

## HOL 10469

# Deploying and Managing a private Cloud with Oracle VM and Oracle Enterprise Manager

Christophe Pauliat Systems Sales Consultant christophe.pauliat@oracle.com

Simon Coter Product Manager, Oracle VM & VirtualBox simon.coter@oracle.com

Chris Kawalek Product Marketing, Oracle VM <u>chris.kawalek@oracle.com</u>



## CONTENTS

ORAÇLE WORLD

#oow15

1	I	NTRODUCTION	4
	1.1	LAB OBJECTIVE	4
		PREPARATION (DONE BEFORE LAB)	
		SUMMARY OF STEPS	
	1.4	GLOBAL PICTURE	6
2	C	CONFIGURATION OF THE ORACLE VM ENVIRONMENT FROM EM	7
2	2.1	START THE 3 SERVERS (VIRTUALBOX VMS)	
	2.2	CONNECT TO ORACLE ENTERPRISE MANAGER CLOUD CONTROL 12C CONSOLE	
	2.3	REGISTER THE ORACLE VM MANAGER	
	2.4 2.5	DISCOVER THE ORACLE VM SERVER	
	2.5 2.6	CONFIGURE THE NETWORK	
	2.7	CREATE A SERVER POOL	
2	2.8	CREATE A ZONE	21
	2.9	CREATE A STORAGE REPOSITORY	
2	2.10	PRESENT THE REPOSITORY TO THE ORACLE VM SERVER	24
3	I	NSTANCE AS A SERVICE: CONFIGURATION	25
	3.1	REQUEST SETTINGS	25
	3.2	ROLES	
	3.3	SOFTWARE COMPONENTS	
4	I	NSTANCE AS A SERVICE: DEPLOYMENT FROM THE SELF SERVICE PORTAL	
	4.1	DEPLOY A GUEST VM FROM THE ORACLE VM ASSEMBLY	
4	4.2		
5	F	PLUGGABLE DATABASE AS A SERVICE: CONFIGURATION	
ļ	5.1	INSTALL EM12 AGENT ON THE VM	35
		ADD DATABASE TARGETS	
	5.3	CREATE A GUEST USER ON THE VIRTUAL MACHINE	
	5.4 5.5	CREATE A PAAS INFRASTRUCTURE ZONE	
6		PLUGGABLE DATABASE AS A SERVICE: DEPLOYMENT FROM THE SELF SERVICE PORTAL	
	5.1		
		ACCESS THE PDB	
7	4	APPENDIX A: PREPARATION OF THE ENVIRONMENT BEFORE THE LAB	57
	7.1	PURPOSE	
	7.2	DOWNLOAD REQUIRED BINARIES	-
	7.3	INSTALLATION OF ORACLE VM VIRTUALBOX	
	7.4 7.5	INSTALLATION OF ORACLE VM SERVER INSTALLATION OF ORACLE VM MANAGER	
	7.6	INSTALLATION OF ORACLE VIVI MANAGER INSTALLATION OF ORACLE ENTERPRISE MANAGER CLOUD CONTROL 12C	
	7.7	PRE-CONFIGURATION OF ORACLE ENTERPRISE MANAGER 12C	
8	ļ	APPENDIX B: CREATE ORACLE VM ASSEMBLY FOR DB12C	71
1	3.1	DOWNLOAD THE ORACLE VM ASSEMBLY FOR ORACLE LINUX 6 UPDATE 4	71
	3.2	DOWNLOAD THE ORACLE LINUX 6 UPDATE 4 ISO IMAGE	
ł	8.3	DOWNLOAD ORACLE DATABASE 12C	
	8.4	IMPORT THE ORACLE VM ASSEMBLY INTO THE STORAGE REPOSITORY	
	8.5	CREATE A NEW VM FROM THE ASSEMBLY.	
	8.6 8.7	EDIT THE VM Start and configure the NEW VM	
	5.7 8.8	INSTALL ORACLE DB12C BINARIES	
	-		-







8.10	CREATE DB12C CONTAINER DATABASE AND LISTENER CREATE ORACLE VM TEMPLATE CREATE ORACLE VM ASSEMBLY	75
9 A	APPENDIX C: REFERENCES	78
9.1	MAIN DOCUMENTS	78
9.2	ORACLE ENTERPRISE MANAGER CLOUD CONTROL 12C DOCUMENTATION	78
9.3	ORACLE VM DOCUMENTATION	79
9.4	GET THIS DOCUMENT	79

Last update: October 20, 2015

Author: Christophe Pauliat

Special thanks to: Bruno Bottreau, Olivier Canonge, Simon Coter, Chris Kawalek, Honglin Su









## 1 Introduction

## 1.1 Lab objective

#### This document details all actions that we will be run during Oracle OpenWorld 2015 session Hands On Lab HOL10469.

This hands-on lab takes you through private database cloud management, also known as DBaaS (Database as a service) with Oracle VM and Oracle Enterprise Manager Cloud Control 12c (EMCC)

There are different ways of doing DBaaS:

- Instance as a Service
  - New DB instance on existing host (physical or virtual)
  - New DB instance on new host (virtual)
  - Schema as a Service (new schema in existing database instance)
- Pluggable Database as a service (PDBaaS) (new pluggable database in existing container database). (DB12c only)

In this lab, you will see 2 ways:

- Instance as a Service on a new virtual host.
- Pluggable Database as a Service.

## Part 1 of lab: Instance as a service:

In this part, you will

- As a Cloud administrator:
  - Configure an Oracle VM environment from EM12c
  - Import an Oracle VM assembly with Oracle Database 12c
  - Configure the infrastructure Self Service portal for some Self Services users
  - As a Self Service user (developer who needs a complete environment: OS + DB)
  - o Deploy a new Oracle VM virtual machine with Oracle Linux 6 and Oracle Database 12c

#### Part 2 of lab: Pluggable database as a service:

Given the one hour time slot of the Hands On Lab at Oracle OpenWorld, you will not have time to actually run this lab, but you may read it, and also run it at home or office.

In this part, you will:

- As a Cloud administrator, configure the database Self Service portal for PDB request
- As a Self Service user (different from user in part 1, only needing PDB), deploy a new PDB in an existing container database.

During this lab, we will use a demo environment built on a single x86 laptop and containing 3 virtual servers (Oracle VM VirtualBox virtual machines): Oracle VM Server, Oracle VM Manager and Oracle Enterprise Manager 12c.

## **1.2** Preparation (done before Lab)

To save time and fit in the one hour slot of Oracle OpenWorld labs, some actions were made before the actual lab.

Here is a quick list of these actions:

- Install Oracle Linux 7.1 (64 bits) on all the laptops.
- Install Oracle VM VirtualBox 5.0.4 + extensions on all the laptops.
- o Install an Oracle VM Manager 3.3.3 server in an Oracle VM VirtualBox virtual machine.
- o Install an Oracle VM Server 3.3.3 server in an Oracle VM VirtualBox virtual machine.
- o Install an Oracle Enterprise Manager Cloud Control 12c R5 server in an Oracle VM VirtualBox virtual machine.
- Deploy an Oracle EM12c agent on the Oracle VM Manager.
- Deploy the Oracle Virtualization plugin on the Oracle EM12c server.
- o Deploy the Oracle Virtualization plugin on the Oracle EM12c agent.
- Configure HTTPS/TCPS security between the Oracle EM12c server and the Oracle EM12c agent installed on the Oracle VM Manager.
- Create users in Oracle Enterprise Manager (cloud administrator and Self Service users)
- Create an Oracle VM assembly for the latest Oracle Database 12c (12.1.0.2.0) with Oracle Linux 6
- o Import this Oracle VM assembly in the Oracle Enterprise Manager software library
- o Pre-configure Chargeback in Oracle Enterprise Manager (charge plans and cost centers)

#### Note: to run this lab at home of office

Requirements: X86 machine with at least 16GB of RAM and 4 CPU cores.

Any X86 Operating System supported by Oracle VM VirtualBox is OK (Microsoft Windows, most Linux distributions, Oracle Solaris X86, Apple Mac OSX, ...)

Read appendix A







## 1.3 Summary of steps

ORACLE

VORLD

In this lab, you will execute the following steps in Oracle Enterprise Manager Cloud Control 12c :

## 1.3.1 Part 1: Instance as a Service

As the Cloud administrator, setup the Infrastructure environment:

- o Discover the Oracle VM Manager.
- Discover the Oracle VM Server.
- o Configure network and VNICs (Virtual Network Interface Cards).
- o Create a non clustered server pool.
- o Create a zone.
- Create a storage repository.
- Import an Oracle VM assembly in the repository (Oracle Linux 6 + Database 12c)
- o Setup the Infrastructure Self Service portal
- Configure the Chargeback feature

As a Self Service user:

- o Deploy a new Oracle VM virtual machine from the imported assembly.
- Access the new VM and database instance

#### 1.3.2 Part 2: Pluggable Database as a Service

As the super administrator:

- Install the Oracle Enterprise Manager agent on the VM used in part 1
- o Add the database 12c targets (container database and listener)

As the Cloud administrator:

- o Create a PaaS infrastructure zone
- o Setup the Pluggable Database Self Service portal

As a Self Service user:

- Deploy a new pluggable database (PDB)
- o Access the new PDB

#### Note: Operations from Oracle VM Manager desktop

To ease reusability of this lab on any X86 server with any X86 operating system, all operations can be done from the Oracle VM Manager gnome desktop (user **ovm** and password **Welcome1**).

By default, the Oracle VM Manager desktop is configured to use a us/qwerty keyboard layout. If you use a different keyboard, you can change the keyboard layout by modifying Option "XbdLayout" "us" line in the file /etc/X11/xorg.conf (for instance, replace "us" par "fr" for French keyboard layout). Then log out and log in again (user **ovm** and password **Welcome1**)





## 1.4 Global picture

The following picture shows all the components (VirtualBox and Oracle VM virtual machines) with their hostnames and configuration (memory, IP addresses...)

	Oracle VM guest VM Oracle Linux 6 + Database 12c (12.1.0.2) 2 GB ram dev1 IP=192.168.56.11		Oracle VM Virtual machines deployed by Self -Service User
Oracle VM Manager 3.3.3 ovm-mgr IP=192.168.56.3 Oracle VM VirtualBox VM 4 GB ram	Oracle VM Server 3.3.3 ovm-srv IP=192.168.56.2 VIP=192.168.56.4 Oracle VM VirtualBox VM 4 GB ram	Oracle Entreprise Manager Cloud Control 12c R5 emcc IP=192.168.56.5 Oracle VM VirtualBoxVM 5 GB ram	Oracle VM VirtualBox Virtual machines
	p: 16 GB of RAM, Intel i5 cpu (4 Native OS: Oracle Linux 7 (64 bit ovm-laptop, IP=192.168.56.1		x86 Physical machine





ORACLE

VORLD

ORACLE

## 2 Configuration of the Oracle VM environment from EM

## 2.1 Start the 3 servers (VirtualBox VMs)

# IMPORTANT: Since the VMs startup takes about 15 minutes on our laptops, we advise you to start the 3 VMs as soon as possible when you arrive in the room if they are not already started.

As previously explained, we will use Oracle VM VirtualBox to host the 3 servers (Oracle VM Server, Oracle VM Manager and Oracle Enterprise Manager Cloud Control) on a single laptop.

Those 3 servers were pre-installed and preconfigured before this lab to save time. Thus, you just have to start them here.

- a) Start the Oracle VM VirtualBox console if not yet started by clicking icon 划
- b) In this console, you will see the 3 VMs we will use in this lab.

ouvelle Configuration Oublier Démarrer	•	Détails 📴 Ingtant
] HOL10469	📃 Général	📃 Prévisualisation
HOL10469_emcc Éteinte	Nom : HOL10469_emcc Système d'exploitation : Orade (64-bit) Groupes : HOL10469	
HOL10469_ovm_mgr (ii) Éteinte	Système	10110460 0000
HOL10469_ovm_srv	Mémoire vive : 5120 Mo Processeurs : 2 Ordre d'amorçage : Disquette, Optical, Disque dur Accélération : VT-x/AMD-V , Pagination imbriquée, PAE/NX	HOL10469_emcc
	e Affichage	
	Mémoire vidéo : 12 Mo Serveur bureau distant : Désactivé Capture vidéo: Désactivé	
	Stockage	
	Contrôleur : IDE Maître secondaire IDE : [Optical Drive] Vide Contrôleur : SATA Port SATA 0 : HOL 10469_emcc-disk1.vmdk (Normal, 41,00 Gio)	
	Son	
	Pilote hôte : Windows DirectSound Contrôleur : ICH AC97	
	🛃 Réseau	
	Interface 1: Intel PRO/1000 MT Desktop (Réseau privé hôte, 'vboxnet0')	
	🖉 USB	
	Contrôleur USB: OHCI, EHCI Filtres : 0 (0 actif)	
	Dossiers partagés	
	Aucun	
	Déscription	

- c) Select the 3 VMs called "HOL10469\_emcc", "HOL10469\_ovm\_mgr" and "HOL10469\_ovm\_srv"
- d) Click the icon  $\Rightarrow$  to start them
- e) Wait for the 3 VMs to be ready (This will take several minutes)
  - Wait for the prompt "emcc login:" on "HOL10469\_emcc" VM console
  - When this prompt is displayed, all VMs are ready (since EMCC is the longest to start)

Note: If running this lab at office/home on Microsoft Windows machine, you may get a warning about network configuration as the default VirtualBox Ethernet adapter is called "VirtualBox Host-Only Ethernet Adapter" instead of "vboxnet0" on non-Windows machines.





