# Practices for Lesson 5: Manage Oracle SOA Suite on Marketplace Instance

## Overview

In these practices, you will learn how to:

- Add a new load balancer in a new subnet.
- Access a VM through a Secure Shell (SSH).
- Connect to the Administration Server VM.
- Change VM users.
- Create an SSH tunnel to the VM.

## Practice 5-1: Add a New Load Balancer in a New Subnet

### Overview

If you did not enable a load balancer when provisioning your Oracle SOA Suite on Marketplace instance, you can add a new load balancer at any time after provisioning.

In this practice, you will add a new load balancer in a new subnet and access an application using Load Balancer IP and port.

### Assumptions

- You have completed the previous practices successfully.

### Tasks

Here are the steps to be followed in order to add a load balancer in a new subnet:

1. Identify and remove the Managed Server security list from the subnet
2. Edit the stack to add a new load balancer
3. Execute the Terraform Plan operation
4. Execute the Terraform Apply operation
5. Get the load balancer details and validate results
6. Update the load balancer console URL in the WebLogic Server Administration Console
7. Restart the servers

### Step 1 - Identify and remove the Managed Server security list from the subnet

1. Log in to your assigned Cloud account.
2. Open the navigation menu, click **Networking**, and then click **Virtual Cloud Networks**.
3. Navigate to Virtual Cloud Networks page; select your VCN (example: SOAOCI02-VCNSOA_02) from the list of VCNs.

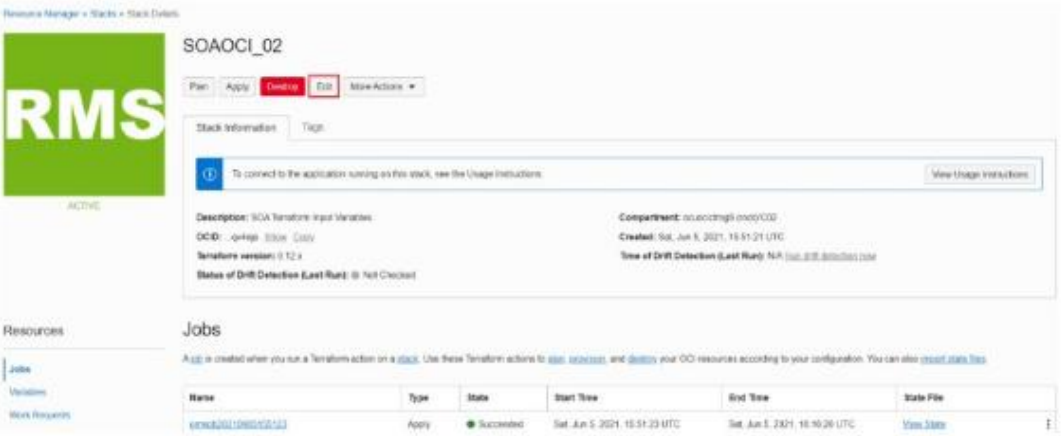
4. Click **Subnets** in the left pane. In the subnet list, click **SOAOCI02-wls-subnet** to open the security list entries.


5. Choose the security list "**SOAOCI02-wls-ms-security-list**." At the far right of the row for the security list, select **Remove** and then click **Remove** in the Remove Security List from Subnet dialog box.

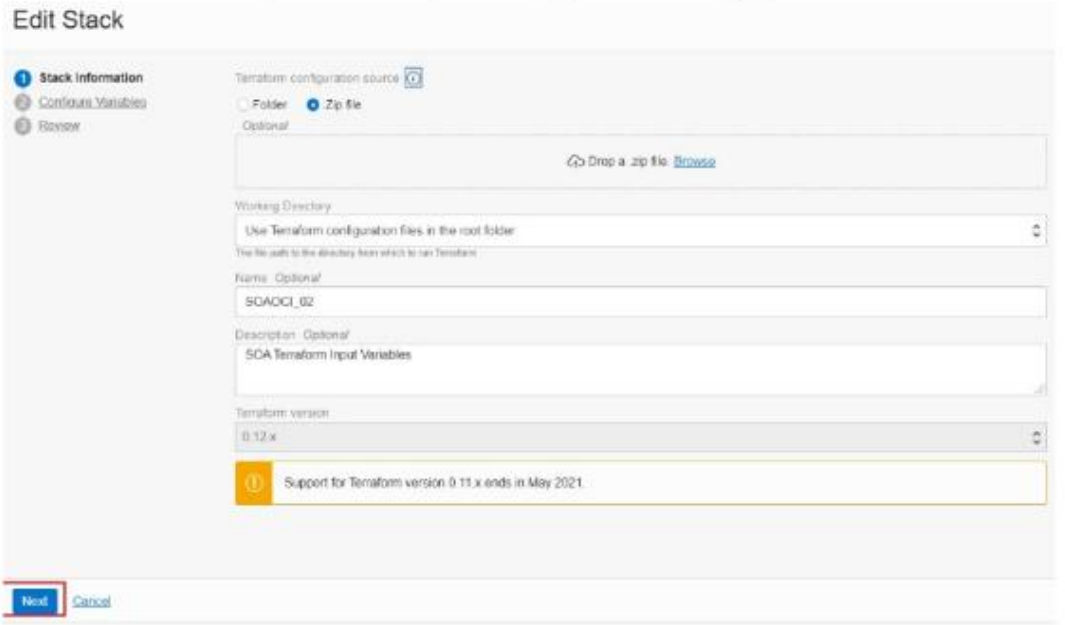

### Step 2 - Edit the stack to add a new load balancer

6. Next, from navigation menu click **Developer Services.** Under Resource Manager, click **Stacks**.
7. Click the name of your stack. (In our example, it is **SOAOCI_02**.)

