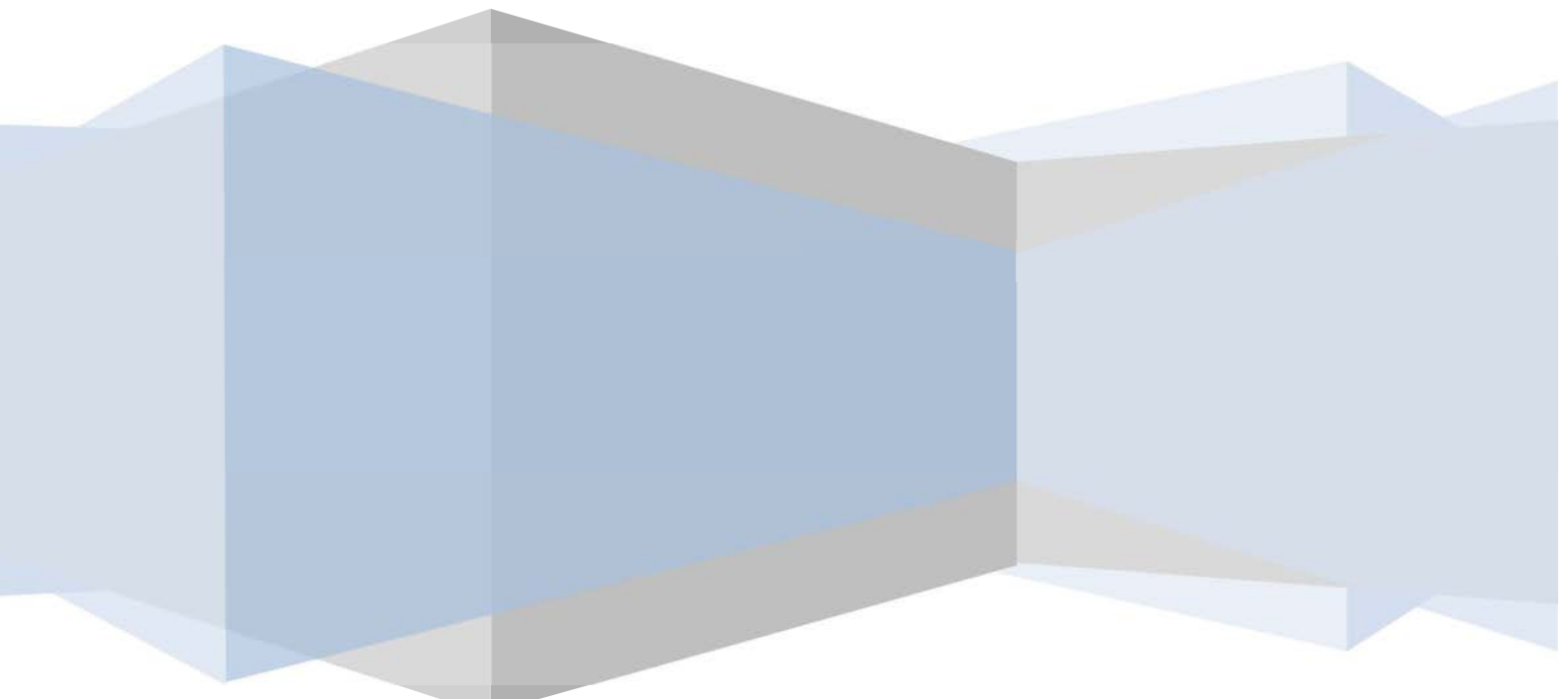


Oracle Corporation

# Oracle Database Appliance

## X8-2-HA 19.9 Hands-on Lab Manual (OCI)



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## ODA X8-2-HA 19.9 OCI Simulator Labs in OCI

We will use a container-based Oracle Database Appliance (ODA) simulator to complete these labs. Performing deployment and patching on an actual ODA would require you to have your own system, and would take a rather long time. The simulator will provide a very similar experience, but is faster, and you get your own simulator to complete the labs. The simulator simulates an ODA X8-2-HA, a 2-node database appliance.

Keep in mind this is a simulation. Not all features are supported by the simulator, and no database is actually created and running. The simulator may be more forgiving than a real ODA if you enter invalid data, and some of the detailed output and screen shots it provides may not be completely accurate.

Some command line operations will require entering long UUIDs or file names. Use copy/paste to enter long entries. If you accidentally exit the simulator, just reconnect to it. It will remember your state.

### Connecting to the OCI ODA Lab Environment

After the ODA Simulator is setup in the OCI VM, you'll need to log into the ODA Simulator VM with your credentials to access the ODA Simulator Command Line Interface (CLI) and a web browser to access the Browser User Interface (BUI) like a real ODA.

You need to use a console on your local system to ssh into the ODA simulator and be root (su -s) to run the commands. You also need to have the container names (e.g. odapm-1-node0, odapm-1-node1) to access the CLI. You'll need a web browser on your local system with provided ODA simulator VM IP address and a port number (e.g. 7097) to access the BUI.

Firefox and Chrome are recommended web browsers for this lab. If you run into a BUI agent certificate issue. See the Troubleshooting section for details.

Because ODA X8-2-HA is a 2-node system, you will be given **two** set of credentials, one for node-0 and one for node-1. Use node-0 for most of the lab exercises.

### To connect to the ODA Simulator Command Line Interface (CLI)

Run the following script to connect to the container. This script is usually located in the simulator directory (e.g. simulator\_19.9.0.0.0)


```
# ./connectContainer.sh -n oda-1-node0  
[root@oda-1-node0 /]#
```

### To connect to the ODA Simulator Browser User Interface (BUI)

1. You must first complete odacli configure-first net and run the odacli update-repository commands in the Lab 1 (using CLI) before you can start deploying ODA in BUI
2. Use the VM IP address and port number provided to log into ODA BUI
  - a. Go to <https://<IP Address>:xxxx/mgmt/index.html> (e.g. 7097)

**Note if you run into BUI agent credential issue, please see Troubleshooting section**

← → 🏠 <https://localhost:7095/mgmt/index.html> 110% 🔍 Search



# Oracle Database Appliance

Configure the **oda-admin** user password security requirements. After configuring a new password.

Password \*

Confirm Password \*


Submit

The password must contain at least two characters each from: uppercase letters, lowercase letters, numbers (0-9), and allowed special characters #, - or \_. The password must have a minimum of 9 characters and a maximum of 30 characters.

ORACLE®

The first thing is to set a new password based on the required rules. For simplicity, you can use something like "WELcome12##" or come up with your own unique password.

You can then login as oda-admin with the new password



# Oracle Database Appliance

User Name \*

oda-admin

Password \*

Login [Forgot password?](#)

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## Appliance

[Appliance](#)[Network](#)[Oracle ASR](#)[Patch Manager](#)

Oracle Database Appliance is not configured.

Click **Create Appliance** to get started.

[Create Appliance](#)[Learn More](#)

## Simulator Labs Overview

This workshop consists of the following four labs:

- Lab 1: Deploy Appliance
- Lab 2: Managing Databases
- Lab 3: Patch and Update
- Lab 4: Monitoring and Administration

Labs will use a mix of command line and web-based administration tools. On the if you encounter any certificate warnings, simply accept them. Note in the output examples below, the text you type is in bold, and the text output in the simulator is not.

### Lab 1: Deploy Appliance

Go to the Node-0 console command line window to start the lab.

#### Step 1: Put the ODA on the Network

After you first install the ODA into your data center rack, you must configure it to use the IP address your network administrator has assigned it. The easiest way to do this is to first configure ILOM via a network or serial connection. The ODA includes a command called "odacli configure-firstnet" to make it very easy to get the ODA on the network. Once you've put the ODA on the network, you can complete all the rest of the deployment steps from any networked computer.

Run the network configuration command "odacli configure-firstnet" at the Linux prompt. Respond to the prompts as in the example below. Since we are only simulating configuring the network, you can use any IP address (e.g. 192.168.0.100) to complete this step.

## # odacli configure-firstnet

bonding interface is:

Using bonding public interface (yes/no) [yes]:

Select the Interface to configure the network on ( ) [btbond1]:

Configure DHCP on btbond1 (yes/no) [no]:

INFO: You have chosen Static configuration

Use VLAN on btbond1 (yes/no) [no]:

Enter the IP address to configure : **192.168.0.100**

Enter the Netmask address to configure : **255.255.255.0**

Enter the Gateway address to configure[192.168.0.1] :

INFO: Restarting the network

Shutting down interface : [ OK ]

Shutting down interface em1: [ OK ]

Shutting down interface plp1: [ OK ]

Shutting down interface plp2: [ OK ]

Shutting down loopback interface: [ OK ]

Bringing up loopback interface: [ OK ]

Bringing up interface : [ OK ]

Bringing up interface em1: [ OK ]

Bringing up interface plp1: Determining if ip address 192.168.16.24 is already in use for device plp1... [ OK ]

Bringing up interface plp2: Determining if ip address 192.168.17.24 is already in use for device plp2... [ OK ]

Bringing up interface btbond1: Determining if ip address 192.168.0.100 is already in use for device btbond1... [ OK ]

**Note because this is an ODA X8-2-HA system, you'll also need to run configure firstnet on node-1. Log into node-1 and run the odacli configure-firstnet again. Use 192.168.0.101 for the IP address for node-1.**



## # odacli configure-firstnet

bonding interface is:

Using bonding public interface (yes/no) [yes]:

Select the Interface to configure the network on ( ) [btbond1]:

Configure DHCP on btbond1 (yes/no) [no]:

INFO: You have chosen Static configuration

Use VLAN on btbond1 (yes/no) [no]:

Enter the IP address to configure : **192.168.0.101**

Enter the Netmask address to configure : **255.255.255.0**

Enter the Gateway address to configure[192.168.0.1] :

INFO: Restarting the network

Shutting down interface : [ OK ]

Shutting down interface em1: [ OK ]

Shutting down interface plp1: [ OK ]

Shutting down interface plp2: [ OK ]

Shutting down loopback interface: [ OK ]

Bringing up loopback interface: [ OK ]

Bringing up interface : [ OK ]

Bringing up interface em1: [ OK ]

Bringing up interface plp1: Determining if ip address 192.168.16.24 is already in use for device plp1... [ OK ]

Bringing up interface plp2: Determining if ip address 192.168.17.24 is already in use for device plp2... [ OK ]

Bringing up interface btbond1: Determining if ip address 192.168.0.101 is already in use for device btbond1... [ OK ]

## Step 2: Update the Repository with the ODA Software

The ODA does not ship with the database software pre-loaded, due to regulatory concerns. You must download the Oracle software prior to deployment from My Oracle Support. Go to the ODA documentation web site, the ODA Patch section of the Release Note will provide links to the ODA software. Specifically, we need to download the Grid Infrastructure Clone files, the RDBMS Clone files, and the Server Patch Bundle. We've already downloaded simulated versions of these files in the simulator.

The clone files are listed below. The other file in the directory contain patches, and will be used in the patching lab.

**Note about file paths: you must specify the full path of the files you pass to the "odacli update-repository" command.**

Filename	Description
odacli-dcs-19.8.0.0.0-200714-GI-19.8.0.0.zip	Grid Infrastructure 19.8 Clone Files
odacli-dcs-19.8.0.0.0-200714-DB-19.8.0.0.zip	DB 19.8 Clone Files
oda-sm-19.9.0.0.0-201020-server.zip	ODA 19.9 Patch Bundle (used in lab 3)
odacli-dcs-19.9.0.0.0-201020-DB-19.9.0.0.zip	DB 19.9 Clone Files (used in lab 3)
odacli-dcs-19.9.0.0.0-201020-DB-18.12.0.0.zip	DB 18.12 Clone Files (used in lab 3)

You must update the ODA repository so it knows about the files. This is done with the 'odacli update-repository' command for each clone file (copy/paste is your friend).

Hint: to reduce amount of manual typing and typing errors, use copy and paste functions to copy the file name or tab function to auto complete a file name. Also use the up arrow to repeat the previous command, then edit the file name.

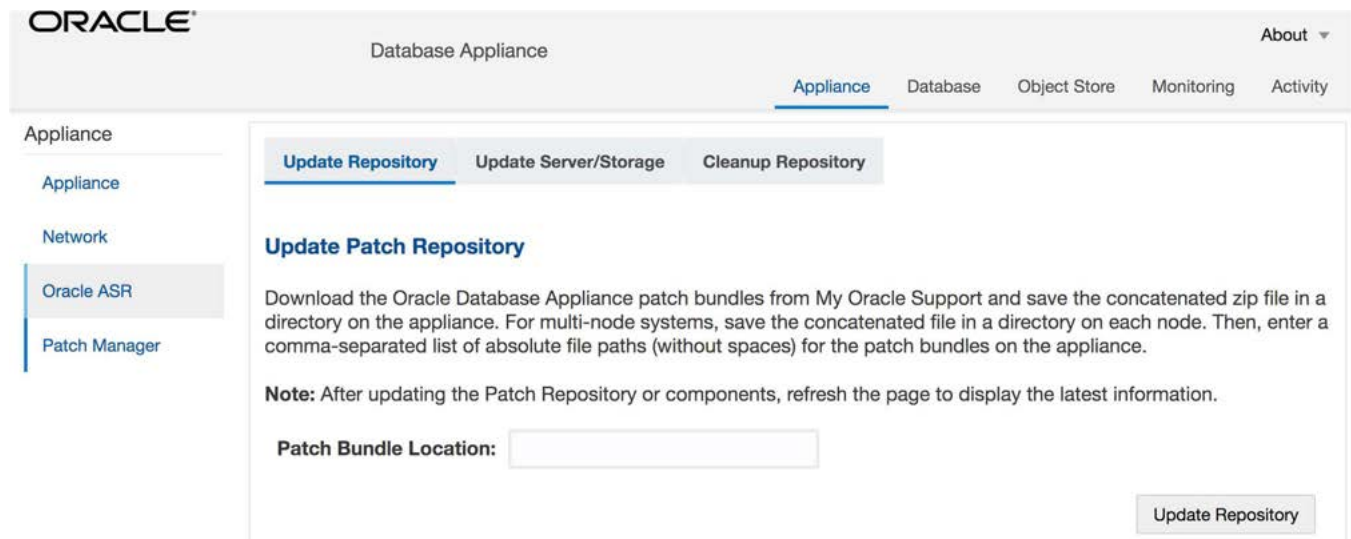
```
# odacli update-repository -f /opt/oracle/dcs/patchfiles/odacli-dcs-19.8.0.0.0-200714-GI-19.8.0.0.zip
{
  "jobId" : "2c6c8847-847f-49cf-8fed-1d5f2c6d44fb",
  "status" : "Running",
  "message" : "/opt/oracle/dcs/patchfiles/odacli-dcs-19.8.0.0.0-200714-GI-19.8.0.0.zip",
  "reports" : [ ],
  "createTimestamp" : "November 10, 2020 03:30:42 AM UTC",
  "resourceList" : [ ],
  "description" : "Repository Update",
  "updatedAt" : "November 10, 2020 03:30:43 AM UTC"
}

# odacli update-repository -f /opt/oracle/dcs/patchfiles/odacli-dcs-19.8.0.0.0-200714-DB-19.8.0.0.zip
{
  "jobId" : "afae2bcf-56fa-46c4-85a5-55dc5c3da474",
  "status" : "Running",
  "message" : "/opt/oracle/dcs/patchfiles/odacli-dcs-19.8.0.0.0-200714-DB-19.8.0.0.zip",
  "reports" : [ ],
  "createTimestamp" : "November 10, 2020 03:31:51 AM UTC",
  "resourceList" : [ ],
  "description" : "Repository Update",
  "updatedAt" : "November 10, 2020 03:31:52 AM UTC"
}
```

When you run commands using the odacli command line tool, most operations are asynchronous, meaning they return a job id immediately while the job runs in the background. This means that in order to get information on long running background jobs, you can query the status of the job.

At this point, the clone files are all loaded into the repository, so we are ready to deploy the appliance and create a database.

