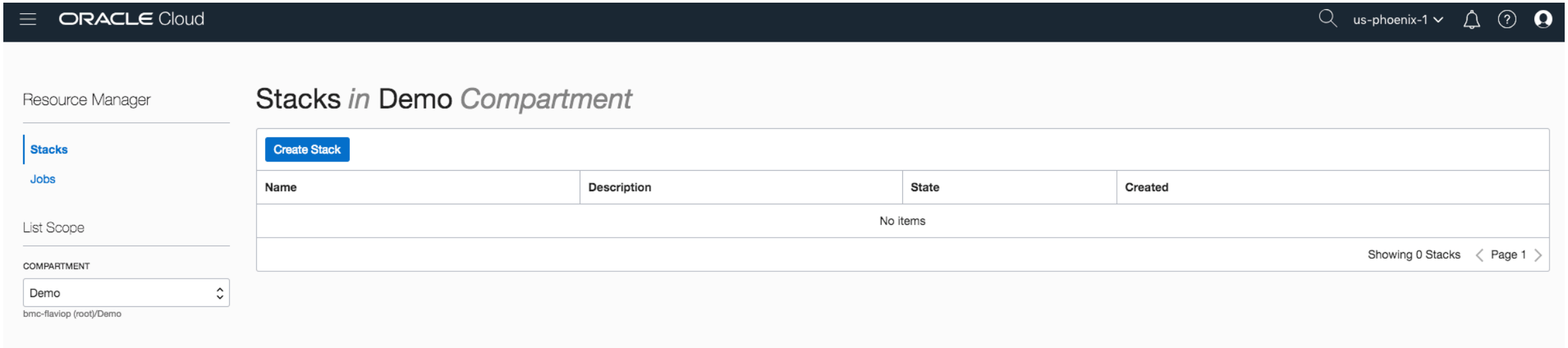
Resource Manager Demo: Step 1

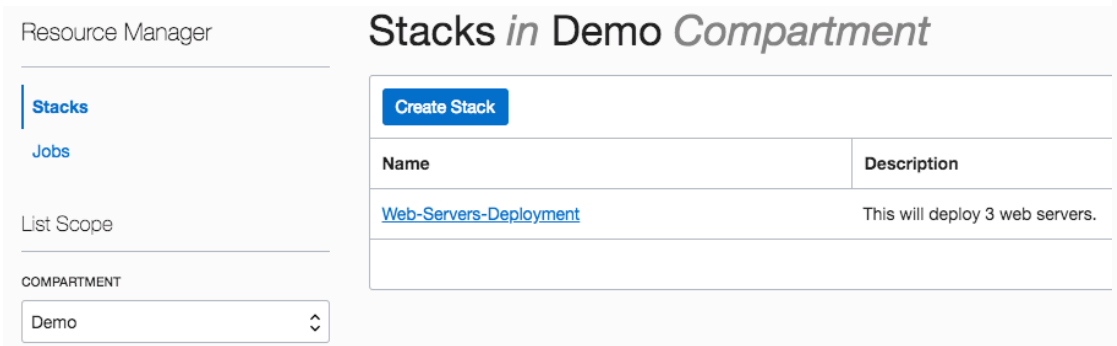
Go to **Menu** → **Resource Manager** → **Stack** and click **Create Stack**