8. On the Stack Details page, click **Edit and Select Edit Stack**.




9. In the Edit Stack wizard, click **Next** to go to **Configure Variables** page.



10. Select the **Provision Load Balancer check box** under **Instance Network**


11. Click **Next** to navigate to the **Review** page; then click **Save Changes.**

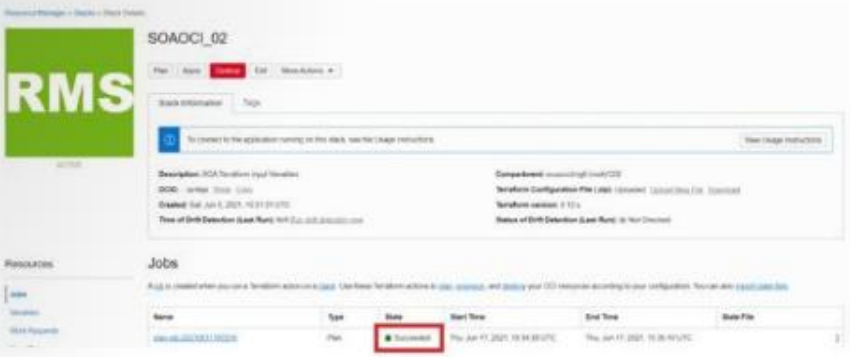
### Step 3 - Execute the Terraform Plan operation

12. To complete the addition of the load balancer, follow the below steps.
    a. Click **Plan** on the Stack Details page.

b. In the Plan dialog box, accept the default name and click **Plan**.


c. Allow sufficient time for the plan job to complete. Initially, the status of the job will be **In Progress**.

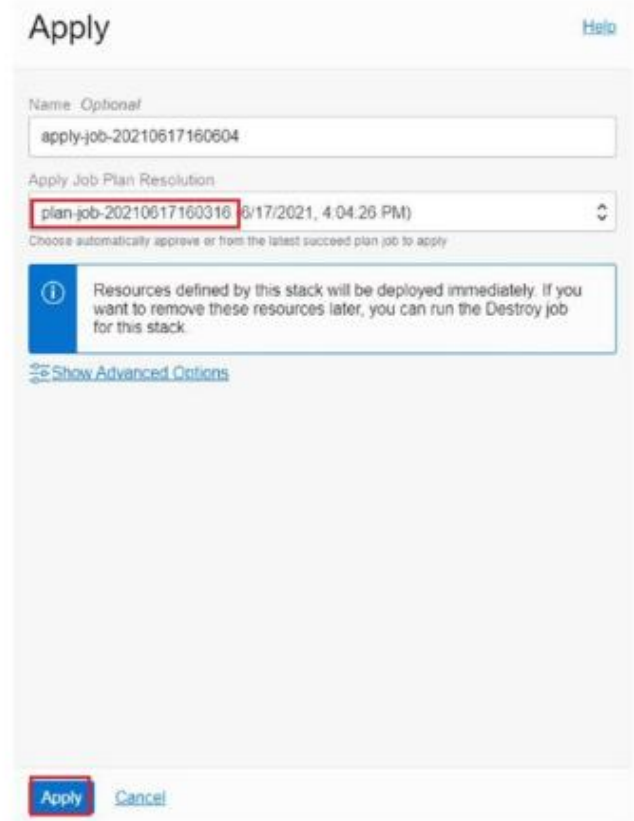
d. Go back to Stacks Details page; you can see Terraform Plan job with **Succeeded** state.




## Step 4 - Execute the Terraform Apply operation

e. From the Stack Details page, click **Apply.**

f. In the Apply dialog box, choose the Plan job that you have created, click Apply.




g. Allow sufficient time for the apply job to complete. Initially, the status of the job will be **In Progress**.

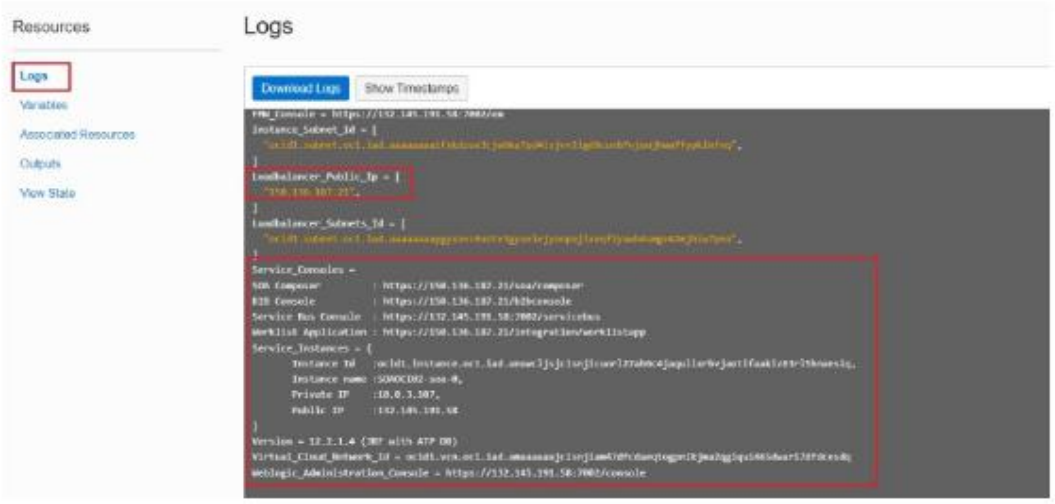
h. Go back to Stack Details page; you can view the **Apply** job with **Succeeded** state.