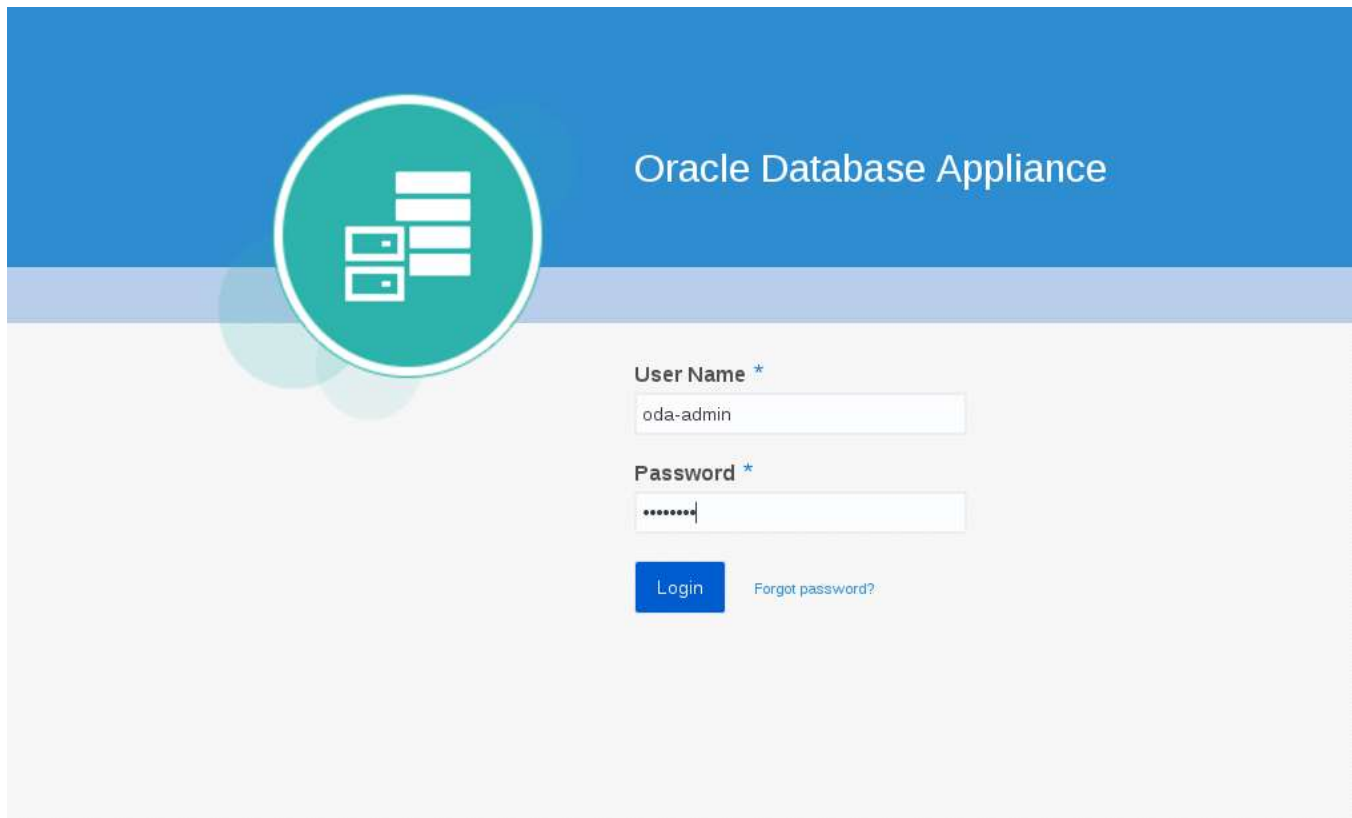
You can also use the Browser-based User Interface (BUI) to update the ODA repository, by pasting the complete file path of the patch file or even clone file in the patch bundle location box of the patch manager in the web console. However, it's not necessary as you have used command line to update the repository (clone files) already.



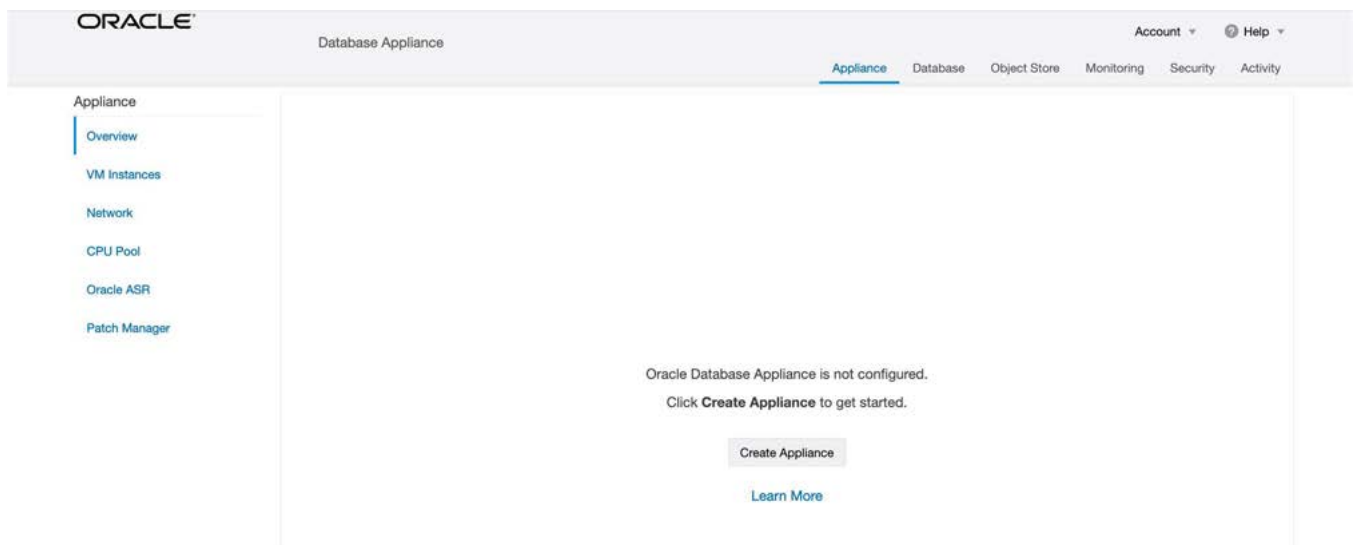
### Step 3: Deploy the Appliance

A customer can deploy the appliance using either the BUI or the command line. The command line is useful for scripted and silent installations. Most customers (and this lab) will use the BUI.

After you configured the firstnet and update the repository, go to the unique URL provided by the instructor to log into ODA BUI (<https://<IP Address>:xxxx/mgmt/index.html>) using oda-admin and previously created password (e.g. WELcome12##)



This will take you to the appliance tab of the ODA Appliance Manager. It should show that the appliance has not been deployed as shown below:



Click "Create Appliance" to start the deployment wizard. Fill in the first page of the form as shown below. Most fields should be self-explanatory. A possible exception is the Data Storage

Percentage. This will affect how much space is allocated for backups. By default, 80% is allocated for data and 20% is allocated for archive logs. You can also specify a different percentage. Select Diskgroup Redundancy "Flex", then you will be able specify individual database storage redundancy later, either Mirror (double mirroring) or High (triple mirroring). Create a password. Be aware there is a password complexity test that will reject simple passwords like "test" and other common variants. However, "WELcome12##" will work if you'd like to use that password.

You can also load a configuration file (e.g. oda.json) that was saved previously to avoid manual entries. To create a configuration file, you manually fill in all the information then click "Save Configuration" at the end.

The screenshot shows the Oracle Database Appliance web interface. The top navigation bar includes the Oracle logo, 'Database Appliance', and links for 'Account' and 'Help'. Below this is a sub-navigation bar with 'Appliance', 'Database', 'Object Store', 'Monitoring', 'Security', and 'Activity'. The left sidebar lists 'Appliance' with sub-items: 'Overview', 'VM Instances', 'Network', 'CPU Pool', 'Oracle ASR', and 'Patch Manager'. The main content area is titled 'Create Appliance' and features a 'Load Configuration' section with a 'Browse...' button and the text 'No file selected.'. Below this is the 'System Information' section, which contains several input fields and dropdown menus: 'System Name' (oda), 'Domain Name' (example.com), 'Region' (Other), 'Time Zone' (GMT), 'Diskgroup Redundancy' (Flex), 'Data Storage Percentage' (80), 'System Password', and 'Confirm Password'. At the bottom, there are sections for 'DNS Servers' and 'NTP Servers', each with three input fields.

Scroll down to continue. This brings up the Network screen. You can configure the network for the public "Client Access" network here. You can also configure the ILOM network if you choose. Enter values for the IP Address, Subnet Mask, Gateway, and specify the interface to be the public network.

## Network Information

**Note:** Use the command `odacli configure-firstnet` to configure the public network before creating the appliance. Configuring the public network provides the information needed for the Client Access Network.

### Client Access Network

#### Node0

Host Name \*

oda0

IP Address \*

192.168.0.100

#### Node1

Host Name \*

oda1

IP Address \*

192.168.0.101

Subnet Mask \*

255.255.255.0

Gateway \*

192.168.0.1

Interface \*

btbond1

### SCAN and VIP Network

#### Node0

VIP Name \*

node0-vip

VIP Address \*

192.168.0.102

#### Node1

VIP Name \*

node1-vip

VIP Address \*

192.168.0.103

SCAN Name \*

oda-scan

SCAN IP Address

192.168.0.104

192.168.0.105

### ILOM Network

#### Node0

ILOM Host Name

IP Address

#### Node1

ILOM Host Name

IP Address

Subnet Mask

Gateway

Must be a valid IP address

## User and Group Selection

Customize Users & Groups ☐ Yes ☒ No

Allow OS Role Separation ☒ Yes ☐ No

### Database Information

Create Initial Database ☒ Yes ☐ No

DB Name \*

DB Unique Name

DB Version  
19.8.0.0.200714

CDB ☒ Yes ☐ No

PDB Name \*

PDB Admin User

Database Edition  
Enterprise Edition

Deployment  
RAC

Shape  
odb1(1 Core, 8GB Memory)

Database Class  
OLTP

Storage  
ASM

Database Redundancy  
Mirror

Data Files on Flash Storage ☐ Yes ☒ No

Password \*

Confirm Password \*

Character Set  
AL32UTF8

National Character Set  
AL16UTF16

Language  
AMERICAN

Territory  
AMERICA

Configure EM Express ☐ Yes ☒ No

Enable TDE ☐ Yes ☒ No

TDE Wallet Password

Confirm TDE Wallet Password

### ASR Information

Enable ASR: ☐ Yes ☒ No

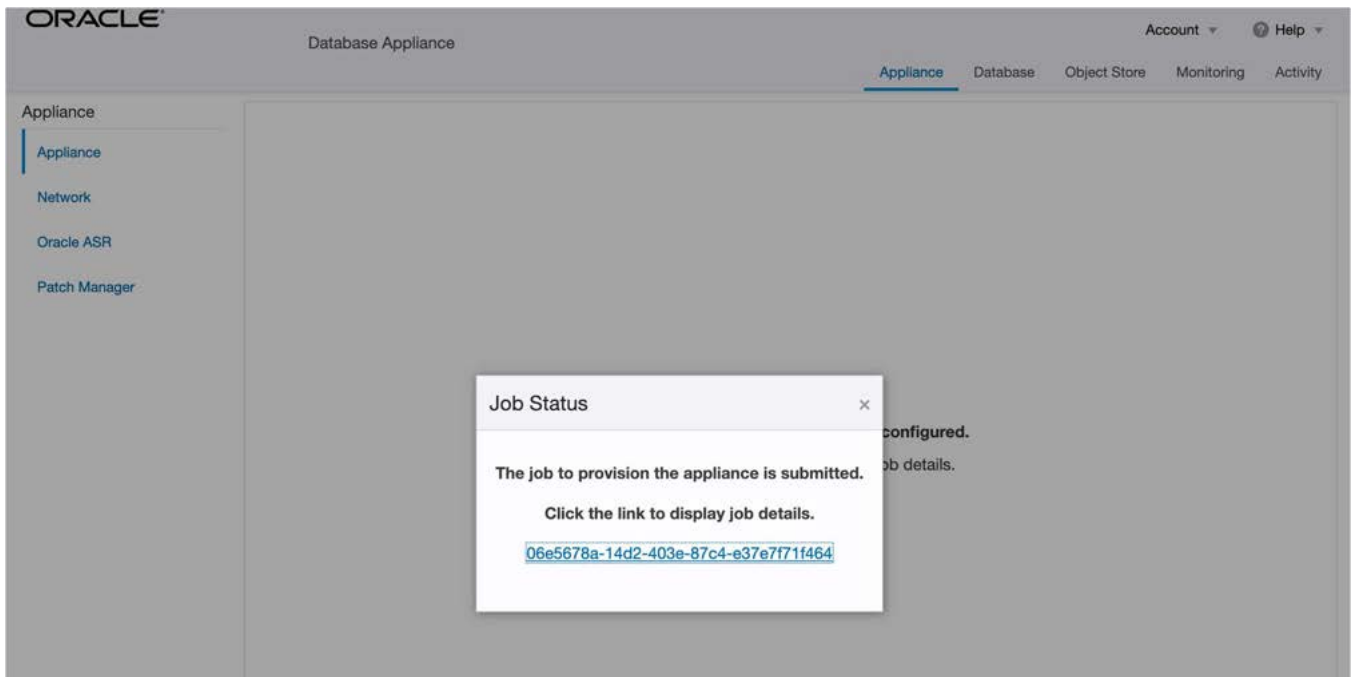
Save Configuration

< Cancel

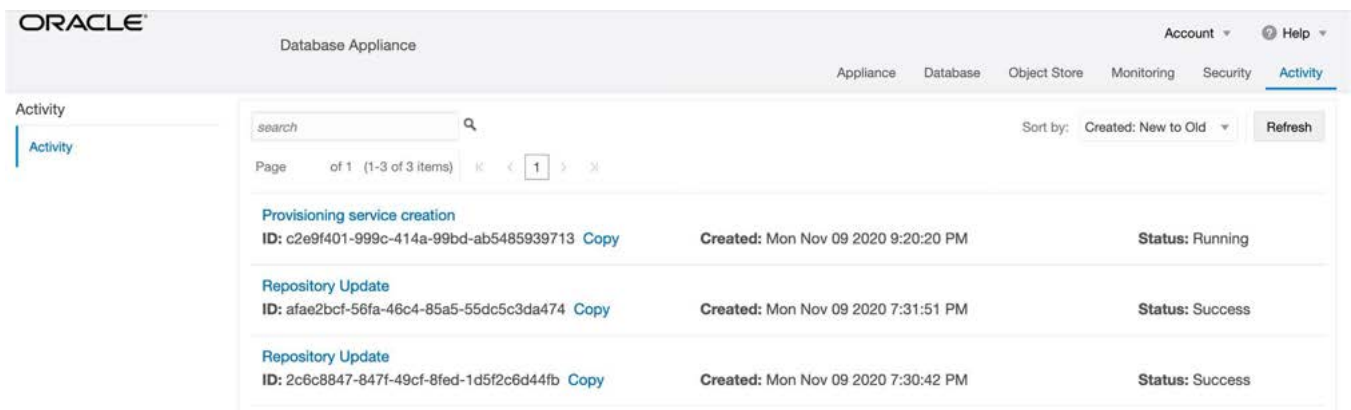
Submit >

To configure ASR, specify credentials here. This is also where you can save the configuration file (e.g. oda.json) for later use.

Click "Submit" to continue and click "yes" in the confirmation box. This will bring up a link to the job status. Like with odacli, operations are asynchronous, and return immediately with a job ID. That job ID can then be used to monitor progress. This allows the administrator to perform other tasks if desired while long running operations complete. Click the job ID to see the status.



In the simulation, the deployment job status will complete within 1-2 minutes. You can see the various steps running, and their status changing to 'Success' as they complete. Click the Refresh button to more quickly refresh the screen. In a real ODA, deployment takes about 60-90 minutes to complete.



#### Step 4: Validate the Deployment

Next click on the "Database" tab at the top right of the web page. This should show the deployed database. The web pages refresh every few seconds, so if the database does not show up at first, be patient. Click on the database name for more detail about the database. Click on the "Database Home" link in the left-hand column (when viewing the "Database" tab) to see information about the database home.



You can also verify the appliance has been properly deployed by clicking the “Appliance” tab to see more details. It should look similar to the view below (remember this is a simulation):

The screenshot shows the Oracle Database Appliance management interface. The left sidebar lists navigation options: Appliance, Overview, VM Instances, Network, CPU Pool, Oracle ASR, and Patch Manager. The main content area is titled 'Appliance Information' and is divided into two tabs: 'Basic Information' (selected) and 'Advanced Information'. Under 'Basic Information', the following details are displayed:

- ID:** e54739ef-aa2a-4075-828c-0b55ae9eb508
- Platform:** X8-2-HA
- Data Disk Count:** 4
- CPU Core Count:** 2
- DCS Agent:** 19.8.0.0.0
- GI:** 19.8.0.0.0
- Created:** Mon Nov 09 2020 9:20:21 PM

Below this, the 'System Information' section shows:

- Host Name:** oda0 oda1
- Domain Name:** example.com
- Time Zone:** GMT
- DNS Servers:** 1.1.1.1
- NTP Servers:**

The 'Disk Group Information' section features a table with a 'Refresh' button. The table has five columns: Name, Redundancy, Physical Total Space, Physical Free Space, and Logical Free Space.