## 2.2 Connect to Oracle Enterprise Manager Cloud Control 12c console

- In the Oracle VM Manager gnome desktop (already logged as user ovm with password Welcome1): a)
  - Switch to Full screen in VirtualBox Console for VM Oracle VM Manager 0
  - 0 Open a Firefox web browser (Applications, Internet, Firefox Web Browser)
  - Connect to Oracle Enterprise Manager Cloud Control 12c console using URL https://192.168.56.5:7799/em 0

Note: You may also use a Firefox web browser from your native operating system (Oracle Linux 7.1 at Oracle OpenWorld)

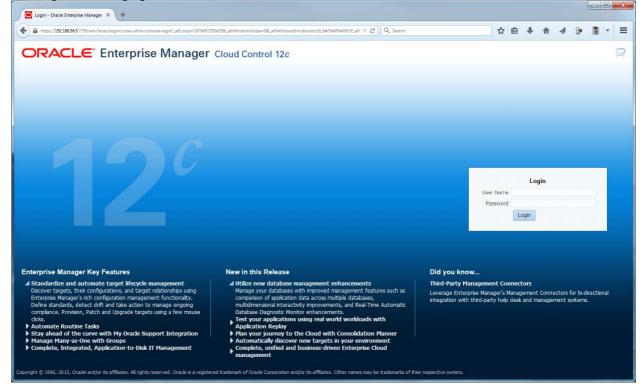
Note: Firefox Security warning

ORACLE

WORLD

Firefox might raise a security warning ("This Connection is Untrusted") since the SSL certificated are self-signed. If so, ignore the warning (Expand "I understand the Risks", then click "Add Exception", and then finally click "Confirm Security Exception").

You will get the following login window b)



- Log in using the following credentials: C)
  - User Name : cloudadm 0
    - Password : cloud

(Oracle Enterprise Manager 12c Cloud Administrator)

0

#### Note: EMCC users.

0

0

In this lab, we will use three different users in Oracle Enterprise Manager:

- cloudadm : the Cloud Administrator
- dev\_vm1 0
- : a Self Service user representing a developer that will request a full virtual machine (Linux 6 + DB12c)
- dev\_pdb1 : a Self Service user representing a developer that will request a DB12c pluggable database (PDB)

Those users were created by the EMCC Super Administrator (sysman) during the preparation of lab environment to save time (see details in Appendix A)







## 2.3 Register the Oracle VM Manager

- a) Ignore "Accessibility Preference" by clicking "Save and continue"
- b) Click Enterprise, Cloud, "Oracle VM Infrastructure Home"

Welcome to Enterprise Manager	× +		
♦ A https://192.168.56.5:7799/em/fac.	es/core-uifwk-console-home?_afrLoop=17108603683498_afrWi	ndowMode=08_afrWindowId=vdovsno16_11#1%40%40%3F_afrWinc 🔍 🕑 🔍 Search	☆ 自 ∔ 合 ∢ 沙 箇 - 三
	Manager Cloud Control 12c		Setup 🔻 🛛 👥 CLOUDADM 👻 🔘
🙆 Enterprise 🔻 🧿 Targets 👻	🚖 Favorites 👻 🥝 Hist <u>o</u> ry 👻		Search Target Name
Summary	lanager Cloud Control 12c		۲
Monitoring  Job  Reports  Configuration  Complance  Provisioning and Patching  Quality Management  My Oracle Support	Oracle Enterprise Manage line, which provides the in enterprise cloud manager value from IT by leveragi	erprise Manager Cloud Control r is Oracle's integrated enterprise IT management product ndustry's only complete, integrated and business-driven ment solution. Oracle Enterprise Manager creates business ng the built-in management capabilities of the Oracle joud environments, allowing customers to achieve	<ul> <li>Total Cloud Control</li> <li>Complete Cloud Lifecycle Management</li> <li>Integrated Application-to-Disk Management</li> <li>Business-Driven Application Management</li> </ul>
Cloud •	Cloud Home	gains while dramatically increasing service levels.	
Chargeback	Oracle VM Infrastructure Home Oracle VM Infrastructure Request Dashboard		
Select Enterprise Mai Choose your personal Home Page Enterprise Manager page as your	JVM Diagnostics Home Testing Home Self Service Portal	- - - UDADM menu > Set Current Page as My Home to select any other ige will appear the next time you log in.	Getting Started  Discover Targets
Click an image below fo	Policies	) button to choose your personal Home Page.	Set up E-mail Notifications
Welcome Page Best for: New User		nap © Summary © Databases	Configure Incident Rule Sets     Customize Monitoring     Set up Administration Groups

## You will see the "Infrastructure Cloud" home page shown below

ORACLE Enterprise N	lanager Cloud Control 12c		Setup 🔻	😫 CLOUDADM 🔻
Enterprise 👻 🎯 Targets 👻 🏫	Eavorites 🔻 🥝 Hist <u>o</u> ry 🕶		Search Target Name	
arget Navigation View <b>- 6</b> 🗐 🏹 🛱	Infrastructure Cloud		Page Refreshed Sep 20, 2015 1:3	9:54 AM GMT-07:(
<ul> <li>Infrastructure Cloud</li> </ul>	General Status 0 Virtual Server Pools 0 OVM Managers 0 Virtual Servers 0 Zones 0 Guest VMs 0	Ø•	Zarget Flux (Last 30 Days)	0
	<ul> <li>Workflow to Set Up Cloud Infrastructure</li> <li>Request Status (%)</li> </ul>	@ <del>.</del>	There has been no new or retired target in last 30 days	
	There is no request.	E		
	Active Policies 0 Successful Executions 0 Evaluations 0 Failed Executions 0 Top Policies	©∙	(%) rota	CPU
	Most Evaluations Most Failed Executions		8	CFO
	Name There are no policy evaluations.	Evaluations	Virtual	
			0-25 25-50 50-75 75-10 CPU (%)	1
			Memory     (%) Javas (%) Javas (%)	Memory





Right click "Infrastructure Cloud" then click "Register OVM Manager" C)



- Enter the following information: d)
  - 0 Name
  - Monitoring Agent 0
- : ovm-mgr : 192.168.56.3:3872

admin

: Welcome1

: tcps://192.168.56.3:54322

(click icon is to select this agent)

- Oracle VM Manager URL 0 Oracle VM Manager Console URL : https://192.168.56.3:7002/ovm/console 0
- Username 0
- Password 0

Then click "Submit"

Oracle VM Manager Registration X +							×
Console-home?_afrLoop=17108603683498_a	afrWindowMode=08cafrWindowId=vdovsno16_11#1%40%2Fvt-ovmMgr- V 🦉	Q. Search	☆自↓		1 30	•	=
ORACLE Enterprise Manager Cloud Control 12c				Setup 🔻	👥 CLOI	JDADM 🔻	0
🐗 Enterprise 👻 💿 Targets 👻 🌟 Favorites 👻 🥝 Hist <u>o</u> ry 👻		Sear	rch Target Name				•
Infrastructure Cloud ③ Infrastructure Cloud ▼		Pi	age Refreshed <b>Sep 20,</b>	2015 1:44	:14 AM (	6MT-07:0	00
Register Oracle VM Manager Register an existing installation of Oracle VM Manager with Enterprise Manager. I * Name ovm-mgr * Monitoring Agent 192.168.56.3:3872 Oracle VM Manager	Make sure that a connection can be established using the specific	d URL. Ensure that the Oracle VM Mana	ger certificate has been	imported in	to the Ag	ent Keysto	ore.
Connection URLs							
* Oracle VM Manager Console URL /192.168.56.3:7002/ovm/console	VM Manager installation. For example, tcp://localhost:54321, tcps nager Console. For example, http:// <server.domain>:<port>/, ht</port></server.domain>						
Monitoring Credentials	Administration Credentials						
Specify the credentials to be used for monitoring Oracle VM Manager.  Username admin  Password ••••••••	Specify the credentals to be used for administration of Use Administration Credentials * Usemame * Password	f Oracle VM Manager.If not specified, it	defaults to the monitori	ing credenti	ls.		
Automatic Synchronization with Oracle VM Manager     The 168 56 5729/em/face/cose/lifek-cose/lifek-cose/life/life/life/life/life/lifek-cose/lifek-cose/life/life/life/lifek-cose/lifek							

A confirmation window will pop-up stating that a job has been successfully submitted and asking whether you want to close the e) window or display the job details.

etails Ck	ose
D	Details Cl





f) Click "Job Details..." to see the job details

	ing window will app	our.						
Job Activity -	- Oracle Enterprise MX							
https://192	2.168.56.5:7799/em/faces/core-uifwk-console-h	ome?_afrLoop=17108603683498c_afrWind	owMode=0&_affWindowId=vdov	snol6_11#19640%2Fsdk%2FnonI V C	Q. Search	☆ 1	<b>à ∔ ∧</b>	a 😕 🔳 -
RACL	Enterprise Manager Cloud	d Control 12c					<u>S</u> etup	- 👥 CLOUDADM -
<u>E</u> nterprise <del>•</del>	💿 Targets 🔻 🏫 Favorites 🔻 🥝	Hist <u>o</u> ry <del>*</del>				Search Target Nam	e	
,								
b Activity							Aut	Refresh Off
Ivanced Se Name Owner Status	e RegisterOvmManager_CLOUDADM_	2015-09-20_01-47-07		Job Type 7 Target Type 7 Target Name	Al 🔹	•	6	
Start		ir the selected period.		the second se	Go Simple Search			
							0	
View Results	Edit Create Like Copy To Library	Suspend Resume Stop	Delete View Runs	<ul> <li>Create Job</li> <li>OS Co</li> </ul>	ommand	▼ G	0	
View Results Select Name		Suspend Resume Stop	Delete View Runs Status (Executions)	Create Job   OS Co	Targets	Target Type	Owner	Job Type

- g) Select "**15 seconds**" in the "**Auto Refresh**" drop down menu (By default, this page does not refresh automatically).
- h) Wait for the job to finish (look for Status to show "Succeeded")

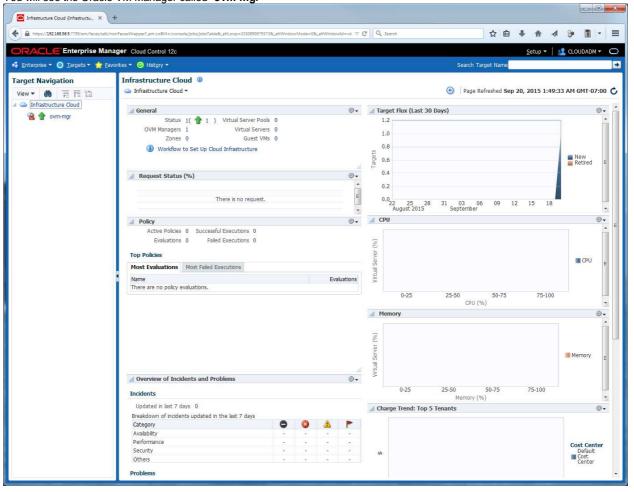
) 🔒 hi	tps:// <b>192.168.56.5</b> :7799/em/faces/core-uifwk-console-home?_afrLoop=17108603683498c_afrWindo	wMode=08cafrWindowId=vdov	sno16_11#19640%2Fsdk%2FnonI ♥ (	C Sec	arch .	☆ 🖻	1	1	e 🔳 -	
RA	CLE Enterprise Manager Cloud Control 12c						Setup	- 1 12	CLOUDADM -	
Enter	orise 🔻 🧿 Targets 🔻 🊖 Favorites 👻 😌 Hist <u>o</u> ry 👻					Search Target Name	2			
b										
						Page Refresh	ed Sep 20, 2	015 1:48:	52 AM PDT	C
							Auto	Refresh	15 seconds	ŀ
b Ac	tivity									
dvane	ed Search									
	Name RegisterOvmManager_CLOUDADM_2015-09-20_01-47-07		Job Type	All						
	Owner CLOUDADM 💌		Target Type	All						
	Status All		Target Name				1			
	Start All			Go Sim	ple Search					
	Show jobs scheduled to start during or after the selected period.									
View R	esults Edit Create Like Copy To Library Suspend Resume Stop	Delete View Runs	Create Job OS	ommand		- G0	0			
Select	Name	Status (Executions)	Scheduled 💌		Targets	Target Type	Owner	Job Type	1	
	REGISTEROVMMANAGER_CLOUDADM_2015-09-20_01-47-07-196	1 Succeeded	Sep 20, 2015 1:47:07 AM G	4T-07:00	192.168.56.3:3872	Agent	CLOUDADM	Register	OVM Manage	r

- i) If it fails, start again from step a), you might have entered incorrect information.
- j) Click Enterprise, Cloud, "Oracle VM Infrastructure Home" to go back the "Infrastructure Cloud" home page.