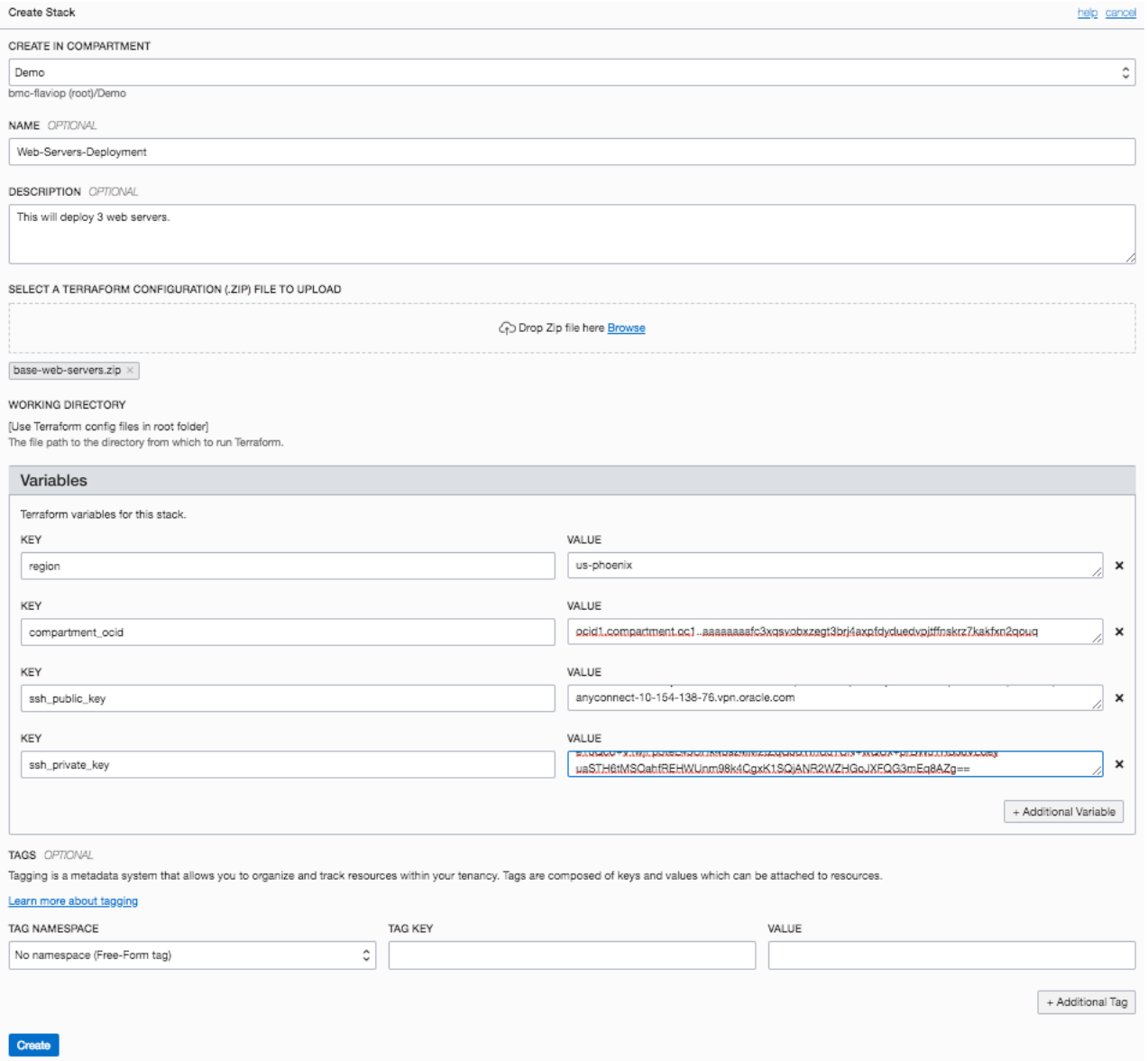


Resource Manager Demo: Step 2

- Select the target compartment
- Enter a Name and Description
- Upload your Terraform zip file
- Enter the variables
- Click Create

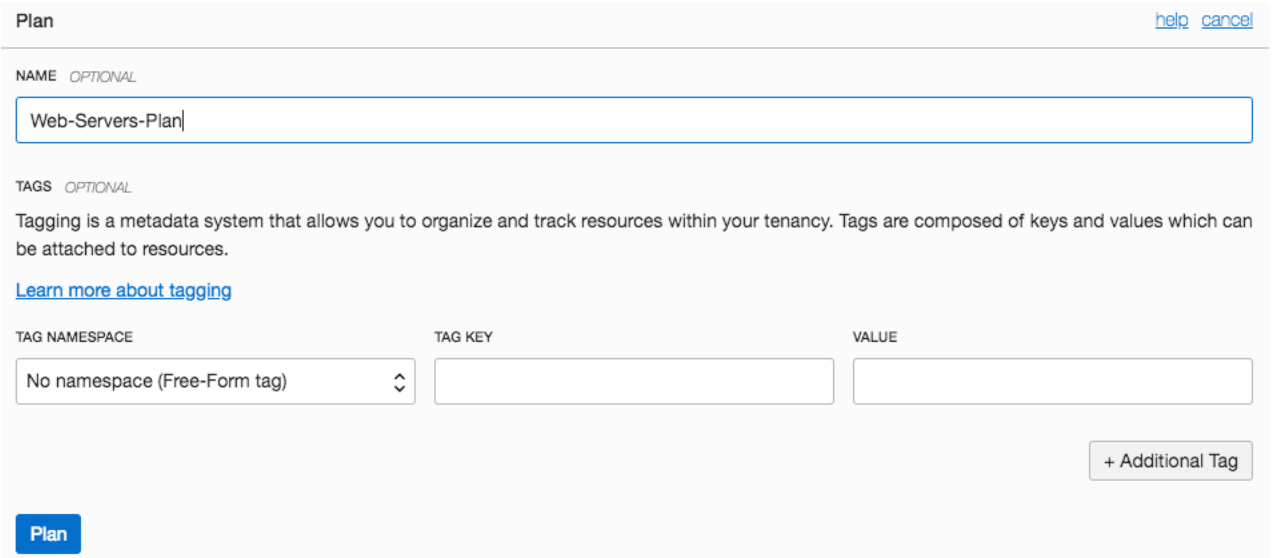
You will see your Stack created showing an **Active State**