Name	Redundancy	Physical Total Space	Physical Free Space	Logical Free Space
DATA	FLEX	11.0 TB	10.0 TB	3.33 TB - 5.0 TB
RECO	FLEX	490.0 GB	325.0 GB	108.33 GB - 162.5 GB
FLASH	FLEX	490.0 GB	325.0 GB	108.33 GB - 162.5 GB

## Step 5: Networking

You can check the network by click on the “Network” tab on the left.

The screenshot shows the Oracle Database Appliance management interface with the 'Network' tab selected in the left sidebar. The main content area is titled 'Show Networks' and includes a search bar, a 'Create Network' button, and a 'Refresh' button. The network configuration details are as follows:

- Public-network**
- Created:** Mon Nov 09 2020 9:20:21 PM
- Status:** CONFIGURED
- Network Type:** Public
- Subnet Mask:** 255.255.255.0
- Gateway:** 192.168.0.1
- Interface Name:** btbond1
- Interface Type:**
- SCAN Name:** oda-scan
- SCAN IP Address:** 192.168.0.104, 192.168.0.105

On the right side, the 'Node0' and 'Node1' configurations are listed:

- Node0:** IP Address: 192.168.0.100, VIP Name: node0-vip, VIP Address: 192.168.0.102
- Node1:** IP Address: 192.168.0.101, VIP Name: node1-vip, VIP Address: 192.168.0.103

You can also create a new VLAN by clicking the “Create Network” button and filled in the network information below. Then hit “Create”

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Appliance

Overview

VM Instances

Network

CPU Pool

Oracle ASR

Patch Manager

**Create Network**

Enable Vlan ☒ Yes ☐ No

Default Network ☐ Yes ☒ No

Id

Subnet Mask

Name

Gateway

Network Type

Interface

**Node0**  
IP Address

**Node1**  
IP Address

< Cancel Create >

You can click on Create button, then submit the job. Below shows the backup VLAN has been created.

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Appliance

Overview

VM Instances

Network

CPU Pool

Oracle ASR

Patch Manager

Show Networks Show Interfaces

search

Sort by: Created: New to Old Refresh

Page 1 of 1 (1-2 of 2 items)

**backup**  
Created: Mon Nov 09 2020 9:27:37 PM  
Status: CONFIGURED  
Network Type: Backup  
Subnet Mask: 255.255.255.252  
Gateway: 192.168.0.201  
Interface Name: btbond1.199  
Interface Type: VLAN

**Node0**  
IP Address: 192.168.0.200

**Node1**  
IP Address: 192.168.0.202

Actions

**Public-network**  
Created: Mon Nov 09 2020 9:20:21 PM  
Status: CONFIGURED  
Network Type: Public  
Subnet Mask: 255.255.255.0  
Gateway: 192.168.0.1  
Interface Name: btbond1  
Interface Type: SCAN Name: oda-scan  
SCAN IP Address: 192.168.0.104,192.168.0.105

**Node0**  
IP Address: 192.168.0.100  
VIP Name: node0-vip  
VIP Address: 192.168.0.102

**Node1**  
IP Address: 192.168.0.101  
VIP Name: node1-vip  
VIP Address: 192.168.0.103

Actions

This concludes Lab 1.

## Lab 2: Manage Databases

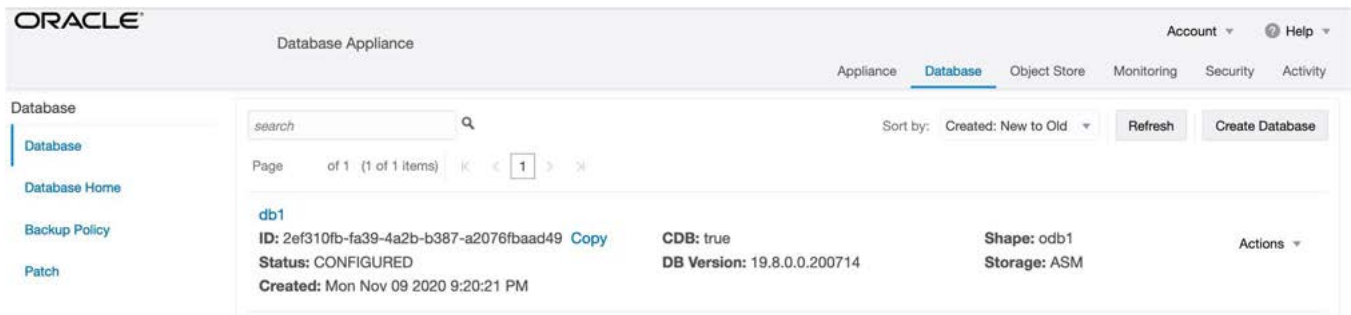
In this lab, we will create and delete additional databases in the appliance. We can do this via the BUI or the command line (CLI).

You must complete Lab 1 before starting Lab 2.

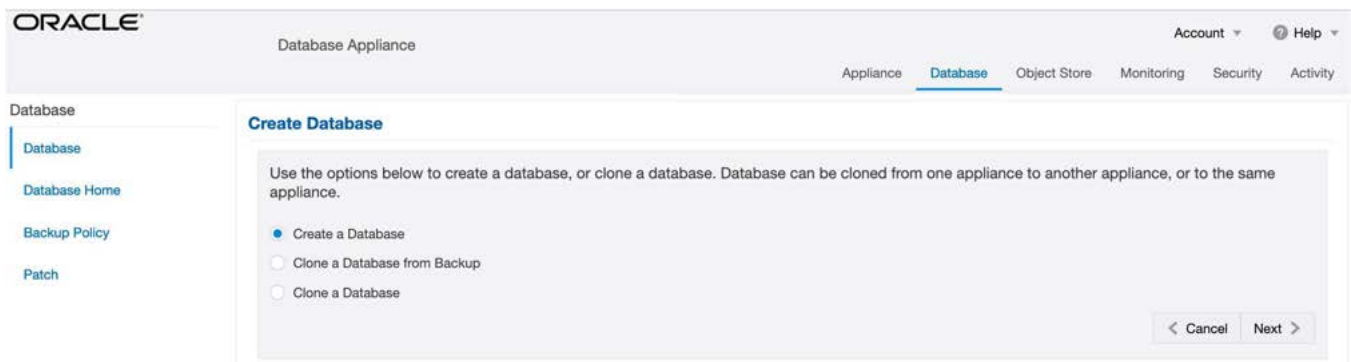
### Step 1: Create a new database via the Web GUI

On the ODA BUI, click the database tab in the web page.

You should see the database db1 created during deployment. In the upper right-hand corner, there is a "Create Database" button. Click it. It will bring up the "Create Database" Wizard.



Choose "Create Database", and click "Next"



Specify the DB Name like db2, and if you are creating a CDB, a PDB Name. Also remember to scroll down and enter a password that would (in a real ODA) be used for SYS, SYSTEM, and PDB Admin. When finished, click on the "Create" Button. Click "yes" to confirm. Beware of the password complexity checker—"WELcome12##" will pass the test.

ORACLE
Database Appliance
Account
Help
Appliance
Database
Object Store
Monitoring
Security
Activity

Database
Database
Database Home
Backup Policy
Patch

### Create Database

DB Name \*
db2
DB Unique Name
Use Existing DB Home
Yes No
DB Version
19.8.0.0.200714
CDB Yes No

Database Edition
Enterprise Edition
Deployment
RAC
Shape
odb1(1 Core, 8GB Memory)
Database Class
OLTP
Storage
ASM
Database Redundancy
Mirror
Data Files on Flash Storage Yes No
Networks \*
Public-network
Configure EM Express Yes No

Password \*
Confirm Password \*
Character Set
AL32UTF8
National Character Set
AL16UTF16
Language
AMERICAN
Territory
AMERICA
Enable TDE Yes No
TDE Wallet Password
Confirm TDE Wallet Password

Back
Cancel
Create

This will bring up a link to the job status. Like with `odacli`, operations are asynchronous, and return immediately with a job ID. That job ID can then be used to monitor progress. This allows the administrator to perform other tasks if desired while long running operations complete. Click the job ID to see the status.

In the simulation, the job will complete within 30 seconds. You can see the various steps running, and their status changing to 'Success' as they complete. Click the refresh button to refresh the screen more quickly. In a real ODA, these steps take about 20 minutes to complete.

ORACLE Database Appliance

Account ▾ Help ▾

Appliance Database Object Store Monitoring Security Activity

search 🔍 Refresh Back

**Database service creation with db name: db2**  
 ID: bb2254ba-ed1a-465f-98ba-7bc56717833b  
 Created: Mon Nov 09 2020 9:30:51 PM  
 Message:  
 Status: Running

Page 1 of 2 (1-5 of 10 items) < 1 2 > ✕

Validating dbHome available space Start Time: Mon Nov 09 2020 21:30:56 GMT-0800 (Pacific Standard Time)	End Time: Mon Nov 09 2020 21:30:56 GMT-0800 (Pacific Standard Time)	Status: Success
Validating dbHome available space Start Time: Mon Nov 09 2020 21:30:56 GMT-0800 (Pacific Standard Time)	End Time: Mon Nov 09 2020 21:30:56 GMT-0800 (Pacific Standard Time)	Status: Success
Setting up ssh equivalence Start Time: Mon Nov 09 2020 21:30:59 GMT-0800 (Pacific Standard Time)	End Time: Mon Nov 09 2020 21:31:00 GMT-0800 (Pacific Standard Time)	Status: Success
Validating dbHome available space Start Time: Mon Nov 09 2020 21:31:09 GMT-0800 (Pacific Standard Time)	End Time: Mon Nov 09 2020 21:31:09 GMT-0800 (Pacific Standard Time)	Status: Success
Validating dbHome available space Start Time: Mon Nov 09 2020 21:31:09 GMT-0800 (Pacific Standard Time)	End Time: Mon Nov 09 2020 21:31:10 GMT-0800 (Pacific Standard Time)	Status: Success

Once the operation completes, click on the “Appliance” tab and then “Database” tab at the top right of the web page. This should show the newly created database. The web pages refresh every few seconds, so if the database does not show up at first, be patient.

ORACLE Database Appliance

Account ▾ Help ▾

Appliance **Database** Object Store Monitoring Security Activity

Database

Database Home  
Backup Policy  
Patch

search 🔍 Sort by: Created: New to Old ▾ Refresh Create Database

Page 1 of 1 (1-2 of 2 items) < 1 > ✕

<b>db2</b> ID: 16a51016-41eb-49db-867a-66d0131179d3 <a href="#">Copy</a> Status: CREATING Created: Mon Nov 09 2020 9:30:52 PM	CDB: false DB Version: 19.8.0.0.200714	Shape: odb1 Storage: ASM	Actions ▾
<b>db1</b> ID: 2ef310fb-fa39-4a2b-b387-a2076fbaad49 <a href="#">Copy</a> Status: CONFIGURED Created: Mon Nov 09 2020 9:20:21 PM	CDB: true DB Version: 19.8.0.0.200714	Shape: odb1 Storage: ASM	Actions ▾

See detailed database information by clicking on the database name. You can also view the newly create home by clicking on the “Database Home” link in the left-hand column of the “Database” tab.

## Step 2: Delete a Database

You can also delete a database from the “Database” tab. Click the “Appliance” tab and then “Database Tab” if not at the view that lists databases. Click the “Action” dropdown to the right of the db1 database, then select “Delete.” Click “yes” to confirm, and then close the status box. The database list should reflect the deletion. Press “Refresh” if necessary.

The screenshot shows the Oracle Database Appliance web interface. The top navigation bar includes 'Appliance', 'Database' (selected), 'Object Store', 'Monitoring', 'Security', and 'Activity'. The left sidebar has 'Database' selected, with sub-links for 'Database Home', 'Backup Policy', and 'Patch'. The main content area displays a table of databases:

ID	Status	CDB	DB Version	Shape	Storage	Actions
db2 ID: 16a51016-41eb-49db-867a-66d0131179d3 <a href="#">Copy</a>	CREATING	false	19.8.0.0.200714	odb1	ASM	Actions ▼
db1 ID: 2ef310fb-fa39-4a2b-b387-a2076fbaad49 <a href="#">Copy</a>	CONFIGURED	true	19.8.0.0.200714	odb1	ASM	Actions ▼

The 'Actions' dropdown for db1 shows options: View, Modify, Move, Upgrade, and Delete.

After the database delete operation, only db2 is left.

This screenshot shows the Oracle Database Appliance web interface after the deletion of db1. The table now contains only one entry:

ID	Status	CDB	DB Version	Shape	Storage	Actions
db2 ID: 16a51016-41eb-49db-867a-66d0131179d3 <a href="#">Copy</a>	CONFIGURED	false	19.8.0.0.200714	odb1	ASM	Actions ▼

### Step 3: View the Databases and Homes via the CLI

You can also manage databases from the command line. Select the tab to go to the command line (CLI) tool.

Use the `odacli list-databases` command to view your databases. Then use `odacli describe-database` to see the details for a specific database. Be sure to use the database ID shown in the list-database command, not the ID shown in the example.

## # odacli list-databases

ID	DB Name	DB Type	DB Version	CDB	Class	Shape	Storage	Status	DbHomeID
16a51016-41eb-49db-867a-66d0131179d3 42c5-ad03-5a90dea5594f	db2	Rac	19.8.0.0.200714	false	Oltp	Odb1	Asm	Configured	c5556b62-cdc1-

## # odacli describe-database -i 16a51016-41eb-49db-867a-66d0131179d3

### Database details

```
-----
ID: 16a51016-41eb-49db-867a-66d0131179d3
Description: db2
DB Name: db2
DB Version: 19.8.0.0.200714
DB Type: Rac
DB Role: PRIMARY
DB Target Node Name:
DB Edition: EE
DBID:
Instance Only Database: false
CDB: false
PDB Name:
PDB Admin User Name:
SEHA Enabled: false
Class: Oltp
Shape: Odb1
Storage: Asm
DB Redundancy: MIRROR
CharacterSet: AL32UTF8
National CharacterSet: AL16UTF16
Language: AMERICAN
Territory: AMERICA
Home ID: c5556b62-cdc1-42c5-ad03-5a90dea5594f
Console Enabled: false
TDE Enabled: false
Level 0 Backup Day: Sunday
AutoBackup Enabled: true
Created: November 10, 2020 5:30:52 AM UTC
DB Domain Name: example.com
Associated Networks:
```

## Step 4: Create a New Database with the CLI

There are many options you can specify when using the CLI to create a new database. Type `odacli create-database -h` to see the options. Note only the database name is really required. Create a new 18.8 database and database home named 'db3' as follows. You will be prompted for a password for SYS, SYSTEM, and PDB Admin. To meet password complexity requirements, we suggest using `WELcome12##` for this lab.

## # odacli create-database -h

Usage: create-database [options]

Options:

- associated-networks, -nn  
Associated network names(in format networkName1,networkName2,...)
- backupconfigid, -bi  
Backup Config ID
- backupconfigname, -bn  
BackupConfig Name

... output deleted for brevity ...

## # odacli create-database -n db3 -v 19.8.0.0

Password for SYS,SYSTEM and PDB Admin:

Job details

```
-----
ID:      880bca82-a79a-4bec-82fb-ec8777ec960d
Description: Database service creation with db name: db3
Status:   Created
Created:  November 10, 2020 5:37:02 AM UTC
Message:
```

Task Name	Start Time	End Time
Status		

## # odacli describe-job -i 880bca82-a79a-4bec-82fb-ec8777ec960d

Job details

```
-----
ID:      880bca82-a79a-4bec-82fb-ec8777ec960d
Description: Database service creation with db name: db3
Status:   Success
Created:  November 10, 2020 5:37:02 AM UTC
Message:
```

Task Name	Start Time	End Time
Status		

Validating dbHome available space	November 10, 2020 5:37:06 AM UTC	November 10,
2020 5:37:06 AM UTC Success		
Validating dbHome available space	November 10, 2020 5:37:07 AM UTC	November 10,

In a real ODA, this command would run a job in the background for approximately 30 minutes. As with the GUI, you can monitor the progress if you choose, but the Linux prompt returns immediately. Because this is a simulation, you should see your new database and home almost immediately. Verify creation of the new database using the odacli command:



## # odacli list-databases

ID	DB Name	DB Type	DB Version	CDB	Class	Shape	Storage	Status	DbHomeID
16a51016-41eb-49db-867a-66d0131179d3	db2	Rac	19.8.0.0.200714	false	Oltp	Odb1	Asm	Configured	c5556b62-cdc1-42c5-ad03-5a90dea5594f
40b87040-7a7c-4439-9fd8-9df176e307c2	db3	Rac	19.8.0.0.200714	false	Oltp	Odb1	Asm	Configured	c0628ee5-4bcb-490c-9996-067f23e6bf17

## Step 5: Delete and Recreate a Database

You can also delete a database via the CLI. Run "odacli delete-database" to remove database db2. Be sure to use the ID of your 'db2' database, which is likely different from the one in this workbook. Note that you can also use the database name in lieu of the ID.