You will see the Oracle VM Manager called "ovm-mgr"







## 2.4 Discover the Oracle VM server

a) Right click the "ovm-mgr" server shown on the "Infrastructure Cloud" home page, then click "Discover Virtual Server"



- b) Enter the following information in the new window: o Virtual Servers : 192.168.56.2
  - Virtual Servers : 192.168.56.2
     Oracle VM Agent Credentials (The Oracle VM Agent runs on the Oracle VM Server)
    - User Name : oracle
    - Password : ovsroot

Then click "Submit"

Discover Virtual Servers own-mg. X +	
🗲 🗎 https://1921685657799/em/faces/sdl/nonFaces/Wapper?_em.coBM=/console/jobs/jobs/jobs/jobs/able8_affLoop=2330890979373&_affWindowMode=98_affWindowid=vd 🔍 C 🗌 🔍 Se	여야 🗘 自 🖡 🎓 🖉 🔻 🗄
DRACLE Enterprise Manager Cloud Control 12c	Setup 🗸   📲 CLOUDADM 🗸 📿
🖁 Enterprise 🔻 🔘 Iargets 👻 🌟 Favorites 👻 🥝 History 👻	Search Target Name
<mark>r ovm-mgr ®</mark> <b>≧</b> VM Manager ▼	Page Refreshed Sep 20, 2015 1:51:44 AM PDT C
Discover Virtual Servers	Submit Cancel
Virtual Servers	
Specify long host name(FQDN) or IP address. To enter multiple entries, enter each new host name/IP address/IP range in a new line 192.168.56.2	
Oracle VM Agent Credentials Specify the Oracle VM Agent Username and Password for the vitual servers to be discovered.	
Vuer Name oracle     Password     Password	

- c) In the "Confirmation" window, click "Job Details..." to see the job details.
- d) Wait for the job to finish (look for Status to show "Succeeded")







## 2.5 Configure the network

ORACLE

VORLD

A basic network configuration was automatically done during the Oracle VM Server discovery.

A single network called "192.168.56.0" was created with the following roles:

- Server Management
- Cluster HeartBeat
- o Live Migration

The "Storage" role is used when accessing storage with IP protocol (NFS or ISCSI). In our case, we will use a physical disk, so we don't need the storage role.

The "Virtual Machine" role gives access to network(s) to the virtual machines, so we need to have at least one network with this role. In our case, we will create a new network for this role, using the second Ethernet Adapter on the Oracle VM Server (eth1).

For simplicity here, we will use the same network **192.168.56.0** (virtual network defined in VirtualBox manager) and IP address **192.168.56.6** for this port. In real life, it is recommended to use a different network.

- a) Click Enterprise, Cloud, "Oracle VM Infrastructure Home" to go back the "Infrastructure Cloud" home page.
- b) Right click "ovm-mgr" then click "Manage Network"
- c) Click Create

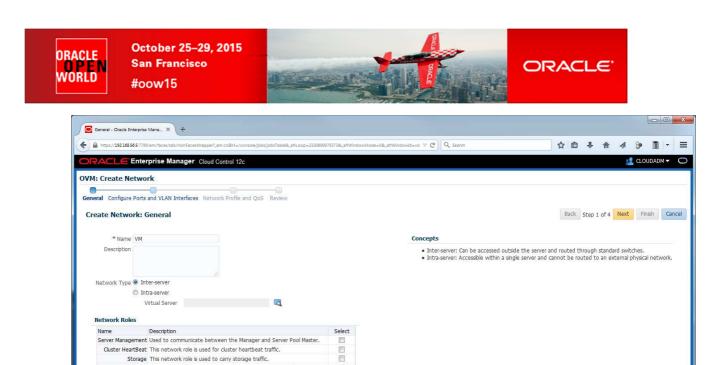
https://192.168.56.5:7799/em/faces/sdk	k/nonFacesWrapper?_em.coBM=/con	nsole/jobs/jobsTable&_afrLoop	o=2330890979373&_afrWi	ndowMode=08_af/Windowi	d=vd 🛡 C 🛛 🔍 Search	5		☆自♣	^ ∧	9 🔳 -
ORACLE Enterprise Ma	anager Cloud Control 12c							S	etup 🔻   🎎	CLOUDADM -
🚯 Enterprise 👻 💿 Targets 👻 🏫 E	Favorites 👻 🥝 Hist <u>o</u> ry 👻						Search Targ	at Name		
Target Navigation View マ 🍈 🗐 🏗 🟗	<b>1 ovm-mgr</b>						Pa	ige Refreshed <b>Se</b> j	20, 2015 1:	192.16 192.16
The second secon										
<ul> <li>Infrastructure Cloud</li> <li></li></ul>		Interfaces Virtual Net	ysical NIC ports.	Manager						
Infrastructure Cloud	Networks VLAN I		ysical NIC ports.	Manager	Network Dela			Search		D
Sinfrastructure Cloud	Networks VLAN I	uping of virtual server ph	ysical NIC ports.	Manager Cluster HeartBeat	Network Role Virtual Machine	Storage	Live Migrate	Search Network Type	5 Descripti	

#### d) Click "Continue Network Creation"

Confirmation		×
If the Virtual Server(s) are connected to VLAN enable	ed switches, the Virtual Server	ports can be managed using VLAN Groups.
Do you want to create a VLAN Group before creating	g a Network?	
	Create VLAN Group	Continue Network Creation Cancel

- e) In the "Create Network: General" window,
  - Enter "VM" for Name
     Leave default values (Network Type "Inter-server", and Role "Virtual Machine")
  - Click Next





- In the "Create Network: Configure Ports and VLAN interfaces" window, f)
  - In the Ports panel, click Add 0

Cluster HeartBeat This network role is used for cluster heartbeat traffic. Storage This network role is used to carry storage traffic. Live Migrate This network role is used for virtual machine live migration data.

Virtual Machine Used to carry network traffic to Virtual Machines.

View 🕶	👍 Add 🚬 💥 Remove						
Port	R.	MAC Address	MTU	Address Type	IP Address	Netmask	Bonding Mode

- Select Virtual Server ovm-srv.example.com, 0 This will add line "ovm-srv.example.com: eth1 on server ovm-srv.example.com" in the Ports list
- 0 Select port eth1 (line ovm-srv.example.com: eth1 on server ovm-srv.example.com)
- click Continue 0

Add Ports - Oracle Enterprise Ma X +									×
https://192168.56.5:7799/em/faces/sdk/nonFacesWrapper?_em.coBM=/conso	le/jobs/jobsTable&_afrL	.oop=23308909793738t_afrWindowMod	e=08c_afrWindowId=vd . ⊽	C <sup>d</sup> Q, Search	☆自	∔ ♠	4 9		=
ORACLE Enterprise Manager Cloud Control 12c							👱 а.	OUDADM 🔻	0
OVM: Create Network									
General Configure Ports and VLAN Interfaces Network Profile	and QoS Review	v							
Configure Ports and VLAN Interfaces: Add Ports									
Select the ports to be added. If more than one ports of a virtual ser	ver is selected, the	ey will be bonded.					Contin	ue Cance	E
							Contan	Calice	-
Select Virtual Server(s) ovm-srv.example.com	a								
Port	MTU	MAC Address	Status						
ovm-srv.example.com : eth1 on ovm-srv.example.com	1500	08:00:27:f4:08:c8	-						

- In the "Create Network: Configure Ports and VLAN Interfaces" window, enter IP address 0
  - "Adress Type" : select "Static"
    - : enter 192.168.56.6 "IP Address" "Netmask" : enter 255.255.255.0
  - Then click Next





ate Netw	ork: Conf	igure Ports	and VLAN Inte	erfaces							Back Step	p 2 of 4	Next	Finish	Ca
All the select	ed VLAN Inte	erfaces should h	iave same segment	ID.											
I selected \	/LAN Interfac	es <mark>should</mark> be or	n different Servers.												
LAN Interf	aces														
View 🕶	👍 Add	💥 Remove													
Name	р	ort	Segment	Server Name	Network	MTU	l.	Address Type	IP Address	Netmask					
	erfaces Adde	u.													
	enaces Aude														
orts															
orts	Add			MAC Address	мτυ	A	Address Type	IP Address	Netmask	Bonding Mode					

g) In the "Create Network: Network Profile and QoS" window:

OVM: Create Network		
General Configure Ports and VLAN Interf	Natural Brails and OaS Barlau	
General Conligure Ports and VLAN Inten	des Network Frome and dos Review	
Create Network: Network Profile	and QoS	Back Step 3 of 4 Next Finish
Select Network Type	<b>R</b> ×	
90.90.00099999999999999999999999	₩ <b>X</b>	
Select Network Type Network Profiles	R×.	
90.90.00099999999999999999999999	₩ <b>X</b>	

- o Select "Non Internet Routable" and click Select
- In the "Network Profile" section, click Add
- Select the "dev\_netprofile" profile and click OK

#### o Click Next

Network Profile and QoS -	Oracl X +									
https://192.168.56.5.779	//em/faces/sdk/nonFacesV	rapper?_em.coBM=/conso	e/jobs/jobsTable&_afrLoo	p=2330890979373&_afrWindowMode=	08c_afrWindowid=vd ⊽ C <sup>d</sup> Q Search	☆自	+ ♠		8 1	
	rprise Manager	Cloud Control 12c						1	CLOUDAD	м – С
Create Network: I General Configure Ports Create Network: I Select Network Type	and VLAN Interfaces	and QoS				Back	Step 3 of 4	Next	Finish	Cance
Network Profiles										
Add X	Remove Domain Name	Net Mask	Gateway	DNS Server						





h) In the "Create Network: Review" window, click Finish

https://192.168.56.5	5:7799/em/faces/sdk/no	nFacesWrapper?_em.coBM=/c	nsole/jobs/jobsTable&_afrL	.oop=23308909793738CatrV	WindowMode=U8_a	trWindowid	avd ∀ C Q Se	arch		☆自	*	m	-74	09 [	
RACLE'S	nterprise Mana	ger Cloud Control 12											2	CLOUDA	DM -
: Create Net	work														
}		0													
eral Configure P	orts and VLAN Inte	rfaces Network Profile	nd QoS Review												
eate Networ	k: Review									Back	Step 4	of 4	Next	Finish	0
tings for the	e new created	network													
Name															
Description															
Network Roles	Name	Description				Select									
		Used to communicate	etween the Manager	and Server Pool Mast	ter.										
(	Cluster HeartBeat	This network role is use	d for cluster heartbea	at traffic.											
	Storage	This network role is use				-									
	Live Migrate Virtual Machine	This network role is use Used to carry network				~									
	Victal Machine	Used to carry network	arrite co vircual macrii	1165.											
Network Type VLAN Interfac Name No VLAN Interfac	Port	Jtable Segment	Server Name	Network	MTU		Address Type	IP Address	Netmask						
VLAN Interfao Name	es Port		Server Name	Network	MTU		Address Type	IP Address	Netmask						
VLAN Interfac	es Port		Server Name	Network	MTU		Address Type	IP Address	Netmask						
VLAN Interfac	es Port		Server Name	Network	MTU		Address Type	IP Address	Netmask						
VLAN Interfac	es Port			Network	MTU		Address Type	JP Address	Netmask						
VLAN Interfac Name No VLAN Interf	es Port				MTU		Address Type	IP Address	Netmask						
VLAN Interface Name No VLAN Interface VLAN Interface Ports Ports	es Port aces Added. MAC Addr	Segment	Address Type	IP Address	Netmask		Address Type Bonding Mode	JP Address	Netmask						
VLAN Interface Name No VLAN Interface VLAN Interface Ports Ports	es Port aces Added.	Segment		III		:55.0		IP Address	Netmask						
VLAN Interface Name No VLAN Interface VLAN Interface Ports Ports	es Port aces Added. MAC Addr	Segment	Address Type	IP Address	Netmask	:55.0		IP Address	Netmask						
VLAN Interface Name No VLAN Interface VLAN Interface Ports Ports	es Port aces Added. MAC Addr	Segment	Address Type	IP Address	Netmask	155.0		IP Address	Netmask						
VLAN Interface Name No VLAN Interface VLAN Interface Ports Ports	es Port aces Added. MAC Addr	Segment	Address Type	IP Address	Netmask	:55.0		JP Address	Netmask						
VLAN Interface Name No VLAN Interface VLAN Interface Ports Ports	es Port aces Added. MAC Addr	Segment	Address Type	IP Address	Netmask	:55.0		JP Address	Netmask						
VLAN Interface Name No VLAN Interface VLAN Interface Ports Ports	es Port aces Added. MAC Addr	Segment	Address Type	IP Address	Netmask	:55.0		JP Address	Netmask						
VLAN Interface Name No VLAN Interf VLAN Interf Ports Ports ovm-srv.exa	es Port aces Added. MAC Addr umple 08:00:27:	Segment	Address Type STATIC	IP Address	Netmask	55.0		JP Address	Netmask						
VLAN Interfac Name No VLAN Interfa Vorts Ports Port ovm-srv.exa	es Port aces Added. MAC Addr umple 08:00:27:	Segment ess MTU 14:08:c8 1500	Address Type STATIC	IP Address	Netmask	55.0		IP Address	Netmask						

- i) In the "Confirmation" window, click "Job details..." to see the job details.
- j) Make sure that "Auto Refresh" is set to "15 Seconds".
- k) Wait for the job to finish (look for Status to show "Succeeded")

#### Note: network profile

A network profile is used to automate assignment of IP addresses to guest virtual machines. A network profile is a list of IP address along with host names. It defines a set of IP addresses, their associated host-names, and common networking attributes for them.