13. Click the **apply job** name, and it displays the Job Details page as shown below.

### Step 5 - Get the load balancer details and validate results

14. Under **Resources** in the left pane, click **Outputs** to view the load balancer URL and newly updated service console URLs.


15. Alternatively, click **Logs** and scroll through the log file till the end and identify load balancer IP address and updated service console URLs that you can use to access the instance. Here you can make a note of **Load Balancer** public IP address.




### Add Ingress Rules to access WebLogic Server Administration Console and other consoles:

Add the following ingress rule in security list **SOAOCI02-wls-security-list**, which is under "**SOAOCI02-wls-subnet**" of your VCN. Detailed steps are listed in the practices for Lesson 3.

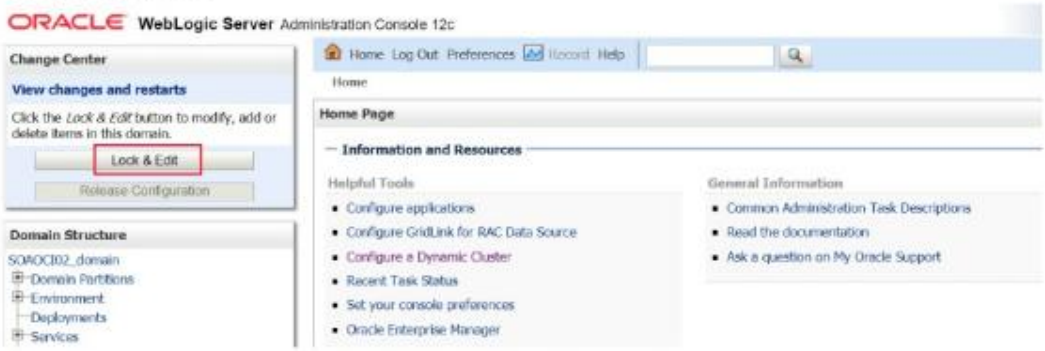
**Rule 1:**

a. **SOURCE TYPE:** Select **CIDR**.
b. **SOURCE CIDR:** Enter the public IP address of the machine where the Administration Server URL is opened from a browser (for example, if the public IP address is123.123.456.456 then enter 123.123.456.456/32).
c. **IP PROTOCOL:** Select **TCP**.
d. **DESTINATION PORT RANGE: 7002**
e. **Description: To access WebLogic and Enterprise Manager**
f. Click **Add Ingress Rules**.

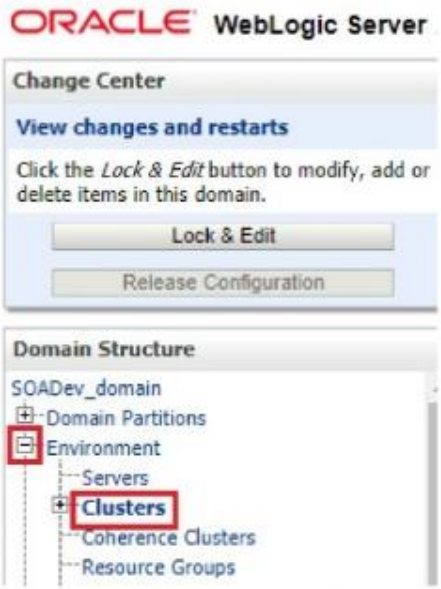
## Step 6 - Update the load balancer console URL in the WebLogic Server Administration Console:

1. Access the WebLogic Administration Console using the URL https://132.145.191.58:7002/console (this is an example URL in our case and it will be different for you) and provide the username as "weblogic" and password as "Wwelcome#123" and then click "**Login**".
2. It displays the WebLogic Server Administration console home page.

3. Click "Lock & Edit."

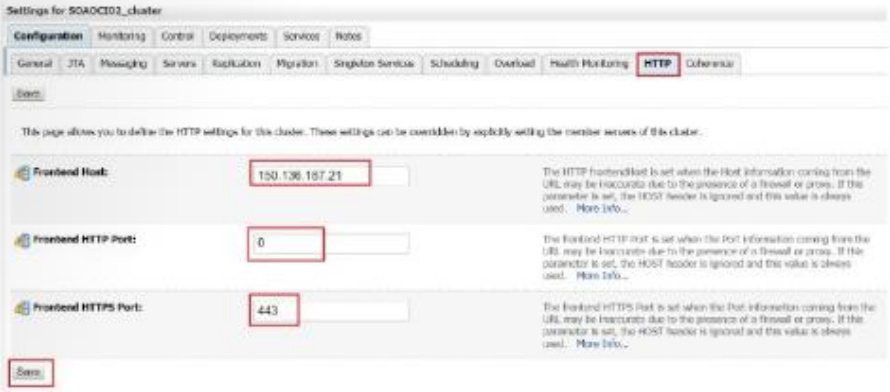



4. Under Domain Structure, expand **Environment** and select **Clusters**.




5. Click your SOA cluster, i.e., **SOAOCI02_cluster**.

6. On the Configuration page, select the **HTTP** tab.
   a. Update the **Frontend Host** value to the **Load Balancer public IP address**.
   b. Set the **Frontend HTTPS Port** to 443.
   c. Click **Save**.




   d. Ensure that the settings are updated successfully.