## # odacli delete-database -i 16a51016-41eb-49db-867a-66d0131179d3

```
{
  "jobId" : "5c66ec45-9f31-4351-bac7-9b8b83dffac3",
  "status" : "Running",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "November 10, 2020 05:41:09 AM UTC",
  "resourceList" : [ ],
  "description" : "Database service deletion with db name: db2 with id : 16a51016-41eb-49db-867a-66d0131179d3",
  "updatedAt" : "November 10, 2020 05:41:10 AM UTC"
}
```

## # odacli list-databases

ID	DB Name	DB Type	DB Version	CDB	Class	Shape	Storage	Status	DbHomeID
40b87040-7a7c-4439-9fd8-9df176e307c2	db3	Rac	19.8.0.0.200714	false	Oltp	Odb1	Asm	Configured	c0628ee5-4bcb-490c-9996-067f23e6bf17

And, using the CLI, create a new 19.7 database db4.

```
# odacli create-database -n db4 -v 19.8.0.0
```

```
Password for SYS,SYSTEM and PDB Admin:
```

```
Job details
```

```
-----
ID:      5e9b1fc6-471e-428f-9dea-35e750cbe2bf
Description: Database service creation with db name: db4
Status:   Created
Created:  November 10, 2020 5:43:08 AM UTC
Message:
```

```
Task Name          Start Time          End
Time              Status
-----
```

```
# odacli list-databases
```

ID	DB Name	DB Type	DB Version	CDB	Class	Shape	Storage	Status	DbHomeID
40b87040-7a7c-4439-9fd8-9df176e307c2	db3	Rac	19.8.0.0.200714	false	Oltp	Odb1	Asm	Configured	c0628ee5-4bcb-
490c-9996-067f23e6bf17									
bab8738a-861d-4c97-90a9-b5daf4e92c9	db4	Rac	19.8.0.0.200714	false	Oltp	Odb1	Asm	Configured	20ad8392-b7d6-
4aa5-b394-927d09f70cf7									

## Step 6: Delete a Database Home

You can delete a database home via BUI or the command line. We will use BUI to delete a database home. Go to the Database tab, then click on the Database Home to see all the database homes. Click on Actions, then click on Delete DB Home (for home1).

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Database

Database Database Home Backup Policy Patch

search

Sort by: Created: New to Old Refresh Create Database Home

Page 1 of 1 (1-4 of 4 items)

OraDB19000_home3 ID: 20ad8392-b7d6-4aa5-b394-927d09f70cf7 <a href="#">Copy</a> Location: /u01/app/oracle/product/19.0.0.0/dbhome_3 Created: Mon Nov 09 2020 9:43:10 PM	Version: 19.8.0.0.200714 Edition: EE	Actions
OraDB19000_home2 ID: c0628ee5-4bcb-490c-9996-067f23e6bf17 <a href="#">Copy</a> Location: /u01/app/oracle/product/19.0.0.0/dbhome_2 Created: Mon Nov 09 2020 9:37:04 PM	Version: 19.8.0.0.200714 Edition: EE	Actions
OraDB19000_home1 ID: c5556b62-cdc1-42c5-ad03-5a90dea5594f <a href="#">Copy</a> Location: /u01/app/oracle/product/19.0.0.0/dbhome_1 Created: Mon Nov 09 2020 9:30:53 PM	Version: 19.8.0.0.200714 Edition: EE	Actions
OraDB19000_home1 ID: b3022bae-a142-4fd0-9d8c-dd2b9a556557 <a href="#">Copy</a> Location: /u01/app/oracle/product/19.0.0.0/dbhome_1 Created: Mon Nov 09 2020 9:20:21 PM	Version: 19.8.0.0.200714 Edition: EE	Actions View Database Delete DB Home

You can see the home1 database home has been deleted.

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Database

Database Database Home Backup Policy Patch

search

Sort by: Created: New to Old Refresh Create Database Home

Page 1 of 1 (1-3 of 3 items)

OraDB19000_home3 ID: 20ad8392-b7d6-4aa5-b394-927d09f70cf7 <a href="#">Copy</a> Location: /u01/app/oracle/product/19.0.0.0/dbhome_3 Created: Mon Nov 09 2020 9:43:10 PM	Version: 19.8.0.0.200714 Edition: EE	Actions
OraDB19000_home2 ID: c0628ee5-4bcb-490c-9996-067f23e6bf17 <a href="#">Copy</a> Location: /u01/app/oracle/product/19.0.0.0/dbhome_2 Created: Mon Nov 09 2020 9:37:04 PM	Version: 19.8.0.0.200714 Edition: EE	Actions
OraDB19000_home1 ID: c5556b62-cdc1-42c5-ad03-5a90dea5594f <a href="#">Copy</a> Location: /u01/app/oracle/product/19.0.0.0/dbhome_1 Created: Mon Nov 09 2020 9:30:53 PM	Version: 19.8.0.0.200714 Edition: EE	Actions

## Step 7: Create Database Backup on local disk, external NFS storage or on the Oracle Cloud

Backing up and restoring Oracle databases in ODA is very simple. There are two simple steps involved to create a database backup locally or on the Oracle Cloud. These can be done via web GUI

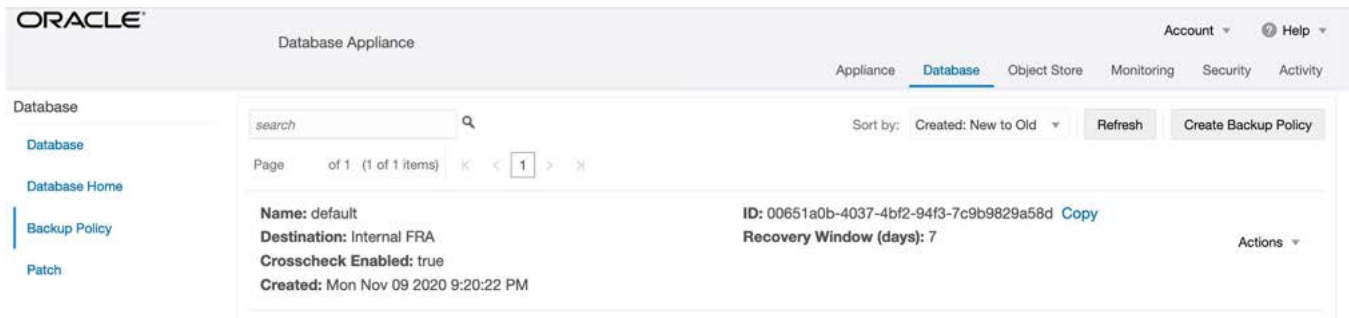
### 1. Create a backup policy

## 2. Attach a backup policy to a database

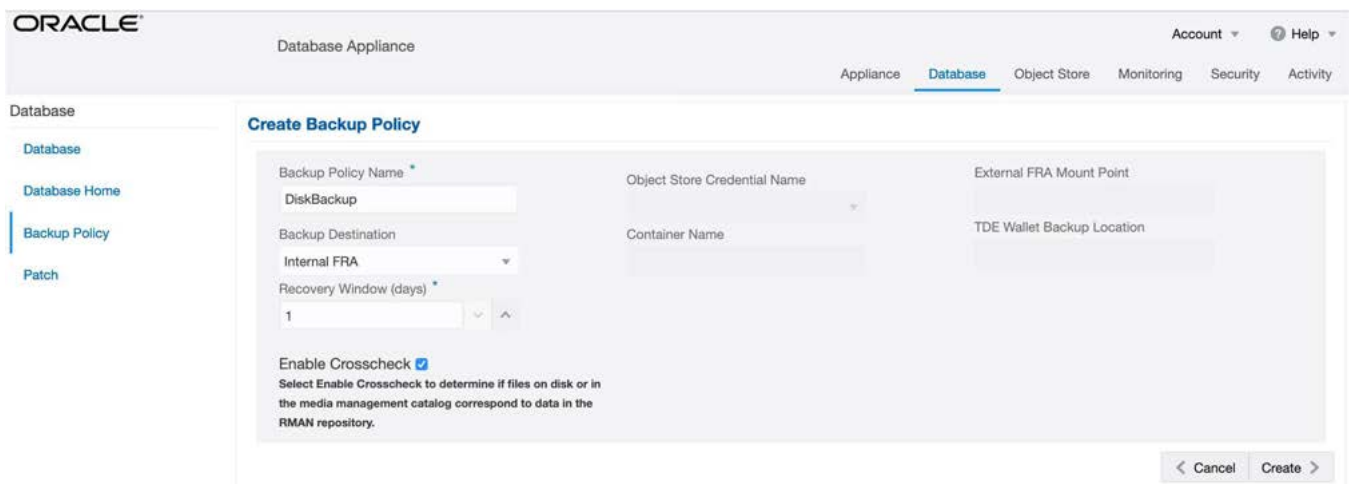
To back up to an external NFS storage, you must create an NFS mount point first.

To back up to the Oracle Cloud, you must obtain and create Object Store credentials first.

There's a default backup policy associated with the database, to create a new backup policy, click on "Backup Policy" tab and then "Create Backup Policy"



Then name the Backup Policy (i.e. DiskBackup), Backup Destination (Internal FRA/Local Disk or External FRA/External NFS Storage or Object Store/Oracle Cloud), and Recovery Window in days, then click "Create". To back a database to an external NFS storage, you need to specify a mount point such as /u03/app/oracle/oradata/nfs\_backup.



You can see the DiskBackup policy has been created.

ORACLE Database Appliance

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Appliance Database Object Store Monitoring Security Activity

Database

Database

Database Home

Backup Policy

Patch

search

Sort by: Created: New to Old Refresh Create Backup Policy

Page of 1 (1-2 of 2 items) 1

<b>Name:</b> DiskBackup <b>Destination:</b> Internal FRA <b>Crosscheck Enabled:</b> true <b>Created:</b> Mon Nov 09 2020 9:49:35 PM	<b>ID:</b> 7cf4d0ad-025d-4525-9f57-540e616bc414 <a href="#">Copy</a> <b>Recovery Window (days):</b> 1	Actions
<b>Name:</b> default <b>Destination:</b> Internal FRA <b>Crosscheck Enabled:</b> true <b>Created:</b> Mon Nov 09 2020 9:20:22 PM	<b>ID:</b> 00651a0b-4037-4bf2-94f3-7c9b9829a58d <a href="#">Copy</a> <b>Recovery Window (days):</b> 7	Actions

Next you select the database (i.e. db4) you want to backup. The db4 database has a default backup policy, so we will need to modify the database first by clicking "Modify" under Actions.

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Database

Database

Database Home

Backup Policy

Patch

search

Sort by: Created: New to Old Refresh Create Database

Page of 1 (1-2 of 2 items) 1

<b>db4</b> <b>ID:</b> bab8738a-861d-4c97-90a9-b5da1f4e92c9 <a href="#">Copy</a> <b>Status:</b> CONFIGURED <b>Created:</b> Mon Nov 09 2020 9:43:09 PM	<b>CDB:</b> false <b>DB Version:</b> 19.8.0.0.200714	<b>Shape:</b> odb1 <b>Storage:</b> ASM	Actions <a href="#">View</a> <a href="#">Modify</a> <a href="#">Move</a> <a href="#">Upgrade</a> <a href="#">Delete</a>
<b>db3</b> <b>ID:</b> 40b87040-7a7c-4439-9fd8-9df176e307c2 <a href="#">Copy</a> <b>Status:</b> CONFIGURED <b>Created:</b> Mon Nov 09 2020 9:37:03 PM	<b>CDB:</b> false <b>DB Version:</b> 19.8.0.0.200714	<b>Shape:</b> odb1 <b>Storage:</b> ASM	

Select "DiskBackup" as the Backup Policy then click "Modify"

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Database

Database

Database Home

Backup Policy

Patch

Modify Database

Used to modify the database class, shape, redundancy, backup policy, and attach/detach networks.

**Database Name:** db4

Database Class: OLT

Database Shape: odb1(1 Core, 8GB Memory)

Database Redundancy: Mirror

Attach Networks

Detach Networks

Backup Policy: DiskBackup

Confirm Backup Encryption Password

< Cancel Modify >

Once the job is completed, you can verify the backup policy is listed under "Database Information" of the database (i.e. db4). Once this is done, ODA will start backing up the database to the disk regularly and produce backup reports.

ORACLE
Database Appliance

Account
Help

Appliance
Database
Object Store
Monitoring
Security
Activity

### Database Information

ID: bab8738a-861d-4c97-90a9-b5da1f4e92c9

Description: db4

DB Name: db4

DB Version: 19.8.0.0.200714

DB Type: RAC

DB Role: PRIMARY

DB Edition: EE

DBID:

CDB: false

PDB Name:

PDB Admin User Name:

Character Set: AL32UTF8

NLS Character Set: AL16UTF16

Language: AMERICAN

Territory: AMERICA

TDE Enabled: false

High Availability Enabled: false

Target Node Name:

Class: OLTP

Shape: odb1

Storage: ASM

DATA:

Location: +DATA/db4

Used Space: 102400

Free Space: 5.0 TB

REDO:

Location: +RECO/db4

Used Space: 102400

Free Space: 162.5 GB

RECO:

Location: +RECO/db4

Used Space: 102400

Free Space: 162.5 GB

DB Redundancy: MIRROR

CPU Pool:

EM Express Enabled: false

Home ID: 20ad8392-b7d6-4aa5-b394-927d09f70cf7

Home Location: /u01/app/oracle/product/19.0.0.0/dbhome\_3

Status: CONFIGURED

Auto Backup Enabled: true

Backup Policy Name: DiskBackup

Backup Destination: Internal FRA

Backup Container Name: Fast Recovery Area

Created: Mon Nov 09 2020 9:43:09 PM

DB Domain Name: example.com

Networks:

You can see the backup reports under the “Backups” heading below.

You can also click “Manual Backup”, then “Start” to back up a database manually.

ORACLE Database Appliance
Account ▾ Help ▾
Appliance Database Object Store Monitoring Security Activity

Manual Backup

Database Name: db4
Backup Policy Name: DiskBackup
Backup Destination: Internal FRA

Backup Type  
Level 0 Incremental Backup ▾  
(Backs up all blocks in the database)

Component  
Database ▾

Backup Tag

Keep Days

< Cancel Start >

You can see the details of the Backup Report by clicking on the Backup Report ID.