During the preparation of the lab, we created a network profile called **dev\_netprofile** with the following parameters:

- o IP addresses : 192.168.56.11 to 192.168.56.20 (range of 10 addresses)
  - o Netmask : 255.255.255.0
  - Hostnames : dev1 to dev10
  - o Domain name : example.com
  - Gateway : 192.168.56.1
  - DNS : **192.168.56.1**

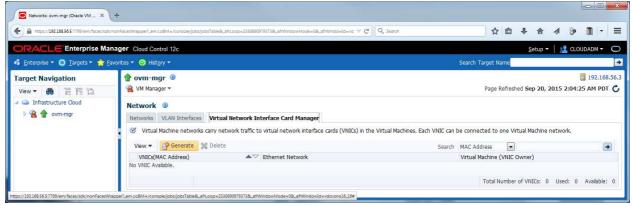


## 2.6 Create the VNICs

ORACLE WORLD

We will now create some VNICs (Virtual Network Interface Cards) that will be used later by the Oracle VM virtual machines.

- a) Click Enterprise, Cloud, "Oracle VM Infrastructure Home" to go back the "Infrastructure Cloud" home page.
- b) Right click "ovm-mgr" then click "Manage Network"
- c) Click the "Virtual Network Interface Card Manager" tab
- d) Click "Generate" to create VNICs.



ORACLE

e) Leave default values for the initial MAC Address (00:21:F6:00:00:00) and for the number of addresses (25) and click "Create"



Note: Since the VirtualBox virtual machines network connections are "host only", they cannot have access to external network, so we can use the same MAC addresses for the VNICs on the all laptops during Oracle OpenWorld Hands On Lab.

f) In the "Confirmation" window, click "Close".
 (We will save time here by not looking at the job details)







#### 2.7 Create a server pool

ORACLE WORLD

A virtual server pool contains one or more virtual servers and guest virtual machines. A virtual server can belong to one and only one virtual server pool at a time. Guest virtual machines and resources are also associated with the server pools. A clustered server pool may contain several virtual servers sharing a storage system. VMs within a clustered server pool may be live migrated from a virtual server to another.

We will now create a non-clustered server pool using the single Oracle VM server we have. (we cannot create a clustered server pool since we don't have a shared storage system here).

In the "Infrastructure Cloud" home page, right click "ovm-mgr" and then click "Create Virtual Server Pool" a)

Networks: ovm-mg													4 0		
A https://192.168.5	6.5:7799/em/faces/sdk/no	nFacesWrapper?_em.c	:oBM=/console/jobs/job	bsTable&_afrLoop=2	3308909753738c_afrWi	indowMode=08_afrWindo	owid=vd ⊽ C	Q. Search	12		+	合			Ξ
ORACLE	Enterprise Mana	ger Cloud Con	trol 12c								Set	up 🔻	👥 CLC	UDADM -	C
🔹 Enterprise 👻 🎯	Targets 🔻 🏫 Favo	rites 👻 🧿 Hist <u>o</u>	ory <del>▼</del>						Search Target I	lame					E
Target Navigati View <b>- 8</b>	ion 同門 12	👚 ovm-mi							Page	Refreshee	Sep	20, 20		192.16 25 AM PD	
<ul> <li>Infrastructure</li> <li></li></ul>		Network	0												
	Members Edit Synchronize		/LAN Interfaces achine networks of Generate	carry network tr		- (200 M 12 - 200 - 200 - 200 L	s (VNICs) in the	Virtual Machines. Each VNIC can Search	be connected to	one Virtu	ial Mac	hine ne	etwork.	16	•
	Deregister Create Zone		C Address) ible.		▲▽ Ethernet	Network			Virtual Machine		vner)				
	Create Virtual Ser Discover Virtual S Manage Unowner	erver													
	Manage Network Manage Storage Manage Storage														
	Manage YUM Rep	ository													

(non-clustered pool)

b) In the "Create Virtual Server Pool" window, enter the following information

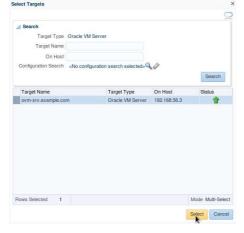
- Virtual Server Pool Name
- : devpool
- 0 Activate Cluster 0

0

: <unchecked>

Virtual IP

- : 192.168.56.4
- In the "Virtual Servers" section, click + Add... to choose the server to add to the pool c)
- In the "Select: Targets" window, select the target "ovm-srv.example.com" and click "Select" d)







e) When back in the "Create Virtual Server Pool" window, click "OK" to create the pool

https://192168.56.5:7799/em/faces/sdk/nonFaces/Kapper?_em.coBM=/console/jobs/jobsTable&_aftLoop=2330890979373&_aftW	indowMode=08_affWindowid=vd ⊽ C Q. Search 🟠 🖨 🖡	♠ ∢	9	•	
ORACLE Enterprise Manager Cloud Control 12c	2	etup 🕶 📔		DADM 🕶	ç
🖁 Enterprise 🔻 🧿 Iargets 👻 🚖 Favorites 👻 🥝 Hist <u>o</u> ry 👻	Search Target Name				
<mark>} ovm-mgr ③</mark> ≧ VM Manager <del>-</del>	Page Refreshed Se	p <mark>20, 201</mark> 5		192.16	
Create Virtual Server Pool			ОК	Cance	el
* Virtual Server Pool Name devpool	Concepts				
Description Keymap en-us (Englich, United States) • VM Start tolky Start on Best Server • Secure VM Migrate © Secure VM Migrate © Custer Timeout (sec) 120 © Type of Pool File System @ Network File System Physical Disk Location @TTP File System must be refreshed before they can be used. * Virtual IP 192 , 168 56 . 4 @TTP Virtual IP should be an unused IP Virtual Servers Virtual Servers Name ovm-srv.example.com	<ul> <li>Secure VM Migrate: Select whether to enable encrypted migration of virtual ma Migrate is checked, virtual machines are migrated using SSL to protect the data process.</li> <li>Activate Cluster: Select whether to enable clustering of the Oracle VM Servers in HA.</li> <li>Cluster Trimeout: When enable Activate Cluster, allow to set the timeout in sec heartbeat and network heartbeat are denined from the cluster timeout value.</li> <li>Pool FIE System: The server pool file system is used to hold the server pool and used for cluster heartbeating. The size of Pool FIE System should be at least 12</li> <li>For Clustered Serverov Mikh exposes the Network FIE System. The Networ refreshed before it can be used as Pool Fie System.</li> <li>The Pool FIE System(NFS or Physical Disk) should be accessible on all the virtual Virtual IP: An Baddress used to identify the master Oracle VM Server, which co Server in the server pool.</li> </ul>	during the r in the server onds for clus cluster data GB. m, Admin Se rik File Syste servers in th	nigration pool to e ter. Disk a, and is al erver musi m should ie ServerF	enable Ilso It be be Pool.	

- f) In the "Confirmation" window, click "Job details..." to see the job details.
- g) Make sure that "Auto Refresh" is set to "15 Seconds". Wait for the job to finish (look for Status to show "Succeeded")
- h) Click Enterprise, Cloud, "Oracle VM Infrastructure Home" to go back the "Infrastructure Cloud" home page.
- i) Click "View", "Expand All" to see all components



j) You should now see the newly created pool called "devpool"

https://192168.56.5:7799/em/faces/sdk/nc	nFacesWrapper?_em.coBM=/console/jobs/jobsTable&_aftLoop=2330890979373&_aftWindowMode=0&_aftW	Windowid=vd ⊽ C	Q Search	合自 🖡		9 🖺 -
ORACLE Enterprise Mana	Iger Cloud Control 12c				<u>S</u> etup 🔻	CLOUDADM -
🍕 Enterprise 🔻 🎯 Targets 👻 🐈 Eav	orites 🔻 🥹 Hist <u>o</u> ry 🔻		Search Target	Name		
Target Navigation       View ▼     ●       ↓     ↓       ↓     ↓       ↓     ↓       ↓     ↓       ↓     ↓	Infrastructure Cloud 0 Infrastructure Cloud •		Page Refresh	shed <mark>Sep 20,</mark>	, 2015 2:09:	06 AM GMT-07:00





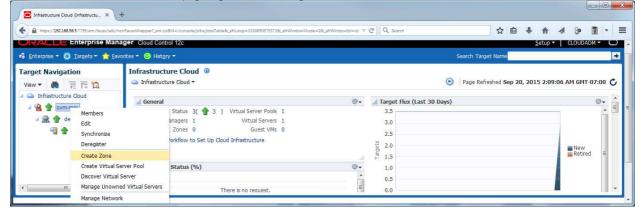
## 2.8 Create a zone

ORACLE WORLD

A zone is used to group related cloud resources together. Cloud zones can be created based on location, software lifecycle status, for grouping resources according to a cost center or for metering and chargeback purposes. Typically, a zone can cover a department or possibly a small data center.

Note: Zones are Enterprise Manager Cloud Control objects, and thus are not known by Oracle VM Manager

a) In the "Infrastructure Cloud" home page, right click "ovm-mgr", then click "Create Zone"



- b) In the "Create Zone" window:
  - Enter **devzone** as the Name
  - Check the box "Infrastructure Cloud Self Service Zone"
  - click + Add... to add a pool to the zone
  - In the "Select Virtual Server Pools" window:

elect virtual Server Pools	<ul> <li>Oracle Enterprise Mana</li> </ul>	ger	
Select Virtual Serve	r Pools		Ç
Search     Target Name			Search
Target Name	Target Type	On Host	Status

#### IMPORTANT: make sure not to forget this

0

Click OK to actually create the zor	e		
Create Zone: ovm-mgr (Oracle V., X +			
	=/console/jobs/jobsTable8_afrLoop=23308909793738_afrWindowMode=08_afrWindowId=vd 💎 🕻	ල් 🔍 Search 📩 🔂 💼	+ A 9 🔟 - =
ORACLE Enterprise Manager Cloud Control	12c		Setup 🔻 📃 🕵 CLOUDADM 👻 🔘
🐔 Enterprise 🔻 🎯 Targets 🔻 🌟 Favorites 🔻 😔 Hist <u>o</u> ry	é .	Search Target Name	H
👚 ovm-mgr 💿 🔏 VM Manager 🔻			192.168.56.3
Create Zone			OK Cancel
* Name devzone			
Description			
Infrastructure Cloud Self Service Zone     Only zones marked as Infrastructure	ai Cloud Self Service Zone will be available in the Self Service Portal		
Virtual Server Pools			
🕂 Add 💥 Remove			
Virtual Server Pool Name	Virtual Servers		
devpool	1		

- c) In the "Confirmation" window, click "Job details..." to see the job details.
- d) Wait for the job to finish (look for Status to show "Succeeded")





## 2.9 Create a storage repository

ORACLE

VORLD

A **storage repository** is virtual disk space on top of physical storage hardware, made available to the Oracle VM Servers in a server pool or various server pools. It defines where Oracle VM resources may reside. Resources include virtual machines, templates for virtual machine creation, virtual machine assemblies, ISO images, shared virtual disks, and so on.

We will create a storage repository for Oracle VM on a local HDD (150 GB) on the Oracle VM Server.