## Step 7 – Restart the servers

7. Next, select the **Control** tab; select the Managed Server, i.e., SOAOCI02_server_1.


8. Click **Shutdown** and select **Force shutdown now** from the drop-down list.

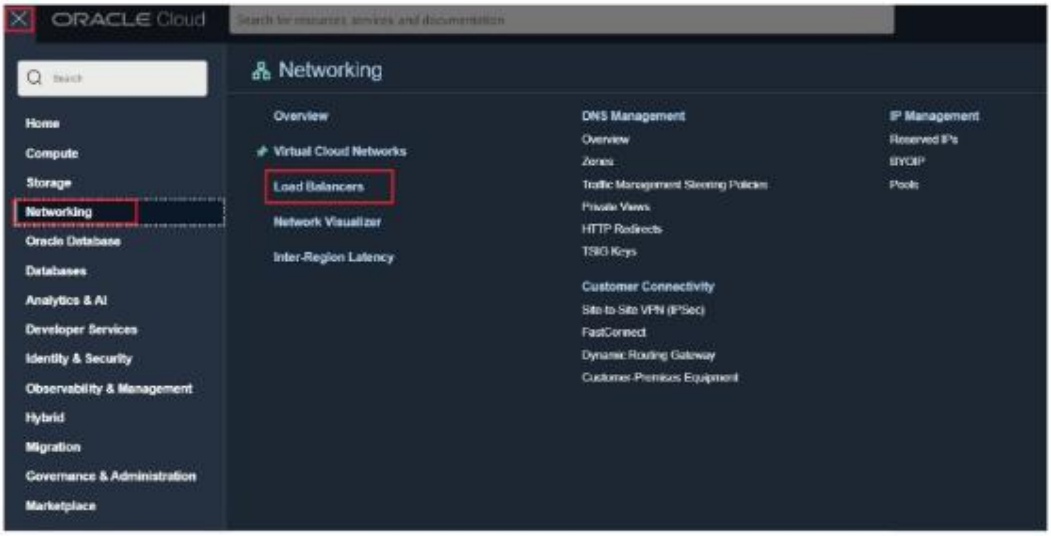

9. Click **Yes** to continue.
10. Allow sufficient time to shut down the server, and you can see the server state as "SHUTDOWN."

11. After shutdown completes, select the Managed Servers and click **Start**.


12. Click **Yes** to continue.
13. Allow sufficient time (3 to 4 mins) to **start** the server, and you can see the state as "**RUNNING.**"


**Verify the health of the Oracle Cloud Infrastructure load balancer:**

1. From the OCI console, open the navigation menu and click **Networking**. Now click **Load Balancers**.



2. Select the **compartment** that is assigned to you.


3. You can see a load balancer, i.e., **SOAOCI02_lb** with active state, and Overall Health is **OK.**

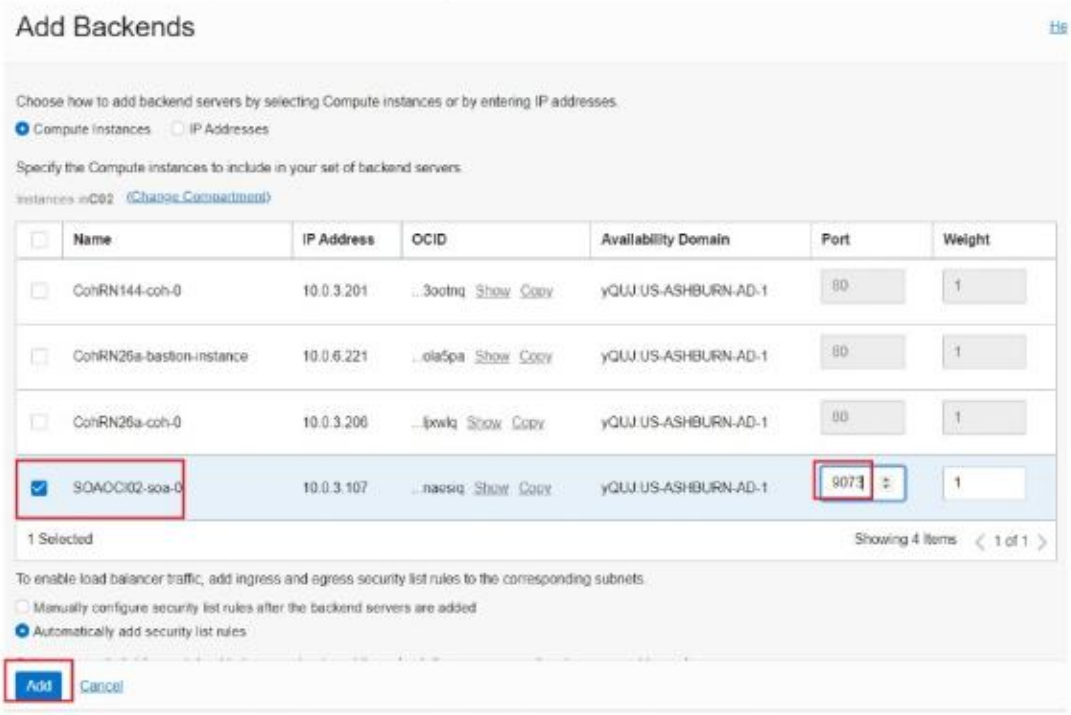

4. In case your Load Balancer Overall Health is **Critical** or **Warning** or **Unknown**, follow the below steps to update the Load Balancer Overall Health as **OK**.
   a. Select the Load Balancer name, and it displays the details page.