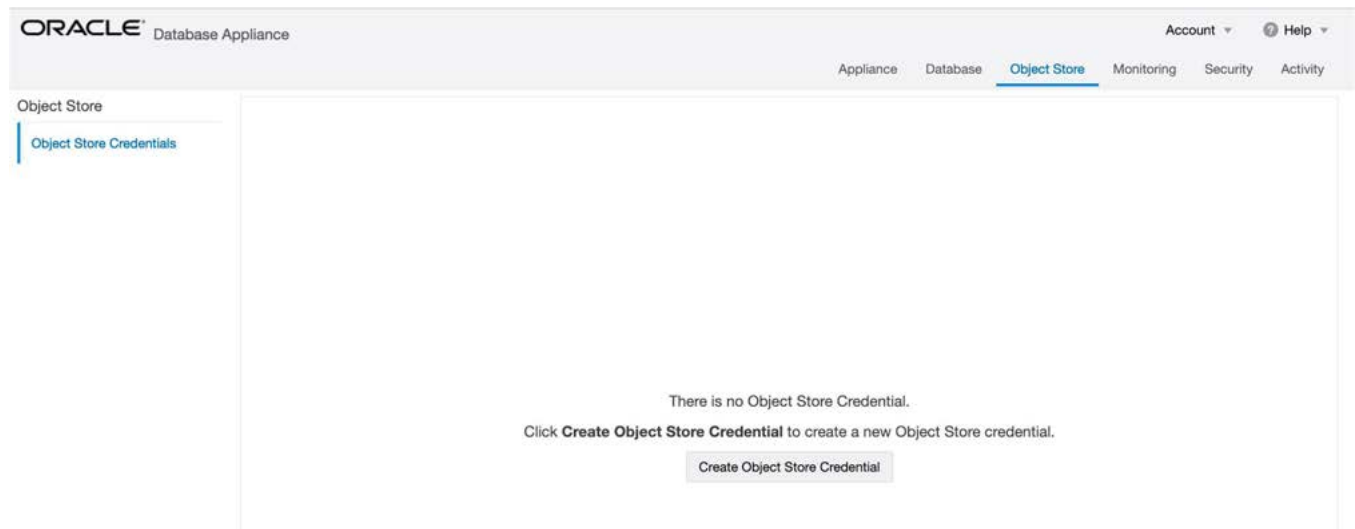
ORACLE Database Appliance
Account ▾ Help ▾
Appliance Database Object Store Monitoring Security Activity

Save Backup Report Refresh Back

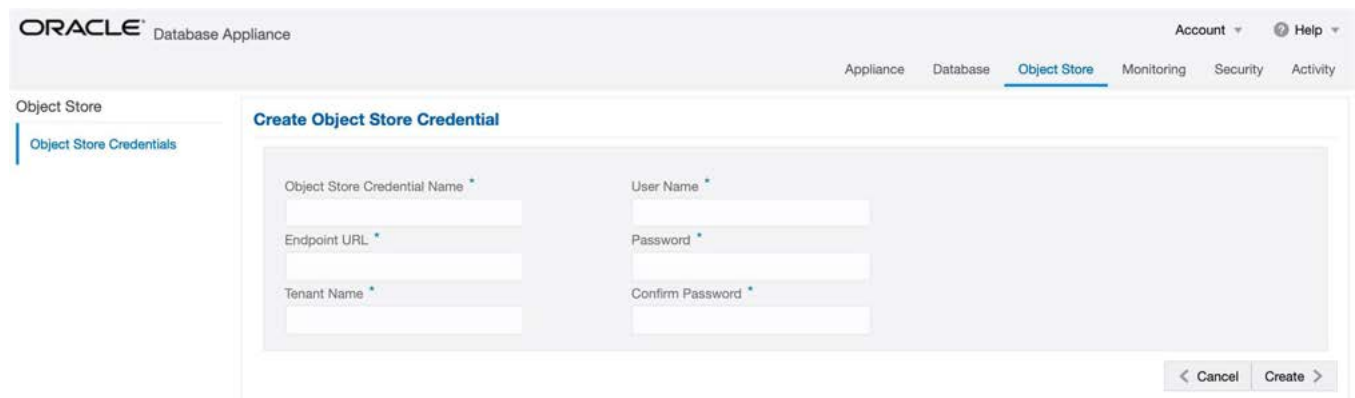
Backup Report

ID: d5029055-fa20-4ab6-8fe4-42ba1c5bcc8a  
Name: Backup\_Report\_db4  
DB Resource ID: bab8738a-861d-4c97-90a9-b5da1f4e92c9  
Tag: auto  
DB ID: OK  
DB Name: db4  
DB Unique Name: db4  
Backup Type: Regular-L0  
Keep Days:  
Backup Location: FRA  
CF Backup Handle:  
SPF Backup Handle:  
PITR Time Stamp: Mon Nov 09 2020 9:54:04 PM  
Storage: ASM  
PITR SCN: 2719821  
Reset Logs Time Stamp: Mon Nov 09 2020 9:54:04 PM  
Reset Logs SCN: 1890734  
Oracle Home Version: 19.8.0.0.200714  
SQL Patches:  
Backup Log Location:  
TDE Wallet Location:  
DB Config Location:  
Status: CONFIGURED  
Backup Report Log Detail:  
Created: Mon Nov 09 2020 9:54:03 PM  
Updated: Mon Nov 09 2020 9:54:03 PM  
  
DB Data Size: 1755M  
DB REDO Size: 3740M  
RMAN Backup Pieces:  
Compression Algorithm: BASIC  
CPU Pool:  
Number of Cores:  
  
Database Class: OLTP  
Database Type: RAC  
Database Shape: odb1  
Database Edition: EE  
Database Storage: ASM  
Database Redundancy: MIRROR  
CDB: false  
PDB Name:

In addition to backing up to local disk, you can back up to the Oracle Cloud. To backup databases in ODA to the Oracle Cloud, you must obtain Object Store credentials first. Once that's done, you can click "Object Store" tab, then "Create Object Store Credential"



Enter the required Object Store Credentials including the name. Once that's done, then you can create a backup policy, attached a database to the policy, and specify the Object Store as the backup destination. ODA will then start backing up the database to the Oracle Cloud regularly.



This concludes lab 2.



## Lab 3: Patch and Update

If you just completed lab 2, the simulator should have two databases, db3 and db4.

You will use the CLI to update the repository and BUI to update the ODA infrastructure including DCS agent and the server.

You will also use the web BUI to update a database home (update database 19.8 to 19.9) and upgrade a database (18.12 to 19.9)

### Step 1: Update the ODA Repository with Latest Patches

Patches for ODA are posted in the Oracle Database Appliance Release Notes. There you will find the links to the patches. The ODA X8-2-HA appliance has one patch that must be applied: 1. A server patch that also includes RDBMS patches. The server patch will patch the firmware, OS, Grid Infrastructure, and the databases. You must patch the server before you patch the databases. When patching databases, you can choose to patch a subset if required (although we recommend all databases be kept current on patching). We have downloaded simulated 19.9.0.0.0 patches for the server and database to your simulator.

Before you start patching the server, you can check the current installed components from the web console. Go to Appliance tab, click on Patch Manager on the left. Note all the installed 19.8.0.0 components. Since you have not updated the repository to 19.9.0.0, everything is shown up to date.

The server patch is oda-sm-19.9.0.0.0-201020-server.zip. The server patch also includes latest database updates for 19.x, 18.x, 12.2.1.2, 12.1.0.2 and 11.2.0.4.

You also need to update repository with the 19.9 clone files if you want to create a 19.9 database.

Type the following to update the ODA repository with these patches. **You must use the full path for the file names**

```
# odacli update-repository -f /opt/oracle/dcs/patchfiles/oda-sm-19.9.0.0.0-201020-server.zip
{
  "jobId" : "151f6bf2-36de-462d-8e6c-e519abc2d6d7",
  "status" : "Running",
  "message" : "/opt/oracle/dcs/patchfiles/oda-sm-19.9.0.0.0-201020-server.zip",
  "reports" : [ ],
  "createTimestamp" : "November 10, 2020 05:58:59 AM UTC",
  "resourceList" : [ ],
  "description" : "Repository Update",
  "updatedAtTime" : "November 10, 2020 05:59:04 AM UTC"
}

# odacli update-repository -f /opt/oracle/dcs/patchfiles/odacli-dcs-19.9.0.0.0-201020-DB-19.9.0.0.zip
{
  "jobId" : "9bb6e918-f0d1-4c02-a2c4-3914ab349060",
  "status" : "Running",
  "message" : "/opt/oracle/dcs/patchfiles/odacli-dcs-19.9.0.0.0-201020-DB-19.9.0.0.zip",
  "reports" : [ ],
  "createTimestamp" : "November 10, 2020 06:00:16 AM UTC",
  "resourceList" : [ ],
  "description" : "Repository Update",
  "updatedAtTime" : "November 10, 2020 06:00:21 AM UTC"
}
```

Now you can use the web console to see the 19.9.0.0.0 available component versions.

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Appliance

- Overview
- VM Instances
- Network
- CPU Pool
- Oracle ASR
- Patch Manager

Update Repository Update Server/Storage Cleanup Repository

Component Details Refresh

	oda-1-node0	oda-1-node1	oda-1-node0	oda-1-node1	oda-1-node0	oda-1-node1
Component						
OAK			19.8.0.0.0		19.9.0.0.0	
GI ( OraGrid12000 )			19.8.0.0.0		19.9.0.0.0	
DCSAGENT			19.8.0.0.0		19.9.0.0.0	
ILOM			4.0.3.80.r127198		5.0.0.22.r132877	
BIOS			52001701		up-to-date	
OS			7.7		7.8	
FIRMWARECONTROLLER ( c0, c1 )			VDV1RL02		up-to-date	
FIRMWAREDISK ( c2d0, c2d1 )			1102		up-to-date	

Update Options:

☒ Update Server ☐ Update Storage ☐ Rolling

\* Select Node to Update

--All Nodes--

search

Sort by: Created: New to Old Refresh Delete

Patch Pre-Check Reports

Page (0 of 0 items) 1

☒ Deselect All



ORACLE Database Appliance

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Update Repository Update Server/Storage Cleanup Repository

Component Details

Refresh

	oda-1-node0	oda-1-node1
<b>Component</b>	<b>Installed Version</b>	<b>Available Version</b>
OAK	19.8.0.0.0	19.9.0.0.0
GI ( OraGrid12000 )	19.8.0.0.0	19.9.0.0.0
DCSAGENT	19.9.0.0.0	up-to-date
ILOM	4.0.3.80.r127198	5.0.0.22.r132877
BIOS	52001701	up-to-date
OS	7.7	7.8
FIRMWARECONTROLLER ( c0, c1 )	VDV1RL02	up-to-date
FIRMWAREDISK ( c2d0, c2d1 )	1102	up-to-date

Update Options:

Update Server

Update Storage

Rolling

Precheck

Apply Patch

\* Select Node to Update

--All Nodes--

search

Sort by: Created: New to Old

Refresh

Delete

Patch Pre-Check Reports

Page

(0 of 0 items)

1

Deselect All

No items to display.

### Step 3: Update the server

The next step is to update the server. This includes firmware, operating system, and GI updates.

To update Server, select Update Server, pick All Nodes, then hit Apply Patch.

After the job is completed, you can refresh the browser to see that the both node0 and node1 tabs have all 19.9.0.0.0 components installed, and everything is up-to-date.

ORACLE<sup>®</sup> Database Appliance

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- Overview
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Update Repository
Update Server/Storage
Cleanup Repository

Component Details

Refresh

	oda-1-node0	oda-1-node1
<b>Component</b>	<b>Installed Version</b>	<b>Available Version</b>
OAK	19.9.0.0.0	up-to-date
GI ( OraGrid12000 )	19.9.0.0.0	up-to-date
DCSAGENT	19.9.0.0.0	up-to-date
ILOM	5.0.0.22.r132877	up-to-date
BIOS	52001701	up-to-date
OS	7.8	up-to-date
FIRMWARECONTROLLER ( c0, c1 )	VDV1RL02	up-to-date
FIRMWAREDISK ( c2d0, c2d1 )	1102	up-to-date

Update Options:

☒ Update Server
☐ Update Storage
☐ Rolling

\* Select Node to Update

--All Nodes--

search

Sort by: Created: New to Old ▾

Refresh

Delete

Patch Pre-Check Reports

Page
(0 of 0 items)
1

☒ Deselect All

Precheck

Apply Patch

Patching a real ODA will take some time, the simulator speeds up the whole process. The Linux prompt returns immediately and the patch runs in the background. You can monitor the progress of the patch job by checking the Activity tab.

#### Step 4: Patch Database Homes (Updating Database)

Because we may not want to patch all databases at once, we must first identify which database home corresponds to which database.

To use the BUI to identify the database homes, go to the Database tab, and ...

ORACLE Database Appliance

Account ▾ ? Help ▾

Appliance **Database** Object Store Monitoring Security Activity

Database

Database

Database Home

Backup Policy

Patch

search 🔍

Sort by: Created: New to Old ▾ Refresh Create Database

Page 1 of 1 (1-2 of 2 items) < 1 >

<b>db4</b>	ID: bab8738a-861d-4c97-90a9-b5da1f4e92c9 <a href="#">Copy</a>	CDB: false	Shape: odb1	Actions ▾
	Status: CONFIGURED	DB Version: 19.8.0.0.200714	Storage: ASM	
	Created: Mon Nov 09 2020 9:43:09 PM			
<b>db3</b>	ID: 40b87040-7a7c-4439-9fd8-9df176e307c2 <a href="#">Copy</a>	CDB: false	Shape: odb1	Actions ▾
	Status: CONFIGURED	DB Version: 19.8.0.0.200714	Storage: ASM	
	Created: Mon Nov 09 2020 9:37:03 PM			

...click on the database name (e.g. db4) to identify the database home ID for patching.

## Database Information

```

ID: bab8738a-861d-4c97-90a9-b5da1f4e92c9
Description: db4
DB Name: db4
DB Version: 19.9.0.0.201020
DB Type: RAC
DB Role: PRIMARY
DB Edition: EE
DBID: OK
CDB: false
PDB Name:
PDB Admin User Name:

Character Set: AL32UTF8
NLS Character Set: AL16UTF16
Language: AMERICAN
Territory: AMERICA

TDE Enabled: false
High Availability Enabled: false
Target Node Name:
Class: OLTP
Shape: odb1
Storage: ASM
DATA:
  Location: +DATA/db4
  Used Space: 102400
  Free Space: 5.0 TB
REDO:
  Location: +RECO/db4
  Used Space: 102400
  Free Space: 162.5 GB
RECO:
  Location: +RECO/db4
  Used Space: 102400
  Free Space: 162.5 GB
DB Redundancy: MIRROR
CPU Pool:
EM Express Enabled: false
Home ID: 20ad8392-b7d6-4aa5-b394-927d09f70cf7
Home Location: /u01/app/oracle/product/19.0.0.0/dbhome_3
Status: CONFIGURED
Auto Backup Enabled: true
Backup Policy Name: DiskBackup
Backup Destination: Internal FRA
Backup Container Name: Fast Recovery Area
Created: Mon Nov 09 2020 9:43:09 PM
DB Domain Name: example.com
Networks:

```

Note either the Home ID, or the Home location. You will need this to patch the database home.

You can use either CLI 'odacli update-dbhome' command or BUI to update the database homes, and thus the databases, running on the appliance. Each home is updated independently, giving you control over when you patch your databases.

Now, we will use the CLI to patch database db4.

The 'odacli list-databases' command will list each database, its ID and its database home ID. Those database homes will be the ones we will patch by supplying the database home ID to the patching command. You can also see more information, such as the name of the database home, using the 'odacli list-dbhomes' command.

## # odacli list-databases

ID	DB Name	DB Type	DB Version	CDB	Class	Shape	Storage	Status	DbHomeID
40b87040-7a7c-4439-9fd8-9df176e307c2	db3	Rac	19.8.0.0.200714	false	Oltp	Odbl	Asm	Configured	c0628ee5-4bcb-490c-9996-067f23e6bf17
bab8738a-861d-4c97-90a9-b5da1f4e92c9	db4	Rac	19.8.0.0.200714	false	Oltp	Odbl	Asm	Configured	20ad8392-b7d6-4aa5-b394-927d09f70cf7

## # odacli list-dbhomes

ID	Name	DB Version	Home Location
c5556b62-cdc1-42c5-ad03-5a90dea5594f	OraDB19000_home1	19.8.0.0.200714	/u01/app/oracle/product/19.0.0.0/dbhome_1
c0628ee5-4bcb-490c-9996-067f23e6bf17	OraDB19000_home2	19.8.0.0.200714	/u01/app/oracle/product/19.0.0.0/dbhome_2
20ad8392-b7d6-4aa5-b394-927d09f70cf7	OraDB19000_home3	19.8.0.0.200714	/u01/app/oracle/product/19.0.0.0/dbhome_3

Use the clipboard to copy the DB Home ID for db3. Then use that with the 'odacli update-dbhome' command to update the home for db3. Verify the job has completed successfully using 'odacli describe-job'.