- a) Click Enterprise, Cloud, "Oracle VM Infrastructure Home" to go back the "Infrastructure Cloud" home page.
- b) Right click "ovm-mgr", then click "Manage Storage Repository"

https://192168565:7	799/em/faces/sdk/nonFi	acesWrapper?_em.co	8M=/console/jobs/jobsTable&_afrLoop=2330890979373&_afrWindowMode=	08_sfiWindowld=vd ⊽ C	Q. Search	☆自	+ 1	ñ 4	90	-
	terprise Manag	er Cloud Cont	rol 12c				<u>S</u> etu	ip <del>+</del>	1 CLO	JDADM -
<u>E</u> nterprise 🔻 🔘 <u>T</u> a	rgets 🔻 🏫 <u>F</u> avorit	es 👻 🧿 Hist <u>o</u> r	y <del>v</del>		Sear	h Target Name				
	F 🛍	Infrastruct	ure Cloud 💿		🕑   Pa	ge Refreshed <b>Sep</b>	20, 201	5 2:14:4	18 AM 0	MT-07:0
Infrastructure Clo	ud	d General		©+	⊿ Target Flux (Last 30 Days)					0
A 👷 🎓 dev Edit A 🏦 🎓 Synch	Members Edit Synchronize Deregister Create Zone		Status 4( 🌪 4 ) Virtual Server Pools 1 nagers 1 Virtual Servers 1 Zones 1 Guest VMs 0 rkflow to Set Up Cloud Infrastructure		4.5 4.0 3.5 3.0 2.5 2.5 2.5			New Retired		ew stired
	Create Virtual Serv Discover Virtual Se Manage Unowned Manage Network	rver	Status (%) There is no request.	©- E	1.5 1.0 0.5 0.0 22 25 28 31 03	06 09 1	2 15	18		
	Manage Storage				August 2015 Septem	Der				0
	Manage Storage R Manage YUM Repo Manage NTP Conf	ository	Policies 0 Successful Executions 0 Jations 0 Failed Executions 0	<b>\$</b> .	120 (%) 100 (%) 80					

c) In the "Storage Repository" window, click "Create"

https://192.168.56.5:7799/em/faces/sdl	/nonFacesWrapper?_em.coBM=/c	onsole/jobs/jobs'	Table&_afrLoop=2330890979373&_afrWi	ndowMode=08_afrWindov	id=vd ⊽ C Q Search	☆自・	F 🕆 🖇 🕽	
ORACLE Enterprise Ma	nager Cloud Control 12	c					Setup 🔻   🤮 CLOUDA	ADM 🕶
🚯 Enterprise 👻 🎯 Targets 👻 🏫 j	avorites 👻 🧿 Hist <u>o</u> ry 👻					Search Target Name		
View ▼     ●     ≡     □       ✓     ▲     ▲     □     □	<sup>⊕</sup> ovm-mgr <sup>⊕</sup> VM Manager ▼             Storage Repose					Page Refreshed	i Sep 20, 2015 2:15:22 A	192.168 AM PDT
4 😤 👕 ovm-mgr 4 👷 👚 devzone	View - Cre	ote d In Owned	nport 👻 🥒 Edit 💥 Di File System File System Size	elete 👩 Auto-Re Disk	fresh Share Path	Storage Server	Description	
✓ 2		Owned	Size (GB) Used (%)	DISK	Share Paul	scolage server	Description	

- d) In the "Create Repository" window,
  - o Enter "devrepo" as the name of the repository
  - Select "Physical Disk" as the storage type

* Name	devrepo	
Storage Type	Network File System	
	Physical Disk	

- Click the icon A next to "Location" to choose the physical disk to use
- This will open the "LUN Selector" window
- Select the 150 GB local HDD and click "OK"

View 🕶	Name		rage All erver	
Name			Status	Size (GB)
1ATA_	VBOX_HARDDISK_VBa	aae6e6f0-5dd8c0bd		150.0
OVM S	SYS REPO PART 1AT	A_VBOX_HARDDISK_VB4a8c1bcd	-927	45.84

Note: The second HDD (45.84 GB) corresponds to the remaining unpartitioned space on the Oracle VM server boot disk





- o Click the icon 🥄 next to "Server Pool" to choose the server pool to use
- This will open the "Select: Targets" window
- Select the target "devpool" and click "Select"

arch and Select: Target	s - Oracle Enterprise Manager		
earch and Select:	Targets		
Search			
Target Name			
			Search
Marcan College Service		On Host	
Target Name	Target Type	On Host	Status

• Finally, click "OK" to create the repository

Create Reposit	ory	×
* Name	devrepo	
Storage Type	Network File System	
	Physical Disk	
* Location	1ATA_VBOX_HARDDISK_VBaae6e	9
* Server Pool	devpool	Q
Description		
	OK Car	icel

- e) In the "Confirmation" window, click "Job details..." to see the job details.
- f) Wait for the job to finish (look for Status to show "Succeeded")
- g) Click Enterprise, Cloud, "Oracle VM Infrastructure Home" to go back the "Infrastructure Cloud" home page.
- h) Right click "ovm-mgr", then click "Manage Storage Repository"

You should now see the newly created repository called "devrepo"

acesWrapper?_em.coBM=	/console/jobs/jobs1	able8_afrLoop = 23308909793738c_afrWind	lowMode=08_afrWindowld=vd ⊽ C	Q. Search	☆ 自 ♣	☆ 🌮 🗓 -
er Cloud Control 1	2c				Se	tup 🔻   👥 CLOUDADM 👻 🕻
tes 👻 🥝 Hist <u>o</u> ry 👻					Search Target Name	
<pre>     ovm-mgr ④</pre>					Page Refreshed <b>Sep</b>	20, 2015 2:21:01 AM PDT
		mort - 2 Edit 🔍 Dol	ato 🖉 Auto Pofrach			
Name	Owned	File System File System Size Size (GB) Used (%)	Disk	Share Path	Storage Server	Description
devrepo	Yes	150 3	1ATA_VBOX_HARDDISK_VBa		Local FS ovm-srv.example.com	
	er Cloud Control 1 tes C History - Torman or C With Manager - Storage Report View - C Name	er Cloud Control 12c tes ~ O Hetgry ~ To own-mgr @ VM Manager ~ Storage Repository @ View ~ Create Im In Name Owned	er Cloud Control 12c tes - O Hetory - Town-mgr 0 VM Manager - Storage Repository 0 View - Create Import Colt Storage Name Owned File System File System Size Size (GB) Used (%)	er Cloud Control 12c tes - O Hsteyr + P orm-mgr @ VM Manager + Storage Repository @ View + C Create Import + // Edit Import Impor	tes *      History *     form-mgr     ves *     VM Manager *      Storage Repository      Vew *     Greate     Import *     Zett      Delete     GAuto-Refresh     View *     View *     Owned     File System File     System Size     Size (GB) Used (%)     Disk     Share Path	er Cloud Control 12c Search Target Name

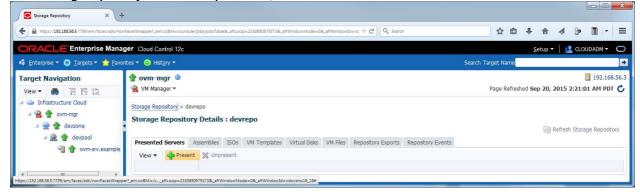




## 2.10 Present the repository to the Oracle VM server

Before it can be used by our Oracle VM Server, our storage repository must first be presented to this server.

- a) In the "Storage Repository" window, click the repository "devrepo"
- b) In the "Storage Repository Details: devrepo" window, click "Present"



c) In the "Present Servers" window, click "Select Servers"

View - Q Select Servers		
Name	Туре	

d) In the "Select Targets" window,

O O Select	Then c		eckbox in front of "devzone" Select"	8
	VM Manager	ovm-mar		8
🖌 Me	mbers			
Search	Name \star		Go	
View	- Pete	ach		
Name		Status	Туре	

(NOTE: it may take a few seconds to display devzone)

In the "Present Servers" window, you should now see the server "ovm-srv.example.com"

#### e) Click "Present"

resent S	ervers		
View 🕶	Select Servers		
Name		Туре	
ovm-srv.e	kample.com	Oracle VM Server	

- f) In the "Confirmation" window, click "Job Details..." to see the job details.
- g) Wait for the job to finish (look for Status to show "Succeeded")





#### Instance as a Service: configuration 3

#### 3.1 **Request Settings**

The infrastructure cloud based on Oracle VM is now setup. We will now authorize some Self Service users to deploy their own virtual machines on the zone we created using an Oracle VM assembly for Database 12c. We will also setup some resource limits to avoid a specific user to consume all resources.

In this "Request Settings" section, we will configure miscellaneous settings.

a) Click Setup, Cloud, Infrastructure

nFacesWrapper?_em.coBM=/console/jobs/jobsTable8_afrLoop=23308909793738_afrWindowMode=0/	&_afrWindowld=vd ⊽ C	Q. Search	☆ 自 ♣	A 🖗 🖺	•
iger Cloud Control 12c				Setup 🔻 🛛 👥 CLOUDADM	Ŧ
orites 🔻 😌 Hist <u>o</u> ry 👻			Search Target Name	Add Target	•
Infrastructure Cloud <sup>®</sup>			Deep Defeated Car 20	Extensibility Proxy Settings	•
Intrastructure cloud ▼			Page kerresned Sep 20,	Security	۲
General	⊚.		Days)	Incidents Notifications	,
OVM Managers 1 Virtual Servers 1		4.0	Infrastructure	Cloud	+
Zones 1 Guest VMs 0 Workflow to Set Up Cloud Infrastructure		3.5 3.0 2.5 2.0	Database Middleware Testing	Provisioning and Patching My Oracle Support Middleware Management	,
A Request Status (%)		1.5 1.0		Manage Cloud Control Command Line Interface	,
	ger Cloud Control 12c rites ♥ ♥ History ♥ Infrastructure Cloud ●	ger Cloud Control 12c rites ♥ ● Hetgry ♥ Infrastructure Cloud ● ● Infrastructure Cloud ● ■ General Status 4( ● 4 ) Virtual Servers 1 OVM Managers 1 Virtual Servers 1 Zones 1 Guest VMs 0 ● Workflow to Set Up Cloud Infrastructure	Infrastructure Cloud ● Infrastructure Cloud Infrastructure Cloud Infrastructure Cloud Planter Cloud	ger Cloud Control 12c         rites ✓        Histary ◆         Infrastructure Cloud ●       ●         Infrastructure Cloud ●       ●         Infrastructure Cloud ●       ●         Image: Status 4( ● 4 ) Virtual Server Pools 1       0         OVM Managers 1       Virtual Servers 1         Zones 1       Guest VMs 0         Image: I Guest VMs 0       3.5         Image: I Guest VMs 0       0         Image: I Guest VMs 0       0 <td>ger     Cloud Control 12c     Setup •     CLOUDADM       rites •     ● Histary •     Search Target Name     Add Target       Infrastructure Cloud •     ●     Page Refreshed Sep 20     Add Target       Infrastructure Cloud •     ●     Page Refreshed Sep 20     Securty       Infrastructure Cloud •     ●     Infrastructure Cloud •     ●       Infrastructure Cloud •     ●     Page Refreshed Sep 20     Securty       Infrastructure Cloud •     ●     Infrastructure     Notifications       OVM Managers 1     Vitual Servers 1     4.5     Infrastructure       Image: 1     Guest VMs 0     3.5     Database       Image: 1     Guest VMs 0     1.5     Middleware       Image: 2.5     Image Cloud Control     Middleware       Image: 2.5     Image Cloud Control     Middleware</td>	ger     Cloud Control 12c     Setup •     CLOUDADM       rites •     ● Histary •     Search Target Name     Add Target       Infrastructure Cloud •     ●     Page Refreshed Sep 20     Add Target       Infrastructure Cloud •     ●     Page Refreshed Sep 20     Securty       Infrastructure Cloud •     ●     Infrastructure Cloud •     ●       Infrastructure Cloud •     ●     Page Refreshed Sep 20     Securty       Infrastructure Cloud •     ●     Infrastructure     Notifications       OVM Managers 1     Vitual Servers 1     4.5     Infrastructure       Image: 1     Guest VMs 0     3.5     Database       Image: 1     Guest VMs 0     1.5     Middleware       Image: 2.5     Image Cloud Control     Middleware       Image: 2.5     Image Cloud Control     Middleware

In the left panel, click "Request Settings" b)

·	nonFacesWrapper?_em.ci	coBM=/console/jobs/jobsTable&_afrLoop=23308909793738_afrWindowMode=08_afrWindowId=vd 🛡 😋 🔍 Search	'n	☆自◀	- A 4	9• 🖺 - I
DRACLE Enterprise Ma	nager Cloud Con	trol 12c			Setup 🔻 📔 👥	CLOUDADM -
🖁 Enterprise 🔻 🎯 Targets 👻 🏫 🗄	ivorites 👻 🮯 Hist <u>o</u>	pry 🔻	Search 1	Target Name		
nfrastructure Cloud Self Sei	vice Setup		۲	Page Refreshed	Sep 20, 2015 2:	25:34 AM PDT
Machine Sizes	Machine Sizes					
	_ View 🔻 🎴 🤇	Create 🦉 Edit 💥 Delete				
		Description		VCPUs	Memory (MB)	Local Storage (
🔥 Request Settings	Name	beschoon		2	4096	
	Name Small	Small sized machine		2		
- and an and a second				4	8192	
	Small	Small sized machine		4		

- In the "Request Settings" section: C)
  - "Future Reservation" : Leave default value ("No restriction") 0
  - "Request Duration" 0

0

- : Leave default value ("No restriction") : Select "Restricted"
- "Network Restriction" 0 "Configure EM Agent" 0
  - : Leave default value (<unchecked>)
  - "Allow Partial Deployment"
    - : Leave default value (<unchecked>)
- Click icon 🔍 next to "Folder Name" to select the "Software Library top level folder" 0
  - Select line \_HOL10469
    - Click Select

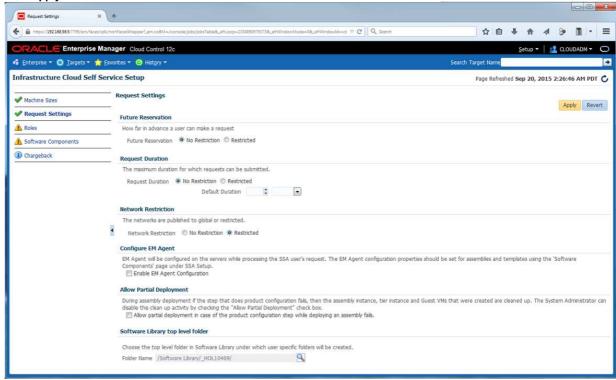






Select Software Library folder View -Name Owner Description Software Library ORACLE Root Folder for Software Library entities HOL10469 SYSMAN Components Folder Components SYSMAN Components STSMAN
 Directives SYSMAN
 Images SYSMAN
 Networks SYSMAN
 Suites SYSMAN Directives Folder Images Folder Networks Folder Suites Folder Database Provis SYSMAN Self Update SYSMAN Archives for Self Update Select Cancel

#### o Click Apply



Note: in this lab, we chose not to deploy the Oracle EM Agent on the Guest VMs to save time. In real life, it is recommended to deploy the EM agent.