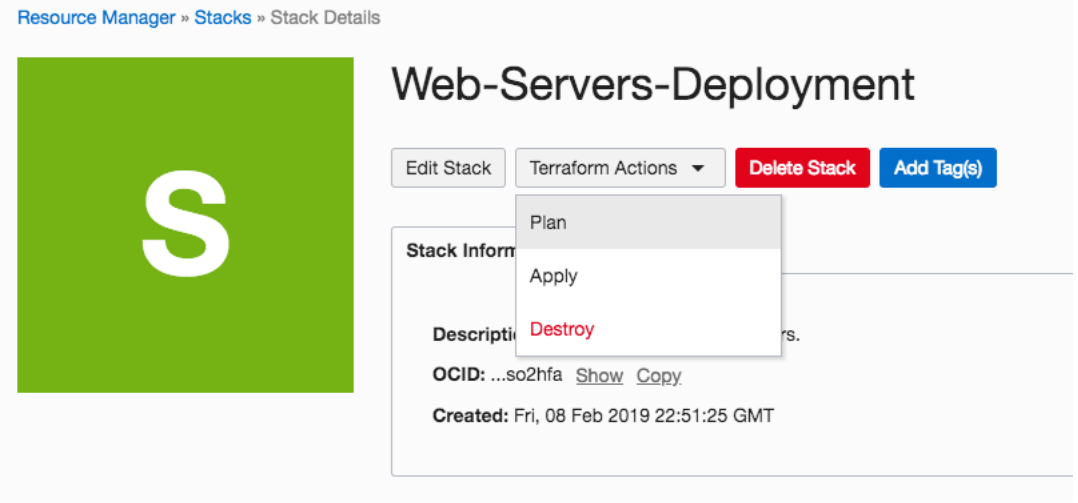




Resource Manager Demo: Step 3

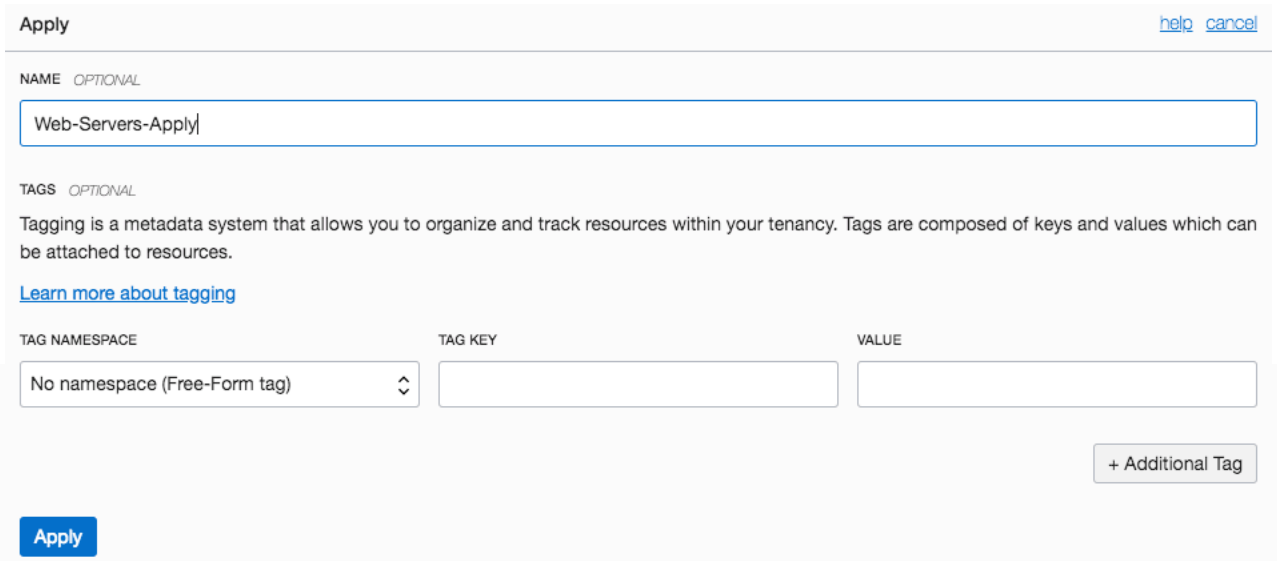
- Select the Stack you created
- Select ”Plan” on the Terraform Actions menu
- Give it a name and click the “Plan” button