   b. Select **Backend Sets** under Resources and click **SOAOCI02-lb-backendset.**

c. Select **Backends**.


d. Next, select the check box and click **Add Backends.**


e. Choose your Compute Instance; change the port as "9073". Click **Add.**




f. Click **Close** and allow sufficient time for the work request to complete.

g. You will see the Load Balancer Health changed from previous state to **OK** state.

5. To access the newly deployed web application using Load Balancer, perform the following steps:
   a. In another tab of your browser, enter the Load Balancer URL followed by **context-root**, i.e., /benefits.

      https://<Load Balancer IP>:<Load Balancer Port>/benefits

      Example : https://150.136.187.21:443/benefits

   b. It displays the home page of **dizzy** managed server.


   c. Select "View Vacation Schedule" and "View Health Care Options" and click **Get Information** button.


   d. It displays the output as shown below.

## Dizzyworld Vacation Schedule

New Year's Day Holiday, January 2, 2012
Memorial Day, May 28, 2012
Independence Day, July 4, 2012
Labor Day, September 3, 2012
Thanksgiving Day, November 22, 2012
Day after Thanksgiving, November 23, 2012
Christmas Eve, December 24, 2012
Christmas Day, December 25, 2012

## Dizzyworld Health Benefits

Blue Cross and Blue Shield
Matthew Thornton Health Plan

Back To Home Page

e. Click the **Back To Home Page** link to go back to the Home page.

This completes the task of creating a load balancer and accessing the deployed application with load balancer IP and port.

## Practice 5-2: Connect to Administration and Managed Server VM

### Overview

You can change users on a VM in order to perform specific administration tasks.

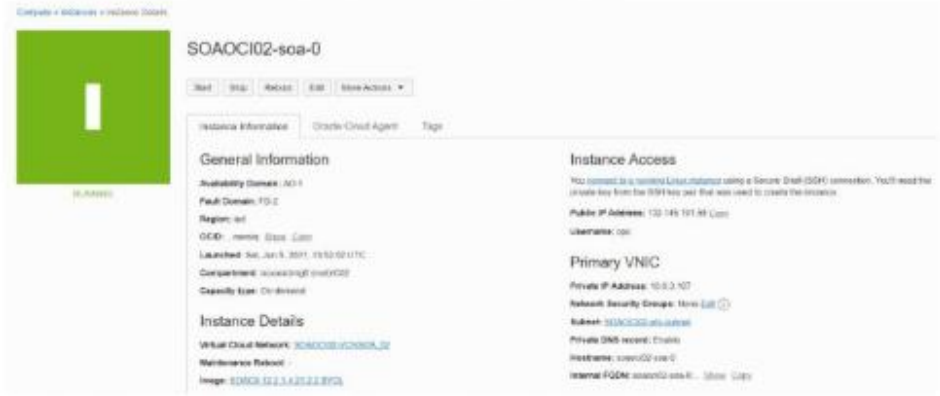
In this practice, you will learn how to connect to Administration and Managed Server VM and change the users in VM.

### Tasks

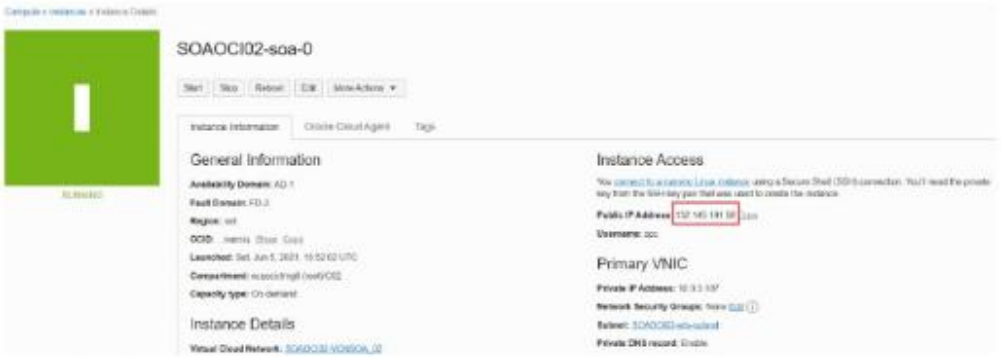
1. From the OCI console, open the navigation menu and click **Compute → Instances**.


2. Select the compartment that is assigned to you and click the instance name (example: in our case, it is **SOAOCI02-soa-0)**.