## # odacli update-dbhome -i 20ad8392-b7d6-4aa5-b394-927d09f70cf7 -v 19.9.0.0.0

```
{
  "jobId" : "ffc00059-3a16-489a-b5f9-bc8f4de1cba9",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "November 10, 2020 07:07:30 AM UTC",
  "resourceList" : [ ],
  "description" : "DB Home Patching: Home Id is 20ad8392-b7d6-4aa5-b394-927d09f70cf7",
  "updatedAt" : "November 10, 2020 07:07:30 AM UTC"
}
```

## # odacli describe-job -i ffc00059-3a16-489a-b5f9-bc8f4de1cba9

Job details

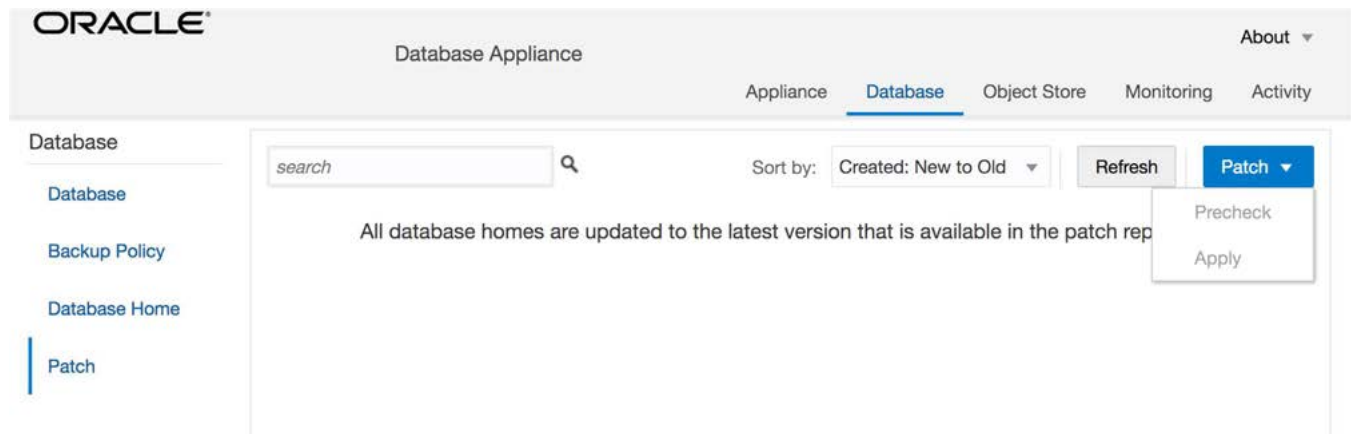
```
-----
ID: ffc00059-3a16-489a-b5f9-bc8f4de1cba9
Description: DB Home Patching: Home Id is 20ad8392-b7d6-4aa5-b394-927d09f70cf7
Status: Success
Created: November 10, 2020 7:07:30 AM UTC
Message:
```

Task Name	Start Time	End Time
Status		



Verify that the db3 database home has been updated to latest (201020) You can use either the BUI or CLI (odacli list-dbhomes).

You can also use the GUI web console to update the database homes by clicking "Patch" on the left panel, then select Apply in the Patch drop-down. We already updated the db4 database home via command line already.



## Step 5: Upgrading Database

To upgrade a database, we must first have an Oracle 18.x database. We will need to update the repository and create an Oracle 18.12 database.

```
# odacli update-repository -f /opt/oracle/dcs/patchfiles/odacli-  
dcs-19.9.0.0.0-201020-DB-18.12.0.0.zip  
{  
  "jobId" : "9bb6e918-f0d1-4c02-a2c4-3914ab349060",  
  "status" : "Running",  
  "message" : "/opt/oracle/dcs/patchfiles/odacli-dcs-19.9.0.0.0-201020-DB-  
18.12.0.0.zip",  
  "reports" : [ ],  
  "createTimestamp" : "November 10, 2020 06:00:16 AM UTC",  
  "resourceList" : [ ],  
  "description" : "Repository Update",  
  "updatedAt" : "November 10, 2020 06:00:21 AM UTC"
```

We can now create an Oracle 18.11 database (db5). Select "Create a Database", then "Next"

ORACLE Database Appliance

Account Help

Appliance Database Object Store Monitoring Security Activity

Database

Database

Database Home

Backup Policy

Patch

### Create Database

Use the options below to create a database, or clone a database. Database can be cloned from one appliance to another appliance, or to the same appliance.

- ☒ Create a Database
- ☐ Clone a Database from Backup
- ☐ Clone a Database

< Cancel Next >

Fill in the information and click "Create"

ORACLE Database Appliance

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Appliance Database Object Store Monitoring Security Activity

Database

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### Create Database

DB Name *	Database Edition	Password *
db5	Enterprise Edition	*****
DB Unique Name	Deployment	Confirm Password *
	RAC	*****
Use Existing DB Home	Shape	Character Set
<input type="radio"/> Yes <input checked="" type="radio"/> No	odb1(1 Core, 8GB Memory)	AL32UTF8
DB Version	Database Class	National Character Set
18.12.0.0.201020	OLTP	AL16UTF16
CDB <input type="radio"/> Yes <input checked="" type="radio"/> No	Storage	Language
	ASM	AMERICAN
	Database Redundancy	Territory
	Mirror	AMERICA
	Data Files on Flash Storage <input type="radio"/> Yes <input checked="" type="radio"/> No	Enable TDE <input type="radio"/> Yes <input checked="" type="radio"/> No
	Networks *	TDE Wallet Password
	Public-network X	
	Configure EM Express <input type="radio"/> Yes <input checked="" type="radio"/> No	Confirm TDE Wallet Password

< Back Cancel Create >

You can see Oracle database 18.12 (db5) is created.

ORACLE® Database Appliance

Account ▾ ? Help ▾

Appliance **Database** Object Store Monitoring Security Activity

Database

Database

Database Home

Backup Policy

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search

Sort by: Created: New to Old ▾ Refresh Create Database

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db5	ID: 319b259f-e104-4061-ad19-70dc57241ee7 <a href="#">Copy</a>	CDB: false DB Version: 18.12.0.0.201020	Shape: odb1 Storage: ASM	Actions ▾
db4	ID: bab8738a-861d-4c97-90a9-b5da1f4e92c9 <a href="#">Copy</a>	CDB: false DB Version: 19.9.0.0.201020	Shape: odb1 Storage: ASM	Actions ▾
db3	ID: 40b87040-7a7c-4439-9fd8-9df176e307c2 <a href="#">Copy</a>	CDB: false DB Version: 19.8.0.0.200714	Shape: odb1 Storage: ASM	Actions ▾

Created: Mon Nov 09 2020 11:16:59 PM

Created: Mon Nov 09 2020 9:43:09 PM

Created: Mon Nov 09 2020 9:37:03 PM

Now we will upgrade database db5 from 18.12 to 19.9 by click Actions button and select Upgrade.

ORACLE® Database Appliance

Account ▾ ? Help ▾

Appliance **Database** Object Store Monitoring Security Activity

Database

Database

Database Home

Backup Policy

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search

Sort by: Created: New to Old ▾ Refresh Create Database

Page 1 of 1 (1-3 of 3 items) < 1 >

db5	ID: 319b259f-e104-4061-ad19-70dc57241ee7 <a href="#">Copy</a>	CDB: false DB Version: 18.12.0.0.201020	Shape: odb1 Storage: ASM	Actions ▾
db4	ID: bab8738a-861d-4c97-90a9-b5da1f4e92c9 <a href="#">Copy</a>	CDB: false DB Version: 19.9.0.0.201020	Shape: odb1 Storage: ASM	View Modify Move Upgrade Delete
db3	ID: 40b87040-7a7c-4439-9fd8-9df176e307c2 <a href="#">Copy</a>	CDB: false DB Version: 19.8.0.0.200714	Shape: odb1 Storage: ASM	Actions ▾

Created: Mon Nov 09 2020 11:16:59 PM

Created: Mon Nov 09 2020 9:43:09 PM

Created: Mon Nov 09 2020 9:37:03 PM

Then select a new database home (i.e. OraDB19000\_home3). Database upgrade is an out-of-place operation, which existing home is not touched.

The screenshot shows the Oracle Database Appliance console. The 'Database' tab is selected. A modal window titled 'Upgrade Database' is open, showing the 'Database Name: db5' and a list of destination database homes to upgrade. The list includes OraDB19000\_home1, OraDB19000\_home2, OraDB19000\_home3, and OraDB18000\_home1. The background table shows three databases: db5, db4, and db3, all with status 'CONFIGURED' and 'DB Version: 18.12.0.0.201020'.

Database Name	ID	Status	Created	CDB	DB Version	Shape	Storage	Actions
db5	319b259f-e104-4061-ad19-70dc57241ee7	CONFIGURED	Mon Nov 09 2020 11:16:59 PM	false	18.12.0.0.201020	odb1	ASM	
db4	bab8738a-861d-4c97-90a9-b5da1f4e92c9	CONFIGURED	Mon Nov 09 2020 9:43:09 PM	false	18.12.0.0.201020	odb1	ASM	
db3	40b87040-7a7c-4439-9fd8-9df176e307c2	CONFIGURED	Mon Nov 09 2020 9:37:03 PM	false	18.12.0.0.200714	odb1	ASM	

You can see db5 has been upgraded from 18.12 to 19.9

The screenshot shows the Oracle Database Appliance console. The 'Database' tab is selected. The modal window is closed. The background table shows three databases: db5, db4, and db3. db5 now has 'DB Version: 19.9.0.0.201020', while db4 and db3 have 'DB Version: 19.9.0.0.201020' and 'DB Version: 19.8.0.0.200714' respectively.

Database Name	ID	Status	Created	CDB	DB Version	Shape	Storage	Actions
db5	2c46e211-c72d-47d9-ba4f-ff60f99bad0f	CONFIGURED	Mon Nov 09 2020 11:25:28 PM	false	19.9.0.0.201020	odb1	ASM	
db4	bab8738a-861d-4c97-90a9-b5da1f4e92c9	CONFIGURED	Mon Nov 09 2020 9:43:09 PM	false	19.9.0.0.201020	odb1	ASM	
db3	40b87040-7a7c-4439-9fd8-9df176e307c2	CONFIGURED	Mon Nov 09 2020 9:37:03 PM	false	19.8.0.0.200714	odb1	ASM	

This concludes Lab 3.

## Lab 4: Monitoring and Administration

### Step 1: BUI Hardware Monitoring and Feature Tracking

The BUI shows ODA hardware status and tracks feature usage including High Water Marks.

ORACLE<sup>®</sup> Database Appliance

Account ▾ Help ▾

Appliance Database Object Store **Monitoring** Security Activity

Monitoring

Summary

System Components

Hardware View

Storage

Enclosures

Node Components

Hardware View

Memory

Power

Cooling

Networking

Feature Tracking

ORAchK Report

Last Collection time: Mon Nov 09 2020 11:28:05 PM

**Status**

Login to the ILOM console of **oda-1-node1, oda-1-node0** for more details.

Subsystem	Status
▶ Storage	✓ ONLINE
▶ Enclosures	✓ OK
▶ Memory	✓ OK
▶ Power	✓ OK
▶ Cooling	✓ OK
▶ Networking	✓ OK

Refresh

### Hardware Status

## Monitoring

[Summary](#)

## System Components

[Hardware View](#)[Storage](#)[Enclosures](#)

## Node Components

[Hardware View](#)[Memory](#)[Power](#)[Cooling](#)[Networking](#)[Feature Tracking](#)[ORAchk Report](#)**System Hardware Components**

Click the hardware image to view the state and details.

**Front View**

Service Required LED Top Fan Module  
Service Required LED Rear Power Supply  
Service Required LED Over Temp  
SP OK LED  
Don Not Service LED

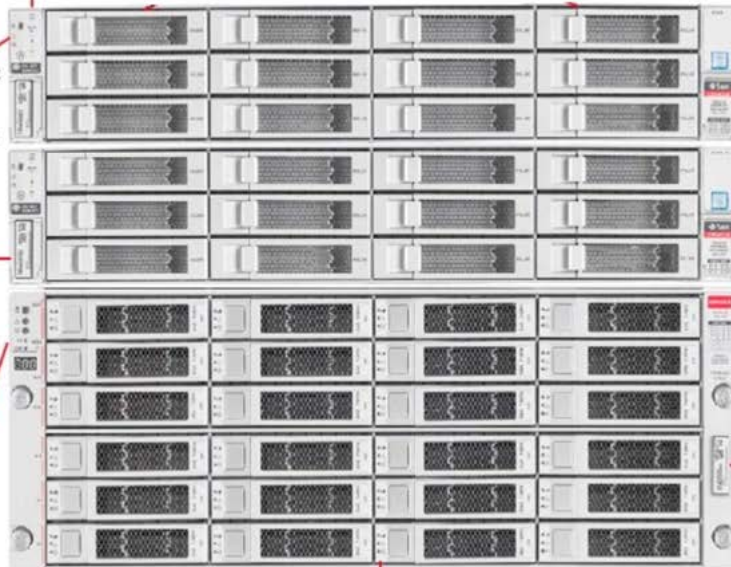
Locate button/LED  
Service Required LED  
System OK  
On/Standby button  
(See Service Manual  
For LED  
descriptions)

Serial #  
RFID Tag

Locate Button/LED  
Service Action Required  
OK (Operational)  
PSU Service Required  
IOM Service Required

Drive OK/Activity  
Service Action Required  
Service Action Allowed

RFID Tag &  
Serial Number



Storage

## ORAchK Report

■ ONLINE ■ OFFLINE ■ UNKNOWN

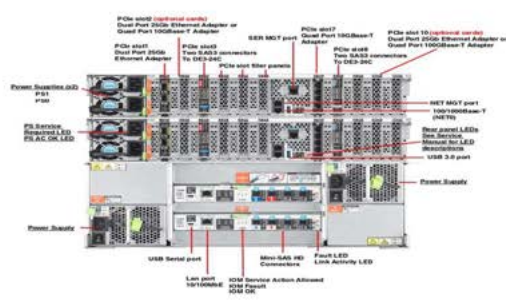
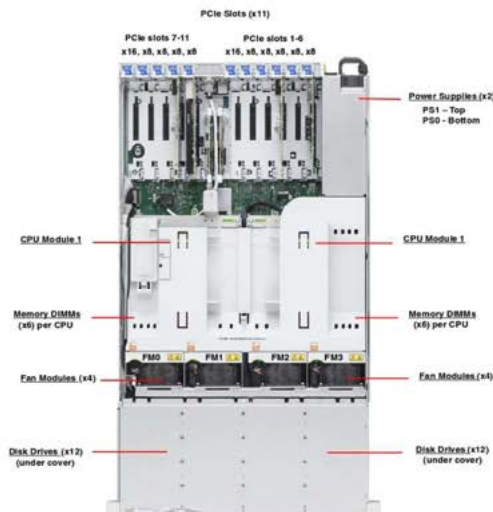
Name	State	Disk Type	ASM Disk List	Disk Size(GB)	Multipath List	Total Sectors	Sector Size(Byte)
pd_00	ONLINE	NVD	data_00;reco_00	5961.63	/dev/nvme0n1	12502446768	512
pd_04	ONLINE	NVD	data_04;reco_04	5961.63	/dev/nvme1n1	12502446768	512

Appliance Database Object Store **Monitoring** Security Activity

## ORAchk Report

Click the hardware image to view the state and details.

### Rear View





## Feature Tracking

The screenshot shows the Oracle Database Appliance Monitoring interface. The top navigation bar includes 'Appliance', 'Database', 'Object Store', 'Monitoring' (selected), and 'Activity'. The left sidebar has 'Monitoring' (selected) and 'Feature Tracking'. The main content area is titled 'Feature Usage' and 'High Water Marks'. It includes a search bar and a 'Help' button. Below the search bar, it states 'Last Collection time: Fri Jul 19 2019 3:20:17 PM'. A table displays feature usage data:

Feature Name	Category	Currently Used	Detected Usage	Total Samples	Last Detected Usage Time
Object Store	Object Store	false	0	6	Fri Jul 19 2019 3:20:17 PM
Automatic Service Request (ASR)	Server	false	0	6	Fri Jul 19 2019 3:20:17 PM
Storage Expansion Shelf	Storage	false	0	6	Fri Jul 19 2019 3:20:17 PM

## High Water Marks

The screenshot shows the Oracle Database Appliance Monitoring interface, specifically the 'High Water Marks' section. The top navigation bar includes 'Appliance', 'Database', 'Object Store', 'Monitoring' (selected), and 'Activity'. The left sidebar has 'Monitoring' (selected) and 'Feature Tracking'. The main content area is titled 'Feature Usage' and 'High Water Marks'. It includes a search bar and buttons for 'Help' and 'Download'. Below the search bar, it states 'Last Collection time: Fri Jul 19 2019 3:20:17 PM'. A table displays high water mark data:

Measured Feature Name	High Water Mark	Last Changed Time	Category
Maximum usage of CPU	0.01 %	Fri Jul 19 2019 3:20:17 PM	DCS Agent
Maximum usage of Memory	579.14 MB,	Fri Jul 19 2019 3:20:17 PM	DCS Agent
Maximum number of threads	161	Fri Jul 19 2019 3:20:17 PM	DCS Agent
Maximum number of open file descriptors	252	Fri Jul 19 2019 3:20:17 PM	DCS Agent
Maximum number of Databases	6	Fri Jul 19 2019 3:20:17 PM	Database
Maximum number of EE Databases	1	Fri Jul 19 2019 3:20:17 PM	Database
Maximum number of SE Databases,	5	Fri Jul 19 2019 3:20:17 PM	Database
Maximum number of CDBs	1	Fri Jul 19 2019 3:20:17 PM	Database
Maximum number of non-CDBs	5	Fri Jul 19 2019 3:20:17 PM	Database
Maximum number of RAC Databases	5	Fri Jul 19 2019 3:20:17 PM	Database
Maximum number of RAC One Databases	1	Fri Jul 19 2019 3:20:17 PM	Database
Maximum number of Single Instance Databases	0	Fri Jul 19 2019 3:20:17 PM	Database

The Oracle Appliance Manager command line interfaces (odacli, odaadmcli) are tools that can also be used to install, configure, and interrogate the status of ODA. They are free with the Oracle Database Appliance to assist in the fast deployment and easy management of the Oracle Database Appliance, and the fast deployment, patching and maintenance of Oracle.