## 3.2 Roles

In this section, we will grant some rights and assign resources quotas to EM12c Self Service users using a specific role (SSA\_DEV\_VM)

- a) In the left panel, click "Roles"
- b) In the "Roles" section, click "Assign Quota to Role"

https://192168.56.5:7799/em/fail	ces/sdk/nonFacesWrapper?_em.coBM=/cons	ole/jobs/jobsTable8c_afrLoop=2	330890979373&_afrWi	ndowMode=08c_afrWir	ndowid=vd ⊽ C C	Search .		☆自	+	合 🗸	9	
ORACLE Enterprise	e Manager Cloud Control 12c								<u>S</u> e	tup 🔻	👥 CLOI	JDADM - C
🚯 Enterprise 🔻 🎯 Targets 🔻	🚖 Eavorites 👻 🥝 Hist <u>o</u> ry 👻						Search 1	Farget Name				
Infrastructure Cloud Sel	f Service Setup							Page Refres	ned Sep	20, 201	5 2:29:4	7 AM PDT
✓ Machine Sizes	Roles											
		ota to Role 🥒 Edit 🖇	🖇 Delete									
Request Settings		ota to Role / Edit 》 No of Servers	CPUs	Memory (GB)	Local Storage (GB)	Archive to Library	Save Server on Expiry	Zones		Network	: Profiles	Override ( Request S
	View 🔻 🎦 Assign Que			Memory (GB)	Local Storage (GB)	Archive to Library		Zones		Network	Profiles	
<ul> <li>Machine Sizes</li> <li>Request Settings</li> <li>Roles</li> <li>Software Components</li> </ul>	View  View  Assign Que Role Name			Memory (GB)	Local Storage (GB)	Archive to Library		Zones		Network	: Profiles	

- In the "Assign Quotas, Zones & Network profiles to Role" window: o Select role SSA\_DEV\_VM C)

  - Select zone devzone 0
  - Enter the following information (resource limits for all Self Service users with role SSA\_DEV\_VM) 0
    - Number of Servers : 3 .
    - Number of VCPUs : 6
    - Memory (GB) :10
    - Local Disk (GB) : 100
  - Select Networks : select network VM 0
  - 0 Select Network Profile dev\_netprofile
  - Leave default values for others parameters 0
  - 01.1.6 0

Re-Assign Quotas, Zones & Netwo	ork Profiles to Role					1
Jpdate the zone, network profile and	l quota details for the se	lected role.				
* Select Role	SSA_DEV_VM					
* Select Zones	devzone			9		
Number of Servers	3					
Number of VCPUs	6					
Memory (GB)	10					
Local Disk (GB)	100					
Allow Archiving to Software Library	🔘 Yes 🧿 No					
* Select Networks	VM			9		
Select Network Profiles	dev_netprofile			9		
	🕅 Override Global Req	uest Settings				
	Future Reservation	No Restriction	Restricted			
	Request Duration	No Restriction	Restricted			
		Defaul	t Duration		*	
	Configure EM Agent	🔄 Enable EM Age	nt Configuration			
					Save	Cancel
					Dave	Cancer





## 3.3 Software components

In this section, we will assign rights to deploy specific assemblies/templates (DB12c assembly) to specific roles (SSA\_DEV\_VM)

- a) In the left panel, click "Software Components"
- b) In the "Software Components" panel, click "Add Components..."

← ▲ https://192.168.56.5:7799/em/face	es/sdk/nonFacesWrapper?_em.coB	M=/console/iobs/io	bsTable8cafrLoop=2	3308909793738c.afrWindowl	/ode=08caf	frWindowld=vd V C	Q. Search		☆ €	1 I	<b>ا</b>	1	90	1	1 2
2							A.		A			. 47	•		
DRACLE Enterprise	Manager Cloud Contro	ol 12c									<u>S</u> etup	- 1		ADM -	C
🖁 Enterprise 👻 🎯 Targets 🕶 🕯	👉 <u>F</u> avorites 👻 🮯 Hist <u>o</u> ry							Search	Target Name						
Infrastructure Cloud Self	Service Setup								Page Refr	eshed	Sep 20,	, 2015	2:34:09	AM PD	т с
Vachine Sizes	Software Compo														
Pequest Settings	Publish Software Software Compone		shed to provide a	iccess privileges on So	ftware Libr	rary Components fo	or Self Service P	ortal Users.							
V Roles	* Roles All			Add Components	/ Edit	t 💥 Delete	/ Configure	💥 Remove Configuration	d Imp	ort	6d Vie	w Locat	ions		
A Software Components	Software Component	Туре	Version	Configured		Imported	Description								
① Chargeback	No data to display.														
	Import Rules Import Rules can be	e defined to sch	edule recurring jo	bs for importing Softv	vare Library	y Components into	Storage Reposi	itory.							
	Create	/ Edit 💥	Delete												
	Rule Name	Zones		Schedule											
	No data to display.														

- o In the "Publish Assemblies/Templates to Roles" window:
  - In the "Select Software Components" panel, click Add and select assembly "db12\_ol64"
  - In the "Select Roles" panel, click Add and select line "SSA\_DEV\_VM"
    - Click Publish

https://192.168.56.5:7799/em/faces	/sdk/nonFacesWrapper?_em.co	aBM=/console/jobs/job	sTable8c_afrLoop = 233089	90979373&_afrWindowMode	=08_afrWindowId=vd V C	Q. Search	☆自	+ 🏦		9	•	Ξ
	Manager Cloud Cont	rol 12c						<u>S</u> etup	- 1		ADM -	C
🖡 Enterprise 🔻 🎯 Targets 🕶 🦸	🗧 Eavorites 👻 🥝 Hist <u>o</u> r	ry 🕶				Search T	arget Name					
nfrastructure Cloud Self	Service Setup						Page Refresh	ed Sep 20	, <mark>20</mark> 15	2:34:09	AM PD	т (
Machine Sizes	Software Comp	onents										
Request Settings	Publish Software Software Compon	and a manufacture of the second of the	ned to provide acces	ss privileges on Softwa	re Library Components fo	or Self Service Portal Users.						
🖉 Roles	* Roles All		💌 💠 A	dd Components 🧳	🛚 Edit 💥 Delete	🖉 Configure 🛛 💥 Remove Configuration	👌 Import	6d Vie	w Locat	ions		
Software Components	Software Component	Туре	Version	Configured	Imported	Description						
Chargeback	db12_ol64	Assembly	0.1	×	×							
	Import Rules Import Rules can b	e defined to sche	dule recurring jobs fi	or importing Software	Library Components into	Storage Repository.						
	Create	/ Edit 💥 D	elete									
	Rule Name	Zones	Sch	edule								
	No data to display											

Note: We could force the import of the Oracle VM assembly into the Oracle VM storage repository now. To save time at this step of the lab, we will not do it. The import will automatically be executed during the first request from a Self Service user.

In this section, we granted the following authorizations to all Self Service users with role SSA\_DEV\_VM:

- Creation of VMs based on assembly db12\_ol64 within the zone **devzone**.
- Set resources limits/quotas:
  - Maximum 3 servers
  - Maximum of 6 vcpus for all servers
  - Maximum of 10 GB of memory for all servers
  - Maximum of 100 GB of disk space for all servers





## 4 Instance as a Service: deployment from the Self Service portal

The configuration of the Private Cloud in IaaS mode with user cloudadm is now over. We will now log out and log in with a Self Service user and use the Self Service Portal

## 4.1 Deploy a guest VM from the Oracle VM Assembly

a) Click CLOUDADM, and "Log Out" (in the top right corner) to log out from Oracle Enterprise Manager Cloud Control console

	ces/sdk/nonFacesWrapper2_em.coBM=/console/jobs7able&_afri.cop=2330890878373&_afrWindowMode=0&_afrWindowId=vd V C Q Search	☆ 自 ♣ 合 ∢ 🦻 🛄 -
	e Manager Cloud Control 12c	Setup 🔻 📔 🖬 CLOUDADM 🔫 🕻
🚯 Enterprise 👻 🎯 Targets 👻	👷 Eavorites 🔻 📀 Hist <u>o</u> ry 🕶 Search Targ	Help
Infrastructure Cloud Se	•	Personalize Page Set Current Page as My Home DT ( Welcome Page
Machine Sizes     Request Settings	Software Components     Publish Software Components     Software Components     Software Components can be published to provide access privileges on Software Library Components for Self Service Portal Users.	Enterprise Manager Password & Email Accessibility Entitlement Summary
Roles     Software Components	Import Rules Imoort Rules can be defined to schedule recurring jobs for importing Software Library Components into Storage Repository.	About Enterprise Manager

- b) Log in again with a Self Service user using the following credentials:
  - User Name : dev\_vm1
  - Password : dev\_vm1

Note: Ignore "Accessibility Preference" by clicking "Save and continue"

c) You should now see the "Infrastructure Cloud Self Service" portal

Note: On the left panel (**Usage**), you can see the resource limits previously set by the cloud administrator (3 servers, 6 vcpus, 10 GB of memory and 100 GB of disk space)

d) Click "Request Servers..."

Infr	astructure Cloud Self Service × +											• ×
(+ A )	https://192168.56.5.7799/em/faces/ssa-console-home?_adf.ctrl-state=11ve	2jabz4_26&serviceFamily=IAAS&	_afrLoop=5537423461192#!		⊽ C Q Search	)	2	۲ 🖻	+ 1	1	9 🔳	- =
OR/	ACLE									1	L DEV_VM	- 0
Infras	tructure Cloud Self Service Portal						🕑 Page	Refreshe	d Sep 2	0, 2015 2	:42:34 AM	PDT 🖒
Mana	ge Infrastructure - Oracle VM							Iouc	d Service	s Overview	Pref	erences
	Notifications	10 Last Requested	Servers									
	Servers Due to Expire in Next 7 Days0	Action • View •	Request Servers.									
$\mathbf{Q}$	Software Published in Last 7 Days1	Name No items found.	Status Zone	CPUs	Memory (GB)	Storage (GB)	Charge Creation	n Date		Expiry	Date	
0 9 10	You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0 0 3	-										
-	CPUs: 0	10 Latest Request	s									
		View 🔻 🥒 Edit.	💥 Delete									
	0 6 Memory: 0 GB	Name	Туре	Status	Submission Date	Start Date	End Date	Serv	Total CPUs	Total Memory (MB)	Total Store	ige (GB)
https://19216	0 10 Storage (GB) 0 GB 0 100 825557759/em/faces/sac-console-horne_adt-cet-state=11va2jates4_268as	No items found.	37423461192#									





- e) In the "New Server Request : General" window:
  - Select zone devzone
  - Select source db12\_ol64
     Click Next
    - 0 <u>- X</u> New Server Request - Oracle Ent... X + 4 A N ms://192168565 a a ☆ 自 ♣ 俞 ∢ 8 II - Ξ 😫 DEV\_VM1 🔻 ral Deployment Configuration Schedule Revie Back Step 1 of 4 Next Save As Deployment Plan... Finish Cancel New Server Request: General est Name Specify a name for your request. This will help you track it later \* Name DEV\_VM1 - Sun Sep 20 02:43:18 PDT 2015 Destination Select the zone in which servers will get created. \* Zone devzone 💌 Description devzone Source Select the source software (assembly or template) to be used for this request. \* Source db12\_0/64 Q Description Assembly Instance Name \* Name db12\_ol64 Deployment Plan(Optional) Deployment plans allow you to record inputs and use them later while creating new requests using standard values. Name ٩,× Description
- f) In the "New Server Request : Deployment Configuration" window:
  - o Click line "OVM\_OL6U4\_DB12\_PVM1: db12\_ol64" → this will display the deployment options
  - Enter "dev" as the root password for the future VM
  - Change Number of CPUs to 1 (to save resources)

Note: CPU here are in fact VCPUs (we have 4 VCPUs in our Oracle OpenWorld laptop: 2 cores with 2 threads)

Note: Maximum memory and Maximum Number of CPUs are used when you want to dynamically increase the number of VCPUs or the amount of memory on a virtual machine (you can increase the number of VCPUs to the maximum number of VCPUs without reboot. If you want to go beyond the maximum number of VCPUs, you need to shutdown the VM and modify the maximum number of VCPUs)

- Expand the Network options by clicking on icon <sup>D</sup> in front of "Network"
- o Select line eth0 and click Edit
- o In the "Edit NIC: eth0" window:
  - In the "IP Assignment" drop down menu, select "Network Profile"
  - In the "Network Profile Name", select "dev\_netprofile"
  - Click OK