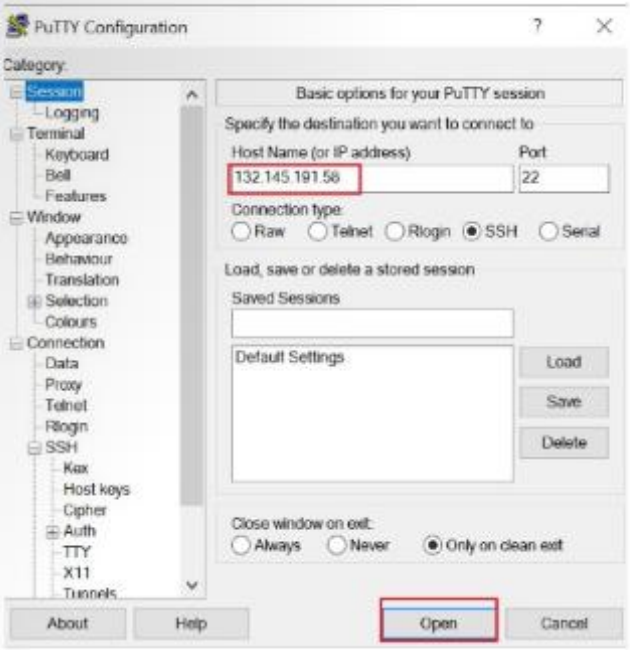
3. You can see the Instance Information as shown below.



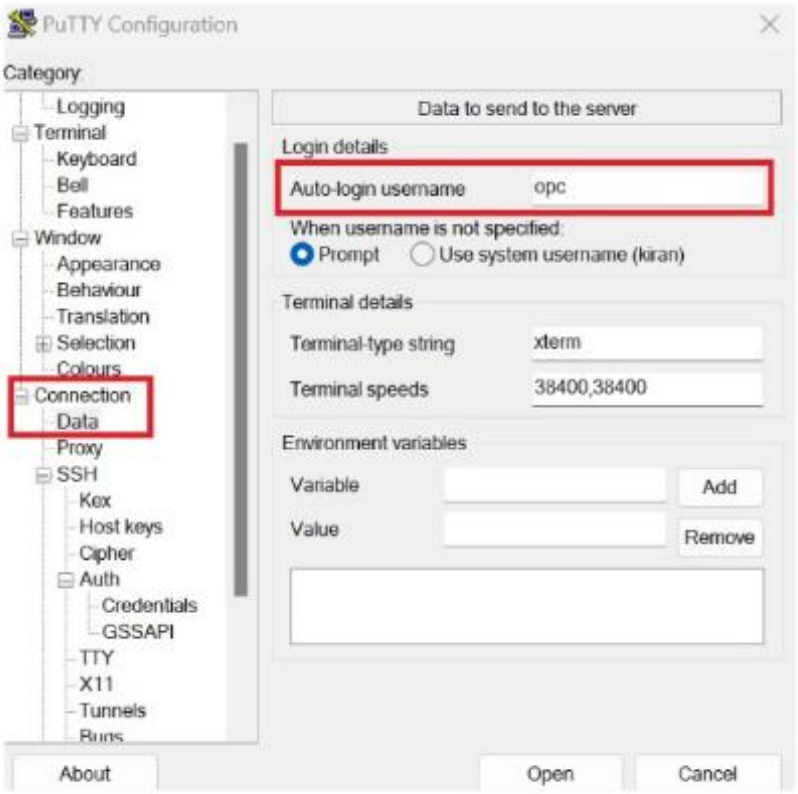

4. Note the public IP address of the Administration Server VM.



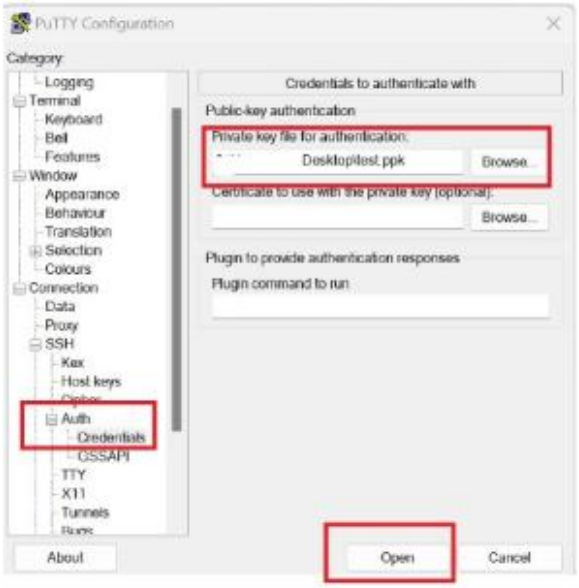

5. Open **Putty** application from your local Windows system and perform the following steps to establish a command-line connection to your VM:
   a. Enter public IP address in the **Host Name** field.




b. From the left-side menu, navigate to **Connection →Data**. Enter **opc** in the Auto-login username field.