Some basic odaadmcli commands to explore the ODA configuration are outlined in the following sections.



## Step 2: Review Appliance Configuration

Below are sample output. Please see ODA Documentation for details.

```
odaadmcli show server
```

Show the server/node status, including ILOM IP address, firmware version, power consumption, etc. This is helpful for an at-a-glance view of basic server/node information.

```
$ sudo odaadmcli show server
```

```
Power State           : On
Open Problems         : 0
Model                 : ODA X7-2-HA
Type                  : Rack Mount
Part Number           : ODA X7-2-HA
Serial Number         : 1750XD0003
Primary OS            : Not Available
ILOM Address          : 10.145.203.81
ILOM MAC Address      : 00:10:E0:DA:CD:66
Description           : Oracle Database Appliance X7-2 High Availability 1750XD0003
Locator Light         : Off
Actual Power Consumption : 302 watts
Ambient Temperature   : 20.250 degree C
Open Problems Report   : System is healthy
```

```
$ sudo oadcli describe-system
```

#### Appliance Information

```
-----
ID: oda
Platform:
Data Disk Count: 9
CPU Core Count: 36
Created: July 19, 2019 8:25:14 PM GMT
```

#### System Information

```
-----
Name: oda
Domain Name: example.com
Time Zone: GMT
DB Edition: EE
DNS Servers: 1.1.1.1
NTP Servers:
```

#### Disk Group Information

```
-----
DG Name          Redundancy          Percentage
-----
Data             Flex               80
Reco             Flex               20
Redo             High              100
Flash            Flex               100
```

odaadmcli show processor

This command displays information about the cpus running in the system.

```
$ sudo odaadmcli show processor
```

NAME	HEALTH	HEALTH_DETAILS	PART_NO.	LOCATION	MODEL	MAX_CLK_SPEED	TOTAL_CORES	ENABLED_CORES
CPU_0	OK	-	SR3AX	P0 (CPU 0)	Intel(R) Xeon(R) Gold 6140 CP	2.300 GHz	18	NA
CPU_1	OK	-	SR3AX	P1 (CPU 1)	Intel(R) Xeon(R) Gold 6140 CP	2.300 GHz	18	NA

odaadmcli show memory

```
$ sudo odaadmcli show memory
```

NAME	HEALTH	HEALTH_DETAILS	PART_NO.	SERIAL_NO.	LOCATION	MANUFACTURER	MEMORY_SIZE	CURR_CLK_SPEED	ECC_Errors
DIMM_0	OK	-	3A4K40BB2-CTD	00CE021743373400D8	P0/D0	Samsung	32 GB	2666 MHz	0
DIMM_11	OK	-	3A4K40BB2-CTD	00CE02174337340065	P0/D1	Samsung	32 GB	2666 MHz	0
DIMM_12	OK	-	3A4K40BB2-CTD	00CE0217433734000D	P1/D0	Samsung	32 GB	2666 MHz	0
DIMM_14	OK	-	3A4K40BB2-CTD	00CE02174237318364	P1/D2	Samsung	32 GB	2666 MHz	0
DIMM_16	OK	-	3A4K40BB2-CTD	00CE0217423731A19A	P1/D4	Samsung	32 GB	2666 MHz	0
DIMM_19	OK	-	3A4K40BB2-CTD	00CE02174237318394	P1/D7	Samsung	32 GB	2666 MHz	0
DIMM_2	OK	-	3A4K40BB2-CTD	00CE02174337340078	P0/D2	Samsung	32 GB	2666 MHz	0
DIMM_21	OK	-	3A4K40BB2-CTD	00CE0217423731A195	P1/D9	Samsung	32 GB	2666 MHz	0
DIMM_23	OK	-	3A4K40BB2-CTD	00CE02174237318365	P1/D1	Samsung	32 GB	2666 MHz	0
DIMM_4	OK	-	3A4K40BB2-CTD	00CE0217433734007B	P0/D4	Samsung	32 GB	2666 MHz	0
DIMM_7	OK	-	3A4K40BB2-CTD	00CE02174337340013	P0/D7	Samsung	32 GB	2666 MHz	0
DIMM_9	OK	-	3A4K40BB2-CTD	00CE02174337340101	P0/D9	Samsung	32 GB	2666 MHz	0

## odaadmcli show power

```
$ sudo odaadmcli show power
```

NAME	HEALTH	HEALTH_DETAILS	PART_NO.	SERIAL_NO.	LOCATION	INPUT_POWER	OUTPUT_POWER	INLET_TEMP	EXHAUST_TEMP
Power_Supply_0	OK	-	7333459	465824T+1647D30456	PS0	Present	135 watts	20 degrees C	42.500 degree C
Power_Supply_1	OK	-	7333459	465824T+1647D30762	PS1	Present	146 watts	20 degrees C	51.500 degree C

## odaadmcli show cooling

```
$ sudo odaadmcli show cooling
```

NAME	HEALTH	HEALTH_DETAILS	LOCATION	FAN %	FAN SPEED
Fan_0	OK	-	FM0	35 %	6900 RPM
Fan_1	OK	-	FM0	34 %	5900 RPM
Fan_10	OK	-	FM2	32 %	6200 RPM
Fan_11	OK	-	FM2	31 %	5500 RPM
Fan_12	OK	-	FM3	32 %	6300 RPM
Fan_13	OK	-	FM3	31 %	5500 RPM
Fan_14	OK	-	FM3	32 %	6300 RPM
Fan_15	OK	-	FM3	31 %	5500 RPM
Fan_2	OK	-	FM0	36 %	6800 RPM
Fan_3	OK	-	FM0	34 %	5900 RPM
Fan_4	OK	-	FM1	35 %	6800 RPM
Fan_5	OK	-	FM1	34 %	5900 RPM
Fan_6	OK	-	FM1	32 %	6300 RPM
Fan_7	OK	-	FM1	29 %	5100 RPM
Fan_8	OK	-	FM2	32 %	6300 RPM
Fan_9	OK	-	FM2	31 %	5500 RPM

## Step 3: Review the Storage Configuration

### odaadmcli show disk

This command is helpful for getting a view into the device mapping and current state of the hard disks. The output lists the drives in the ODA X7-2-HA.

```
$ sudo odaadmcli show disk
```

NAME	PATH	TYPE	STATE	STATE_DETAILS
e0_pd_00	/dev/sdbv	HDD	ONLINE	Good
e0_pd_01	/dev/sdbw	HDD	ONLINE	Good
e0_pd_02	/dev/sdbx	HDD	ONLINE	Good
e0_pd_03	/dev/sdbz	HDD	ONLINE	Good
e0_pd_04	/dev/sdbz	HDD	ONLINE	Good
e0_pd_05	/dev/sdca	HDD	ONLINE	Good
e0_pd_06	/dev/sdcb	HDD	ONLINE	Good
e0_pd_07	/dev/sdcc	HDD	ONLINE	Good
e0_pd_08	/dev/sdcd	HDD	ONLINE	Good
e0_pd_09	/dev/sdce	HDD	ONLINE	Good
e0_pd_10	/dev/sdcf	HDD	ONLINE	Good
e0_pd_11	/dev/sdcg	HDD	ONLINE	Good
e0_pd_12	/dev/sdch	HDD	ONLINE	Good
e0_pd_13	/dev/sdci	HDD	ONLINE	Good
e0_pd_14	/dev/sdcj	HDD	ONLINE	Good
e0_pd_15	/dev/sdck	SSD	ONLINE	Good
e0_pd_16	/dev/sdcl	SSD	ONLINE	Good
e0_pd_17	/dev/sdcm	SSD	ONLINE	Good
e0_pd_18	/dev/sdcn	SSD	ONLINE	Good
e0_pd_19	/dev/sdco	SSD	ONLINE	Good
e0_pd_20	/dev/sdcp	SSD	ONLINE	Good
e0_pd_21	/dev/sdcq	SSD	ONLINE	Good
e0_pd_22	/dev/sdcr	SSD	ONLINE	Good
e0_pd_23	/dev/sdcs	SSD	ONLINE	Good

```
odaadmcli show diskgroup
```

List ASM diskgroups that have been configured by Appliance Manager on the ODA's storage.

DATA is where the database data files are stored.

FLASH is where the hot files or small databases can be placed to improve performance

RECO is where the database's backups, archive logs, and redo logs are stored.

REDO is where the database's redo logs are stored.

```
$ sudo odaadmcli show diskgroup
```

```
DiskGroups
```

```
-----
```

```
DATA
```

```
FLASH
```

```
RECO
```

```
REDO
```

```
odaadmcli show fs
```

```
$ sudo odaadmcli show fs
```

Type	Total Space	Free Space	Total DG Space	Free DG Space	Diskgroup	Mount Point
ext3	30109M	25254M	-	-	-	/
ext3	476M	405M	-	-	-	/boot
ext3	60347M	22117M	-	-	-	/opt
ext3	100665M	72839M	-	-	-	/u01
acfs	5120M	4625M	112116480M	111977204M	DATA	/opt/oracle/dcs/commonstore

List the details on the ODA X7-2-HA file systems, including total Space, Free Space, Disk Group, etc. **Note: Due to a simulator bug, your output will look slightly different. The output below is what you should really see.**

```
odaadmcli show raidsyncstatus
```

List the status of the boot disk HW RAID.

```
$ sudo odaadmcli show raidsyncstatus
```

Raid Type	Raid Device	Partitions	RaidStatus	Recovery	RecoveryPercentage
S/W Raid	md0	sdb2 sda2	UU	No	N/A
S/W Raid	md1	sdb3 sda3	UU	No	N/A

## odaadmcli show storage

The following command shows the storage controllers and drives.

```
$ sudo odaadmcli show storage

==== BEGIN STORAGE DUMP =====
Host Description: Oracle Corporation:ORACLE SERVER X7-2
Total number of controllers: 2
  Id = 0
  Serial Num = 500605b00d3e88c0
  Vendor = LSI Logic
  Model = ORCL-EXT-SAS3
  FwVers = 13.00.00.00
  strId = mpt3sas:3b:00.0

  Id = 1
  Serial Num = 500605b00d3e8450
  Vendor = LSI Logic
  Model = ORCL-EXT-SAS3
  FwVers = 13.00.00.00
  strId = mpt3sas:5e:00.0

Total number of expanders: 2
  Id = 0
  Serial Num = 50800200022f163f
  Vendor = ORACLE
  Model = DE3-24C
  FwVers = 0306
  strId = Secondary
  WWN = 50800200022e41be

  Id = 1
  Serial Num = 50800200022f163f
  Vendor = ORACLE
  Model = DE3-24C
  FwVers = 0306
  strId = Primary
  WWN = 50800200022e447e

Total number of PDs: 24
/dev/sdaa HGST HDD 9796gb slot: 0 exp: 0 H7210A520SUN010T
/dev/sdab HGST HDD 9796gb slot: 1 exp: 0 H7210A520SUN010T
/dev/sdac HGST HDD 9796gb slot: 2 exp: 0 H7210A520SUN010T
/dev/sdad HGST HDD 9796gb slot: 3 exp: 0 H7210A520SUN010T
/dev/sdae HGST HDD 9796gb slot: 4 exp: 0 H7210A520SUN010T
/dev/sdaf HGST HDD 9796gb slot: 5 exp: 0 H7210A520SUN010T
/dev/sdag HGST HDD 9796gb slot: 6 exp: 0 H7210A520SUN010T
/dev/sdah HGST HDD 9796gb slot: 7 exp: 0 H7210A520SUN010T
/dev/sdai HGST HDD 9796gb slot: 8 exp: 0 H7210A520SUN010T
/dev/sdaj HGST HDD 9796gb slot: 9 exp: 0 H7210A520SUN010T
/dev/sdak HGST HDD 9796gb slot: 10 exp: 0 H7210A520SUN010T
/dev/sdal HGST HDD 9796gb slot: 11 exp: 0 H7210A520SUN010T
/dev/sdam HGST HDD 9796gb slot: 12 exp: 0 H7210A520SUN010T
/dev/sdan HGST HDD 9796gb slot: 13 exp: 0 H7210A520SUN010T
/dev/sdao HGST HDD 9796gb slot: 14 exp: 0 H7210A520SUN010T
/dev/sdap HGST SSD 3200gb slot: 15 exp: 0 HBCAC2DH2SUN3.2T
/dev/sdaq HGST SSD 3200gb slot: 16 exp: 0 HBCAC2DH2SUN3.2T
/dev/sdar HGST SSD 3200gb slot: 17 exp: 0 HBCAC2DH2SUN3.2T
/dev/sdas HGST SSD 3200gb slot: 18 exp: 0 HBCAC2DH2SUN3.2T
/dev/sdat HGST SSD 3200gb slot: 19 exp: 0 HBCAC2DH2SUN3.2T
/dev/sdau HGST SSD 800gb slot: 20 exp: 0 HBCAC2DH4SUN800G
/dev/sdav HGST SSD 800gb slot: 21 exp: 0 HBCAC2DH4SUN800G
/dev/sdaw HGST SSD 800gb slot: 22 exp: 0 HBCAC2DH4SUN800G
/dev/sdax HGST SSD 800gb slot: 23 exp: 0 HBCAC2DH4SUN800G

==== END STORAGE DUMP =====
```

## Step 4: Review Network Status

odaadmcli show network

Show the MAC address, health status and temp of the network ports.

```
$ sudo odaadmcli show network
```

NAME	HEALTH	HEALTH_DETAILS	LOCATION	PART_NO	MANUFACTURER	MAC_ADDRESS	LINK_DETECTED	DIE_TEMP
Ethernet_NIC_0	OK	-	NET0	i210	INTEL	00:10:E0:DA:CD:62	no (em1)	N/A
Ethernet_NIC_1	OK	-	NET1	BCM57417	Broadcom	00:10:E0:DA:CD:63	yes (em2)	N/A
Ethernet_NIC_2	OK	-	NET2	BCM57417	Broadcom	00:10:E0:DA:CD:64	yes (em3)	N/A
Ethernet_NIC_3	-	-	NET3	X540	INTEL	00:0A:F7:CF:36:38	yes (p1p2)	-
Ethernet_NIC_4	-	-	NET4	X540	INTEL	00:0A:F7:CF:36:30	yes (p1p1)	-

This concludes Lab 4.

## Troubleshooting

### Restarting ODA Simulator in a Container

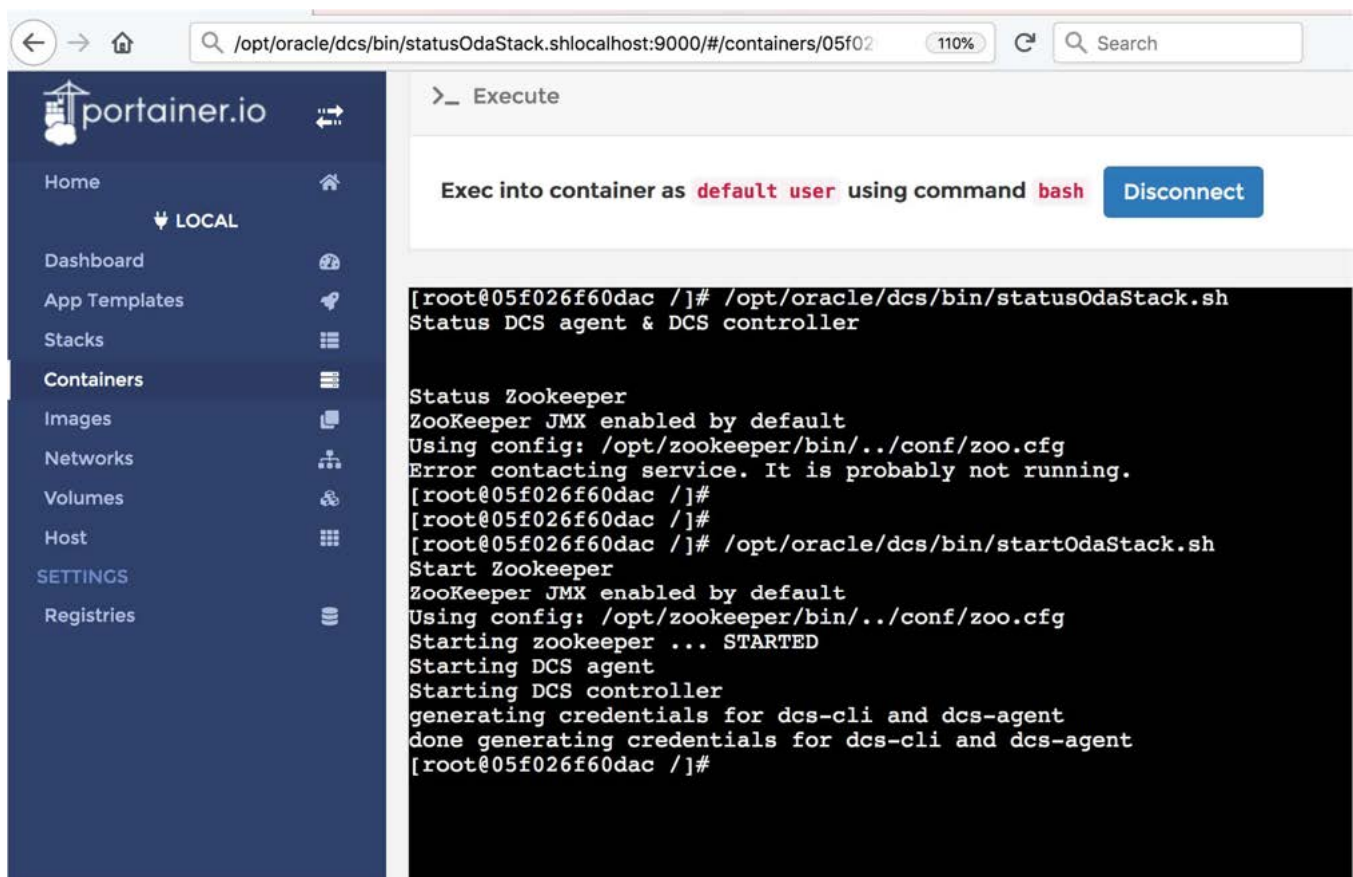
If the `odacli configure-firstnet` commands fails, you can check if the ODA Simulator is running in the container.