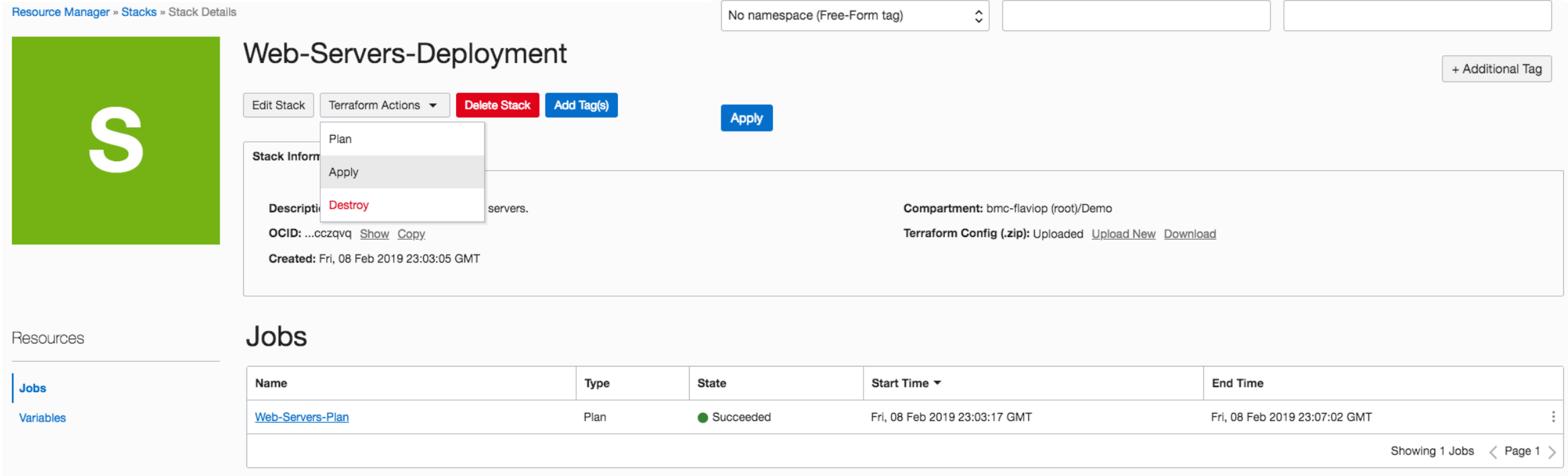




Resource Manager Demo: Step 4

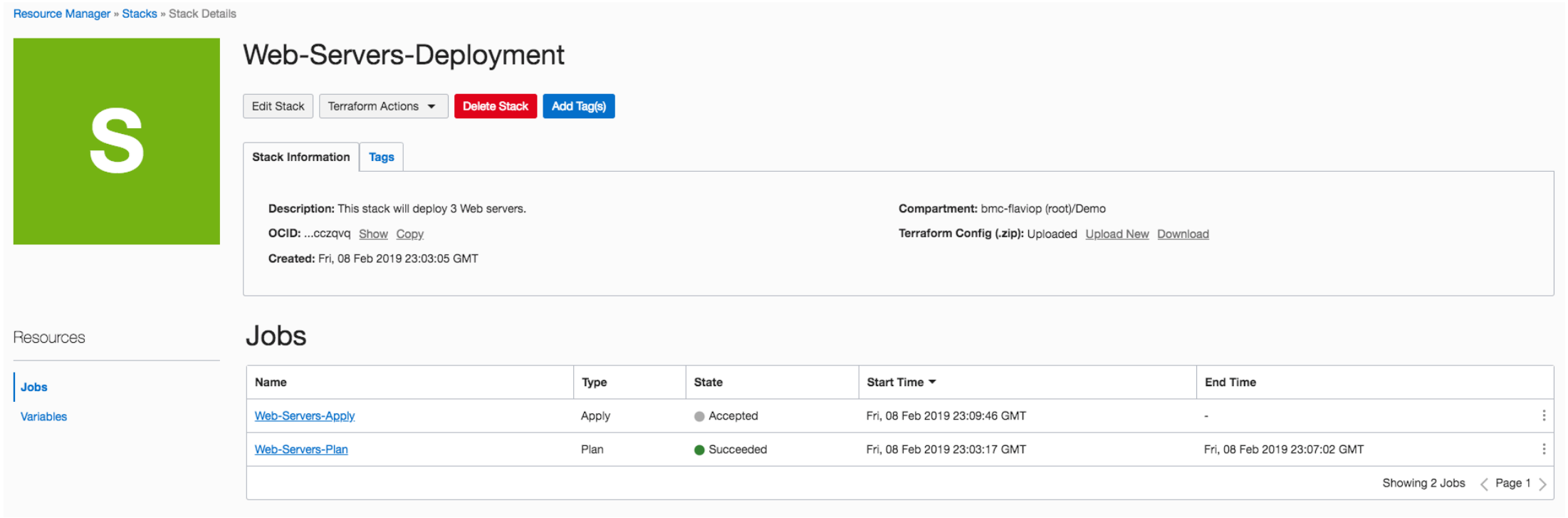
- Select ”Apply” on the Terraform Actions menu
- Give it a name and click the “Apply” button





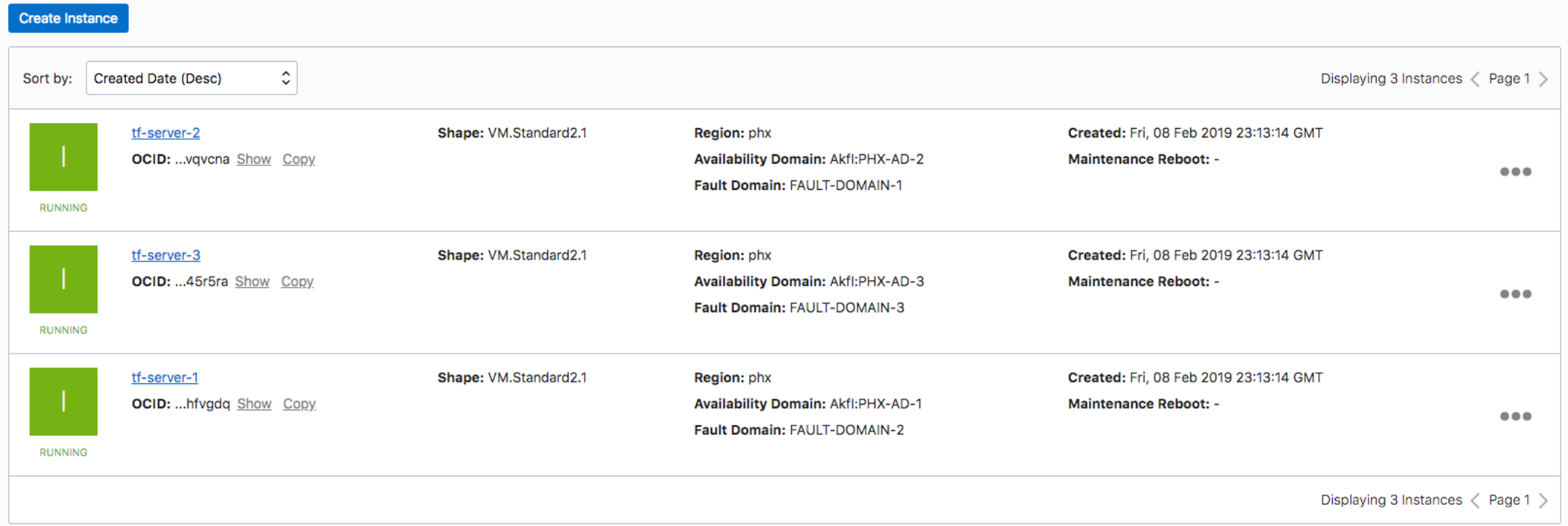
Resource Manager Demo: Step 5

Under Jobs you can see the job history and the state of the actions.



Resource Manager Demo: Step 6

Navigate to **Compute** > **Instances** and see the created Web-Servers



Resource Manager Demo: Step 7

For each Job, download the Logs, Terraform configuration and Terraform State