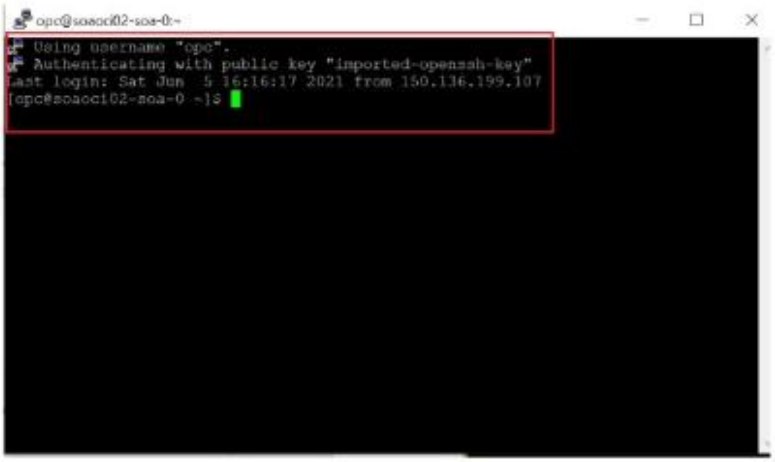


c. From the left-side menu, navigate to **Connections→SSH→Auth→ Credentials**. Under **Private Key file for authentication,** click browse to select and upload your private key. In this example, it is **`my-OCI-key.ppk`** file.




d. Click **Open** to open the connection to the VM.

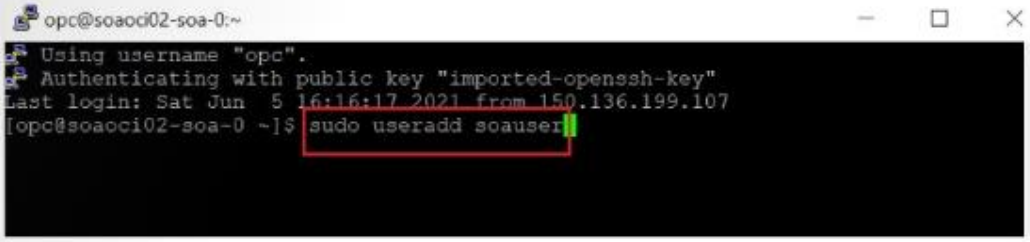
6. You will be prompted to Administration Server or Managed Server VM (based on the Host IP provided). When the VM command line appears, you can use any resource accessible from the VM.




You must SSH to a VM only as the `opc` user. This user has root privileges on the OS running in the VM. For example, `opc` can be used to create other OS users on a VM. Prefix root operations with the sudo command.

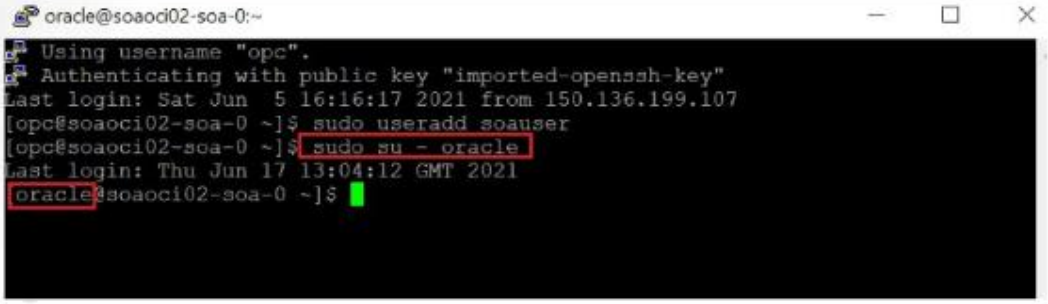
7. Enter the following command to add **users** on a VM.

```
[opc@soaoci02-soa-0 ~]sudo useradd soauser
```




8. The `oracle` user has regular OS user permissions. Use the below command to change to the **oracle user.**

```
[opc@soaoci02-soa-0 ~] sudo su - oracle
```




9. An alternative to using the `sudo` command to perform root OS operations as the `opc` user is to change to the `root` user. To change to the `root` user, enter the following command:

```
[oracle@soaoci02-soa-0 ~] exit
[oracle@soaoci02-soa-0 ~] sudo -s
```

## Practice 5-3: Create an SSH Tunnel

### Overview

An SSH tunnel to an Oracle SOA Suite on Marketplace VM enables you to connect to other non-public ports on the VM through a port on your local machine.

If a resource provided by a VM uses a port that is not directly accessible through the Internet, you can access that resource by creating an SSH tunnel to the port.

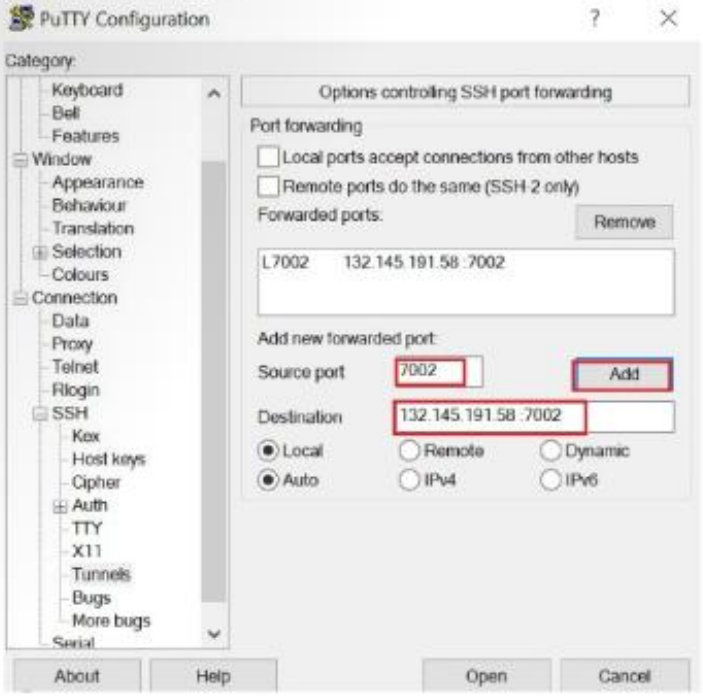
In this practice, you will create an SSH tunnel to an Administration Server VM and access the VM using localhost and port.