#### o Click Next

New Server Request - Oracle Ent ×															×
+ A https://192.168.56.5:7799/em/faces/ssa-console-home?_adf.ctrl-stat	e=vx0gzword	_14&serviceFai	mily=IAAS&_afi	rLoop=647116	3117305#19640962Fssa-rec	quest-task-flow- 🛡 C	Q Search			☆ €	•	合。	a 30	1	=
ORACLE										AC NOMOR-	5 98	AVGA	et DE	V_VM1 -	0
General Deployment Configuration Schedule Review	N														
New Server Request: Deployment Configu	ration							Back Ste	p 2 of 4 Nex	Save	AS Depio	yment Plar			ancel
-		Number of	Servers (1)										Co	nfigure Ne	atwork
Name			Maximum		Auto Scalable	Deploy 🕕	Server Size		Deployment	Option	Se	rver Name	Prefix		
db12_ol64															_
OVM_OL6U4_DB12_PVM1:db12_ol64	1	1	64	1 🗘	<b>1</b>	V	Custom	-			0	VM_OL6U4	4_DB12_P	VM1_vm	_
Deployment Option Server Configuration Product Configuration															
General					5	Server Size : Custo									
Enable High Availability 🔟						* Maximum Me			imum Number (		2 ‡				
* Root Password •••						* Me	emory(MB) 2048	с.	* Number	of CPUs	1 🗘				
* Confirm Root Password															
Keymap en-us (English, United States)	•														
Tags															
Network						Storage									
View - 💠 Add 🥒 Edit. 💥 Remove															
	ckend etwork	(i) IP Assigni	ment 🕕	Network Pro	ofile Name										
eth0 xennet Any Network VM	4	STATI	C_FROM	dev_netpro	file										

#### g) In the "New Server Request : Schedule" window, click Next

New Server Request - Oracle Ent × +				رتصريكم	~
A https://192168565:7799/em/faces/ssa-console-home?_adf.ctrl-state=vx0gz	worc_148serviceFamily=IAAS8afrLoop=6471163117305#1%40%2Fssa-request-task-flow- 🛡 😋	L Search	☆自♣ 斎 ∢	9 🔳 -	=
ORACLE				👥 dev_vm1 🗸	0
General Deployment Configuration Schedule Review					
New Server Request: Schedule		Back Step 3 of 4 Next	Save As Deployment Plan	. Finish Ca	ancel
Select a Schedule for your Request					
Schedule					
Start Date 💿 Immediately 🔘 Later	(UTC-08:00) Los Angeles - Pacific Time (PT)				
End Date 🔘 Indefinitely 🔘 Until	- B				

#### h) In the "New Server Request : Review" window, click Finish

New Server Request - Oracle Ent × +														
https://1921685657799/em/faces/ssa-console-home?_a	df.ctrl-state=vx0gzwo	orc_148iservice	Family=IAAS&	afrLoop=641	1163117305#19640962Fssa-r	request-task-flow- 🔍	C Q Search		☆	ê 🖡	A	1 3		-
ORACLE												۱ 👥	DEV_VM	1 - (
General Deployment Configuration Schedule Re New Server Request: Review	<b>e</b> view							Back Step 4 of 4 Next	Save	As Deplo	yment Pla	n [	Finish	Cance
General						Schedule								
Request Name DEV_VM1 - Sun Sep 20 Zone devzone Source dol12_ol64 Assembly Instance Name db12_ol64 Deployment Configuration	02:58:24 PDT 2	2015				Start Date In End Date In								
		Number	of Servers											
Name	Default		Maximum	Initial	Auto Scalable	Deploy	Server Size	Deployment O	option	Se	rver Name	Prefix		
⊿ db12_0/64														
OVM_OL6U4_DB12_PVM1:db12_ol64	1	1	64	1	-	~	Custom			OV	M_OL6U4	DB12 P	VM1 vm	n

#### Note: Deployment plan

The user inputs for this VM can be stored in a deployment plan.

This is useful if the user wants to request several identical servers.





#### The deployment of the new virtual server has started

https://192.168.56.5:7799/em/faces/ssa-console-home?_adf.ctrl-state=vx8	0gzworc_148kserviceFan	nity=IAAS&_af	rLoop=6471163117305#1%	40%40%3F_adf.ctrl-state%3D	v C <sup>d</sup> Q Search			☆ 自	+	俞	4	39	
ACLE											1	2 DEV	VM1 -
structure Cloud Self Service Portal							۲	Page Refre	hed Se	ep 20,	2015 3	8:03:41	AM PD
Confirmation													
Your request DEV_VM1 - Sun Sep 20 02:58:24 PDT 2015 age Infrastructure - Oracle VM	was submitted suc	cesstully, Y	ou can track the sta	tus of your requests or	n the Home page.			-	aud Cor	nicoc	Overview		Denform
								-00	Juu Sei	IVICES	Overview	<b>1</b>	releten
Notifications	10 Last Re												
Servers Due to Expire in Next 7 Days0	Action -		🔮 Request Servers.										
Software Published in Last 7 Days1	Name No items fou		Status Zone	CPUs	Memory (GB)	Storage (GB)	Charge (	reation Date			Expiny	Date	
Usage You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0	_												
You have permission to use these cumulative quota allowances when making server and storage requests.	_												
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0		Requests											
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0 0 3 CPUs: 0	And the second s		X Delete										
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0	And the second s		X Delete Type	Status	Submission Date	Start Date	End Date	S	erv CF	otal PUs	Total Memory (MB)	Total S	itorage
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0 0 3 CPUs: 0 0 6	View - Name	🥒 Edit				Start Date Sep 20, 2015 3:0		S	rv CF	otal PUs 1	Memory	Total 9	
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0 0 3 CPUs: 0 0 6	View - Name	🥒 Edit	Туре					S			Memory (MB)	Total 9	
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0 0 3 CPUs: 0 0 6 Memory: 0 GB	View - Name	🥒 Edit	Туре					S			Memory (MB)	Total 9	
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 0 0 3 CPUs: 0 0 6 Memory: 0 GB 0 10	View - Name	🥒 Edit	Туре					S			Memory (MB)	Total 9	itorage

The deployment should take about 20 minutes (Click icon C in the top right corner to refresh the page) 18 minutes to import the Oracle VM assembly into the Oracle VM storage repository (only done once)

- 2 minutes to create the new VM from this assembly 0

While waiting for the deployment to complete, you can read part 2 of the lab (Pluggable Database as a Service). You will not have time to actually run it at OpenWorld.

If you want to see the job details:

- Log out and log in again using user cloudadm (password cloud)
- Go to Enterprise, Job, Activity
- Click job DEV\_VM1\_-\_<date>
- Set "Auto Refresh" to "15 seconds"

https://19216856.5:7799/em/faces/core-uifwk-console-home?_afiLoop=687932	247401978c_sfrWindowMode	=08c_afrWindowld=61uk641gy_	6#19440%2Fsdk%2FnonFs 🔍 🕑 🔍 Search	☆ 自 ↓ 1	n 📣 📴 🗖 🗖
RACLE Enterprise Manager Cloud Control 12c				Setu	ip 🔻   🎎 CLOUDADM 🕶
Enterprise 🔻 🎯 Iargets 🔻 🌟 Eavorites 👻 😔 Hist <u>o</u> ry 👻				Search Target Name	
5					
Activity > Job Run: DEV_VM1 - SUN SEP 20 02:58:24 PDT 2015 b Run: DEV_VM1 - SUN SEP 20 02:58:24 PDT 20					Refresh 15 seconds 💌
ummary				Debug Delete R	un Edit View Definition
Status Running Schedule Sep 20, 2015 3:03:40 AM PDT Started Sep 20, 2015 3:03:46 AM PDT Ended Elapsed Time 1 minutes, 31 seconds Targets Status AI Go			Type Assembly Deploym Owner DEV_VM1 Description Execution ID 202894D797D9394		
Scheduled Sep 20, 2015 5:03:40 AM PDT Started Sep 20, 2015 2:03:45 AM PDT Ended Elapsed Time 1 minutes, 31 seconds Targets Status AI	Taroets	Status	Owner DEV_VM1 Description		Elapsed Time
Scheduled Sep 20, 2015 3:03:40 AM PDT Started Sep 20, 2015 3:03:45 AM PDT Ended Elapsed Time 1 minutes, 31 seconds Targets Status Al e Expand Al Colapse Al	Targets 2	Status Running	Owner DEV_VM1 Description Execution ID 202894D797D9394	9660530538A8C0CL67	Elapsed Time 1.5 minutes
Scheduld Sep 20, 2015 303/40 AM PDT Started Sep 20, 2015 3/03/45 AM PDT Ended Time 1 mirutes, 31 seconds Targets Status AI Go Expand AI Cobpse AI Hame	10000000		Owner DEV_VM1 Description Execution ID 202894079709399	9660530538A8C0CL67	
Schedude Sep 20, 2015 303:40 AM PDT Started Sep 20, 2015 303:45 AM PDT Ended Elpsed Time 1 minutes, 31 seconds Targets Status AI Go Elpand AI Colpuse AI Hame V Elecuton: 2 targets	10000000	Running	Owner         DE-Ly_M1           Description         Execution 1D         202894079770394           Started         Sep 20, 2015 3:03:45 AM PDT	PGE0530538A8C0C167	1.5 minutes
Scheduled Sep 20, 2015 2:03:45 AM PDT Started Sep 20, 2015 2:03:45 AM PDT Ended Euged Time 1 inituites, 31 seconds Targets Status AI Go Expand AI   Cobpes AI Name V Execution: 2 targets Step: Update Request With Start Job Information	10000000	Running Succeeded	Owner         DE-LV_M1           Description         Execution 1D         202894079709394           Started         Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT	P660530538A8C0C167 Ended Sep 20, 2015 3:03:45 AM PDT	1.5 minutes 0 seconds
Scheduled Sep 20, 2015 2:03:40 AM PDT Started Sep 20, 2015 2:03:45 AM PDT Ended Targets Status AI Go Expand AI Colapse AI Name V Execution: 2 targets Step: Update Request Wch Stat: 30b Information Step: Update Request To Executing	2	Running Succeeded Succeeded	Owner         DE-L_VM1           Description         Execution 1D         202894079709394           Started         Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT	9660530338A8C0C167 Ended Sep 20, 2015 3:03:45 AM PDT Sep 20, 2015 3:03:46 AM PDT	1.5 minutes 0 seconds 0 seconds
Scheduled Sep 20, 2015 2:03:40 AM PDT Started Sep 20, 2015 2:03:45 AM PDT Ended Elapsed Time 1 minutes, D1 seconds Tarpets Status Go Expand All Colopse All Name V Execution: 2 targets Step: Update Request Wth Start Job Information Step: Update Request Wth Start Job Information	2	Running Succeeded Succeeded Succeeded	Owner         DE-Ly_ML           Description         Description           Execution ID         202894079770394           Started         Sep 20, 2015 3:0345 AM PDT           Sep 20, 2015 3:0345 AM PDT         Sep 20, 2015 3:0345 AM PDT           Sep 20, 2015 3:0345 AM PDT         Sep 20, 2015 3:0345 AM PDT	9668530538A8C0C167  Ended Ended Sep 20, 2015 3:03:45 AM PDT Sep 20, 2015 3:03:46 AM PDT	1.5 minutes 0 seconds 0 seconds 0 seconds
Scheduled Sep 20, 2015 2:03:45 AM PDT Started Sep 20, 2015 2:03:45 AM PDT Ended Elevent Time 1 inituites, 31 seconds Targets Status AI Go Expand AI   Cobpes AI Name V Execution: 2 targets Step: Update Request TV Executing Step: Update Request With Start Job Information Step: Update Request To Executing Step: Update Request To Executing	2	Running Succeeded Succeeded Succeeded Succeeded	Owner         DE-Ly_ML           Description         Description           Execution 1D         202894079700394           Started         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 3:03:46 AM PDT         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT	Ended         Ended           Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT	1.5 minutes 0 seconds 0 seconds 0 seconds 0 seconds 0 seconds
Scheduled Sep 20, 2015 2:03:40 AM PDT Started Sep 20, 2015 2:03:45 AM PDT Ended Targets Status Al Go Expand Al Colapse Al Name V Execution: 2 targets Step: Update Request Wich Stat: Job Information Step: Check Parameters Step: Check Fasability	2	Running Succeeded Succeeded Succeeded Succeeded Succeeded	Owner         DESCRIPTION           Description         202894079709394           Execution ID         202894079709394           Started         589 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 AM PDT         589 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 AM PDT         599 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 AM PDT         599 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:45 AM PDT         599 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:46 AM PDT         589 20, 2015 3:03:48 AM PDT	Befel530538A8C0C167           Ended           Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:46 AM PDT	1.5 minutes 0 seconds 0 seconds 0 seconds 0 seconds 0 seconds 6 seconds
Scheduled Sep 20, 2015 3:03:40 AM PDT Started Sep 20, 2015 3:03:45 AM PDT Ended Eleased Time 1 minutes, 31 seconds Targets Status Go Expand AI   Colapse AI Name V Execution: 2 targets Step: Update Request With Start Job Information Step: Update Request Vith Start Job Information Step: Update Request With Start Job Information Step: Update Request With Start Job Information Step: Update Request With Start Job Information Step: Undet Request Vith Start Job Information Step: Undet Request	2	Running Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded	Owner         DESCRIPTION           Description         202894079709394           Execution ID         202894079709394           Started         5ep 20, 2015 3:0345 AM PDT           Sep 20, 2015 3:0345 AM PDT         5ep 20, 2015 3:0345 AM PDT           Sep 20, 2015 3:0345 AM PDT         5ep 20, 2015 3:0345 AM PDT           Sep 20, 2015 3:0345 AM PDT         5ep 20, 2015 3:0345 AM PDT           Sep 20, 2015 3:0345 AM PDT         5ep 20, 2015 3:0345 AM PDT           Sep 20, 2015 3:0345 AM PDT         5ep 20, 2015 3:0345 AM PDT	Briefer         Ended           Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT	1.5 minutes 0 seconds 0 seconds 0 seconds 0 seconds 6 seconds 2 seconds
Scheduled Sep 20, 2015 3:03:40 AM PDT Started Sep 20, 2015 3:03:45 AM PDT Ended Elevent Time 1 initutes, 31 seconds Targets Status Ga Expand All Cobpes Al Name Vecution: 2 targets Step: Update Request Yo Executing Step: Deduke Privage Step: Check Frasbity Step: Set Importing Parameters	2 devzone	Running Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded	Owner         DESCUPIL           Description         Description           Execution ID         202894079700394           Sep 20, 2015 3:03:45 AM POT         Sep 20, 2015 3:03:45 AM POT           Sep 20, 2015 3:03:45 AM POT         Sep 20, 2015 3:03:45 AM POT           Sep 20, 2015 3:03:45 AM POT         Sep 20, 2015 3:03:46 AM POT           Sep 20, 2015 3:03:45 AM POT         Sep 20, 2015 3:03:46 AM POT           Sep 20, 2015 3:03:45 AM POT         Sep 20, 2015 3:03:46 AM POT           Sep 20, 2015 3:03:45 AM POT         Sep 20, 2015 3:03:46 AM POT           Sep 20, 2015 3:03:45 AM POT         Sep 20, 2015 3:03:47 AM POT	Briefer         Ended           Sep 20, 2015 3:03:45 AM PDT         Sep 20, 2015 3:03:45 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT           Sep 20, 2015 3:03:46 AM PDT         Sep 20, 2015 3:03:46 AM PDT	1.5 minutes 0 seconds 0 seconds 0 seconds 6 seconds 6 seconds 2 seconds 0 seconds