To ensure that the ODA Simulator is running in the container, you can run the following status command:

```
# /opt/oracle/dcs/bin/statusOdaStack.sh
```

If it's not running, run the following start command:

```
# /opt/oracle/dcs/bin/startOdaStack.sh
```

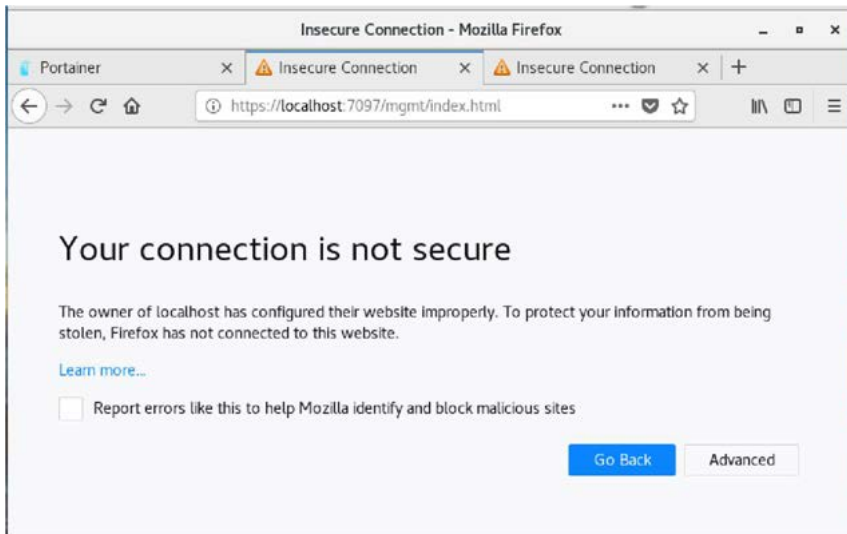


### BUI Agent Certificate Issue

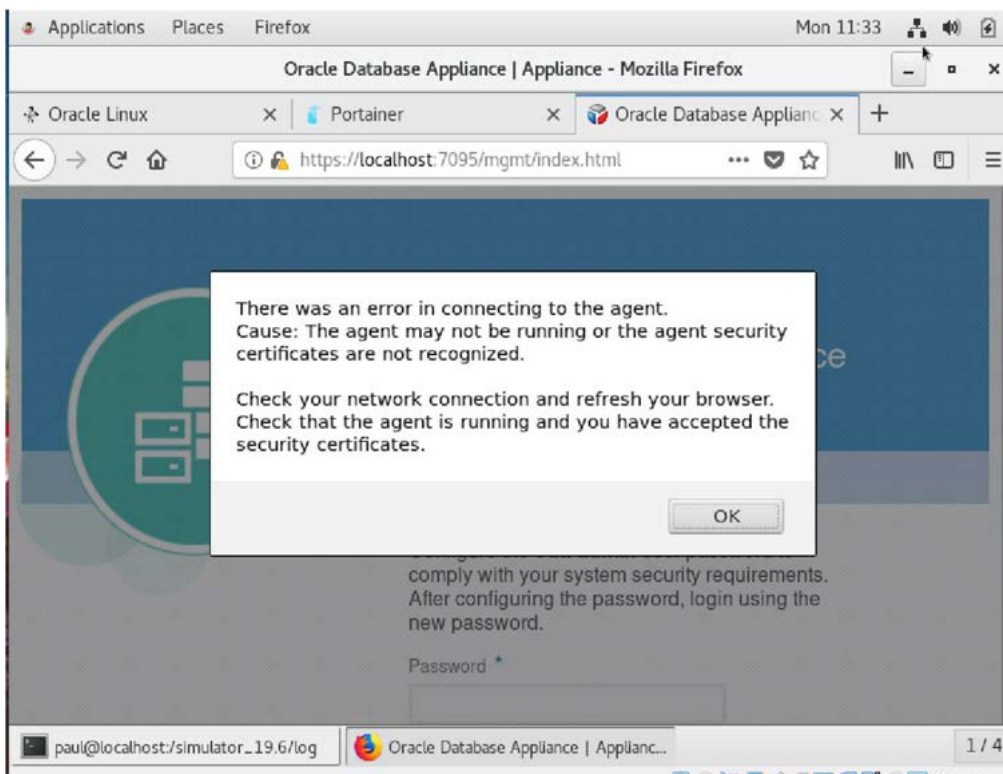
You may run into a BUI agent certificate issue. See the example below.

<https://<server IP>:7097/mgmt./index.html> (your assigned port number maybe different)

You'll see the "Your connection is not secure" message.



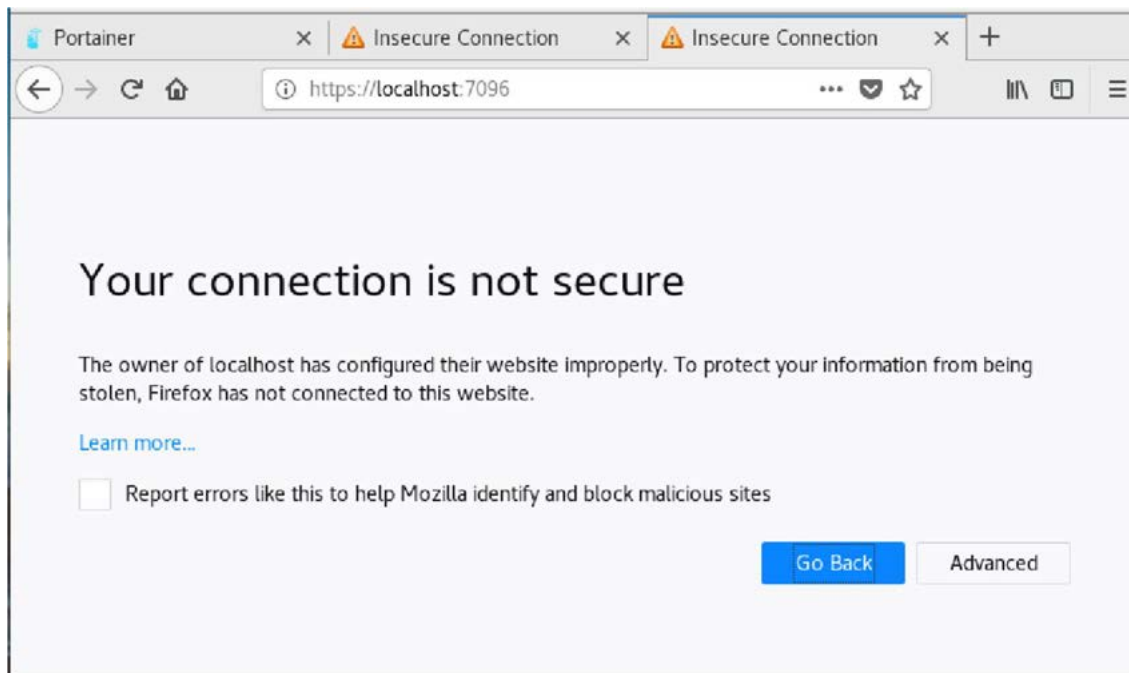
You go through the certificate exception process but still get the following error message.



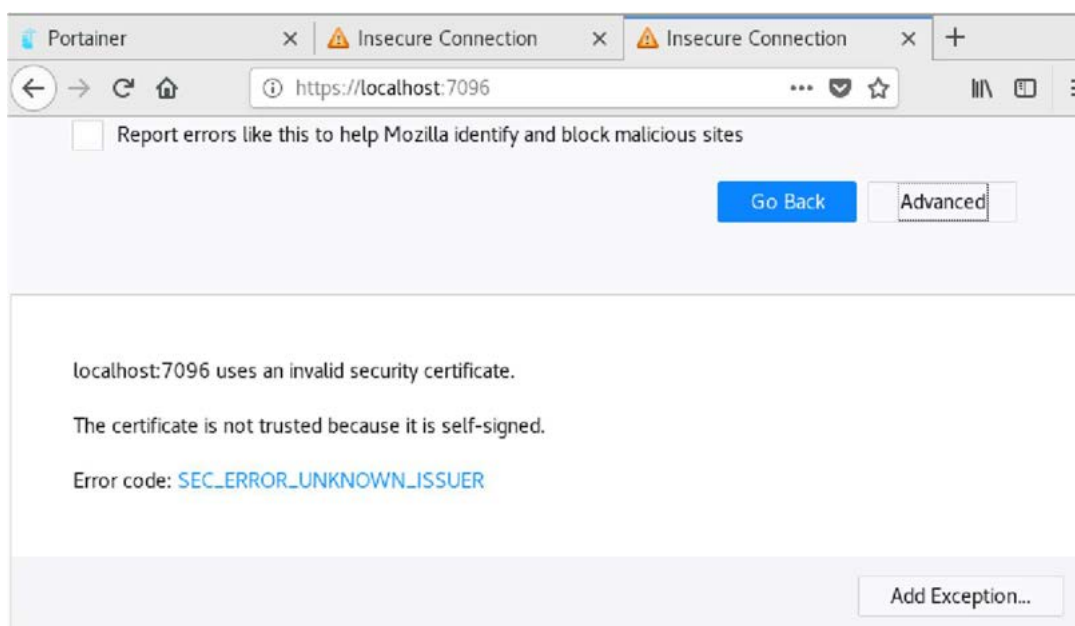
To fix it, you need to add a certificate exception to the BUI agent port, with is your assigned port number -1. In this case, it's 7097-1 or 7096.

`https://<server IP>:7096/mgmt./index.html` (you port number maybe different)



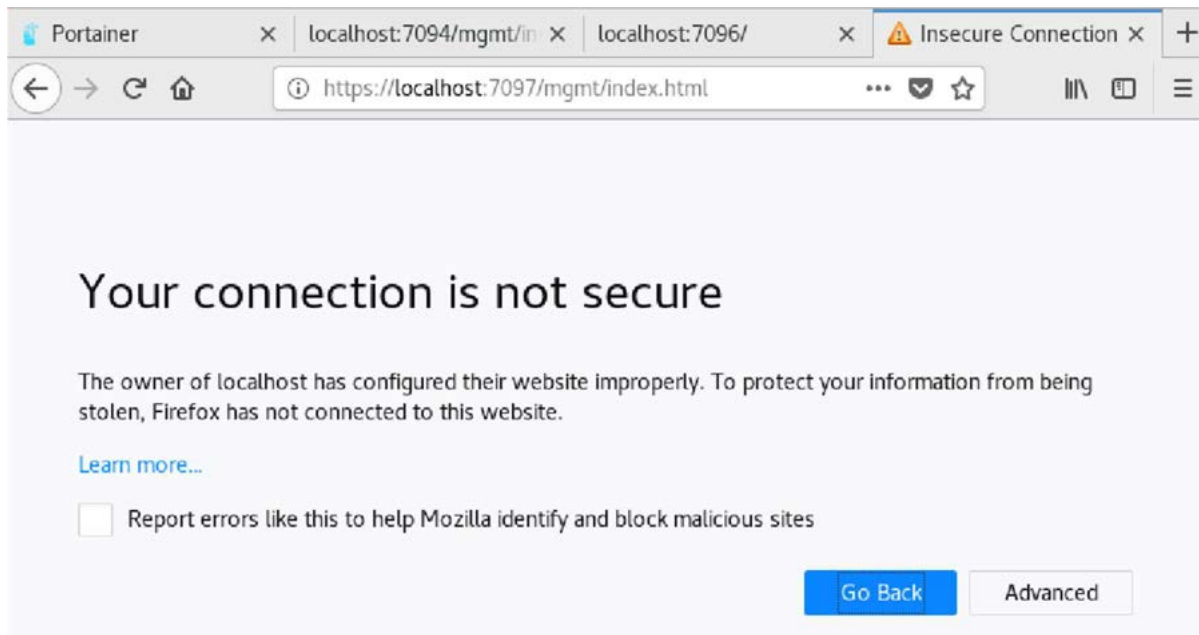


Go through the certificate exception process and add the exception.

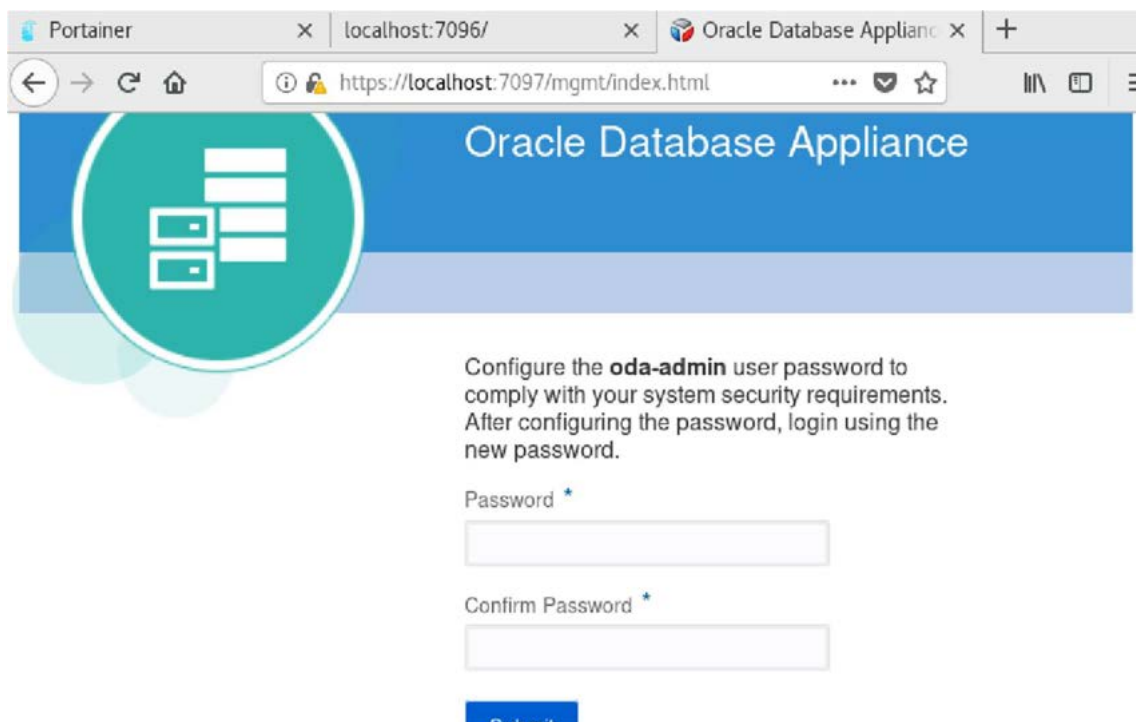


Then go back to your assigned port number.

*https://<server IP>:7097/mgmt./index.html*



Go through the certificate exception process again and add the exception. Then you'll be able to access the BUI to create the Appliance.



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