### Tasks

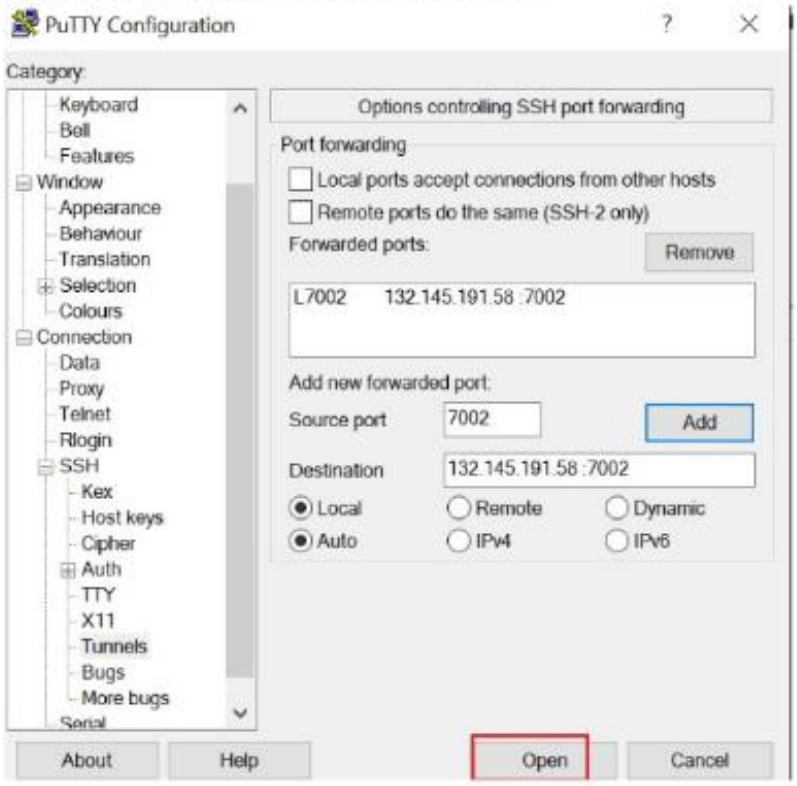
**To set up an SSH tunnel to an Administration Server VM:**

1. Open **Putty** application from your local Windows system and perform the following steps to establish a command-line connection to your VM:
   a. Enter public IP address in the **Host Name** field.
   b. From the left-side menu, navigate to **Connection →Data**. Enter **opc** in the Auto-login username field.
   c. From the left-side menu, navigate to **Connections→SSH→Auth→ Credentials**. Under **Private Key file for authentication,** click browse to select and upload your private key. In this example, it is **`my-OCI-key.ppk`** file.
   d. In the Category tree, click **Connection > SSH > Tunnels**.
   e. In the Destination field, enter IP: port:
      1) Where IP is the public IP address of the VM and port is the port number on the VM to which you want to connect (**Example**: 132.145.191.58 :7002).
   f. In the Source Port field, enter the same port number.

g. Click the **Add** button.




h. Click **Open** to open the connection to the VM.

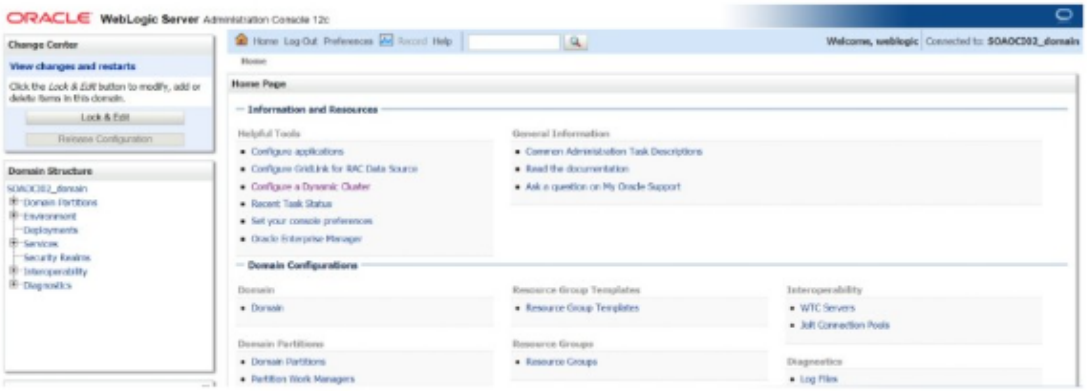


i. It will connect to **Administration Server VM** as shown below.


Applications running on your local machine can now communicate with the VM by using localhost:port, where port is the local port number.

For example, after creating an SSH tunnel to port 9001 on the Administration Server VM, launch a web browser and connect to http://localhost:9001/console.

2. Now access the WebLogic Administration Console using the URL https://localhost:7002/console (this is an example URL in our case and it may be different for you) and provide the username as "weblogic" and password as " Wwelcome#123" and then click "**Login**".
3. It displays the WebLogic Server Administration console home page as shown below.




This completes the task of setting up an SSH tunnel to an Administration Server VM and accessing the WebLogic administration console using localhost.