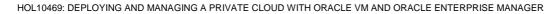




When the import and deployment of the VM are done, you should see the following window:

				10.10					
ACLE									DEV_VM1 -
tructure Cloud Self Service Portal						🕑   Page Ref	eshed Sep	20, 2015 :	3:40:26 AM PDT
ge Infrastructure - Oracle VM							Cloud Servi	es Overviev	v 📕 Preferenc
Notifications	10 Last Requested	Servers							
Servers Due to Expire in Next 7 Days0	Action 🔻 View 🔻	Request Servers.							
Software Published in Last 7 Days1	Name	Status Zone	CPUs	Memory (GB)	Storage (GB) Ch	narge Creation Dat	2	Expin	/ Date
	dev1.example.com	👚 devzone	1	2.00	50.00	Sep 20, 201	5 3:36:37 A	м	
You have permission to use these cumulative quota allowances when making server and storage requests. Servers: 1									
allowances when making server and storage requests.	10 Latest Requests								
allowances when making server and storage requests. Servers: 1 0 3	10 Latest Requests	X Delete							
allowances when making server and storage requests. Servers: 1 0 3	Second se	X Delete Type	Status	Submission Date	Start Date	End Date	Serv Tota	I Tota Memory 5 (MB)	Total Storage (0
allowances when making server and storage requests. Servers: 1  CPUs: 1  O O 6	View 🔻 🥒 Edit				Start Date . Sep 20, 2015 3:03:40 .		Serv Tota	Memory (MB)	Total Storage (
allowances when making server and storage requests. Servers: 1 0 3 CPUs: 1 0 6 Memory: 2 GB	View 🔻 🥒 Edit	Туре						Memory (MB)	Total Storage (
allowances when making server and storage requests. Servers: 1 0 3 CPUs: 1 0 6 Memory: 2 GB 0 10	View 🔻 🥒 Edit	Туре						Memory (MB)	Total Storage (
allowances when making server and storage requests. Servers: 1 0 3 CPUs: 1 0 6 Memory: 2 GB	View 🔻 🥒 Edit	Туре						Memory (MB)	Total Storage (
allowances when making server and storage requests. Servers: 1 0 3 CPUs: 1 0 6 Memory: 2 GB 0 10	View 🔻 🥒 Edit	Туре						Memory (MB)	Total Storage (

We can see here that a new server called **dev1.example.com** was deployed (hostname allocated as planned in the network profile **dev\_netprofile**)









## 4.2 Connect to the VM

ORACLE

WORLD

#### 4.2.1 Access to the VM console

- a) Get access to the VM console by right clicking on the dev1.example.com VM and choosing "Launch VNC console"
- b) Log in using the following credentials:
  - o Login : root
  - Password : dev

#### Note: Java Web Start no longer required.

In Oracle VM version 3.2.x and earlier, access to the VM consoles was done thru Java Web Start and thus required Java to be installed on the client machine. Starting with Oracle VM version 3.3.1, this is no longer required as the console use HTML5.

4.2.2 Remote access to the VM and configure Oracle Listener

a) Open a gnome terminal and connect to the VM using SSH \$ ssh root@192.168.56.11 (password is dev)

Note: In our network profile, the IP address corresponding to hostname dev1 is 192.168.56.11.

```
b) Make sure the Oracle Database 12c instance is running
# su - oracle
$ sqlplus / as sysdba
SQL> select * from v$instance;
SQL> exit
```

Notes:

- The password for the OS user oracle is oracle
- The password for the Database users sys and system is Welcome1
- c) Configure Oracle Listener Edit file \$ORACLE\_HOME/network/admin/listener.ora and replace (HOST = ol64) by (HOST = 192.168.56.11)
- d) Start Oracle Listener \$ lsnrctl start
- 4.2.3 Access to the Entreprise Manager Database Express WebUI (optional)

Note: Adobe Flash Player plugin is needed (already installed)

- a) Enable HTTP access (HTTPS SSL certificate not accepted)
   \$ sqlplus / as sysdba
   \$ SQL> exec dbms\_xdb\_config.sethttpport(5501);
   \$ SQL> exit
- b) In Firefox, open http://192.168.56.11:5501/em
- c) Connect using the following credentials
  - o User Name : sys
  - Password : Welcome1
  - As sysdba : <checked>

## **Congratulations** !

You have successfully deployed your first virtual machine with Oracle Linux 6 and Oracle Database 12c in "DBaaS / Instance as a Service" mode.







ORACLE WORLD



## 5 Pluggable Database as a Service: configuration

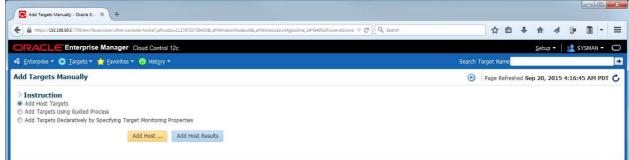
You won't have time to run this second part of the lab during OpenWorld hands on lab (1h session).

Yet, you will find below lab instructions to setup "Pluggable Database as a Service", which is another way of doing DBaaS.

In this part, for simplicity, we use the VM and Database 12c container database that was previous installed by a Self Service user. In real life, we should use a different VM. (different users with different roles should use different VMs)

## 5.1 Install EM12 agent on the VM

- a) Connect to the VM \$ ssh root@192.168.56.11 (password is dev)
- b) Edit file /etc/hosts and add the following line (since we don't have name resolution) 192.168.56.5 emcc.example.com
- c) Create the mount point for EM agent
  # su oracle
  \$ mkdir /u01/em\_agent
- d) Log out from EM12c console and log in again with following credentials: o User Name : sysman (Super Administrator)
  - Password : welcome1
- e) Click Setup, Add Target, and Add Targets Manually
- f) Select "Add Host Targets", then click "Add host..."



#### g) Click Add, then Manually

- h) Enter the following information and click Next:
  - Host : 192.168.56.11
  - o Platform : Linux x86-64

Note: you can ignore the warning about Fully Qualify Host Names.

https://192.168.56.5:7799/em/faces/agentpush-task-flow/core-agentpush	h-platformselection?_adf.ctrl-state=k4glookne_368c_afrLoop=11213343598215#i	∀ Cł	Q. Search		☆自	÷	A	1	8	<b>I</b> -
ACLE Enterprise Manager Cloud Control 12	2c							1	sys	SMAN 🔻
Target										
•										
and Platform Installation Details Review										
d Host Targets: Host and Platform						Bac	k Ste	p 1 of 3	3 Nex	t Ca
	naged hosts, thereby converting them to managed hosts. Enter	a session name,	and validate (or add) the host	ts and their platfo	ms on w				Construction of the local division of the lo	
wizard enables you to install Management Agents on unma	naged hosts, thereby converting them to managed hosts. Enter	a session name,	and validate (or add) the host	ts and their platfo	ms on w				Construction of the local division of the lo	
		a session name,	and validate (or add) the host	ts and their platfo	ms on w				Construction of the local division of the lo	
wizard enables you to install Management Agents on unma it.		a session name,	and validate (or add) the host	ts and their platfo	ms on w				Construction of the local division of the lo	
wizard enables you to install Management Agents on unmaint.		a session name,	and validate (or add) the host	ts and their platfo	ms on w				Construction of the local division of the lo	
witard enables you to install Management Agents on unmaint. * Session Name ADD_HOST_SYSMAN_Sep_20_2015_4:17	7:10_AM_PDT	a session name,	and validate (or add) the host	ts and their platfo	ms on w				Construction of the local division of the lo	





- i) In the "Add Host Targets: Installation Details" window, enter the following information:
  - Installation Base Directory 0 : /u01/em\_agent
  - Instance Directory 0
  - Named Credential 0
- : /u01/em\_agent/agent\_inst : ORACLE(SYSMAN)
- Privileged Delegation Setting : <empty>
- 0

#### Then click Next:

Add Host Targets : Installation De	× +									×
https://192168.56.5:7799/em/fac	es/agentpush-task-flow/core-agentpush-p	latformselection?_adf.ctrl-state=k4glook	cne_368c_afri.cop=11213343598215#1%40%2Fagen 🔍 🄇	2 Q. Search	☆自	↓ 佘	4	3× []	1 -	=
	Manager Cloud Control 12c							SYSN	AN 🔻	0
Add Target										
Host and Platform Installation	Details Review									
Add Host Targets: Inst					(	Back St	ep 2 of 3	8 Next	Car	ncel
On this screen, select each row fr		the installation details in the Ir	nstallation Details section.							
Deployment Type: Fresh Age Platform	Agent Install Agent Software Versi	n Hosts					Mandat	ory Input		_
Linux x86-64	12.1.0.5.0	192.168.56.11					Malluac	biy input	•	- 1
										•
Linux x86-64: Agent Install										
* Installation Base Directory	/u01/em_agent									
* Instance Directory	/u01/em_agent/agent_inst									
* Named Credential	ORACLE(SYSMAN) 💌 🛟									
Privileged Delegation Setting										
Port	3872									
Distoral Details										

j) In the "Add Host Targets: Review" window, click "Deploy Agent"

https://192.168.56.5:7799/em/faces/agentpush-ta	six-flow/core-agentpush-platformselection?_adf.ctrl-state=k4glookne_36&_afri.oop=11213343558215#19440%2Fagen 🔍 😋 🔍 Search	☆ 自 ♣ 合	A 👂 🖺 -
RACLE Enterprise Manager	Cloud Control 12c		👥 Sysman 🗸
d Target			
0-0-0			
st and Platform Installation Details Revie	W		
Add Host Targets: Review		Back Step 3 of 3 Next	Deploy Agent Can
	deployment session and click Deploy Agent.		
eview the details you have provided for this	acplothene sesson and electropic rigere		
sview the details you have provided for this Session Name ADD_HOST_SYSMAN_S			
Session Name ADD_HOST_SYSMAN_S			
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Install			
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Install OMS Host encc.example.com OMS Upload Port 4900			
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Install OMS Host emcc.example.com			
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Install OMS Host encc.example.com OMS Upload Port 4900			
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host encc.example.com OMS Upload Port 4900 Host Information Linux x86-64			
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host encc.example.com OMS Upload Port 4900 Host Information Linux x86-64	ep_20_2015_4:17:10_AM_PDT 192.168.56.11		
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host emcc.example.com OMS Upload Port 4900 Host Information Linux x86-64 Hosts	ep_20_2015_4:17:10_AM_PDT 192.168.56.11 12.1.0.5.0		
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host encc.example.com OMS Upload Port 4900 Host Information Linux x86-64 Hosts Agent Software Version Instalation Base Directory Instalation Base Directory	ep_20_2015_4:17:10_AM_PDT 192.168.56.11 12.1.0.5.0 //u01/em_gent /u01/em_gent		
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host emcc.example.com OMS Upload Port 4900 Host Information Linux x86-64 Hosts Agent Software Version Instalation Base Directory Instance Directory Port	ep_20_2015_4:17:10_AM_PDT 192.168.56.11 12.1.0.5.0 /u01/em_sgent /u01/em_sgent/agent_inst 3872		
Session Name ADD_HOST_SYSMAL_S Deployment Type Fresh Agent Instal OMS Host encc.example.com OMS Upload Port 4900 Host Information Linux x86-64 Hosts Agent Software Version Instalation Base Directory Instance Directory Port Named Credential	ep_20_2015_4:17:10_AM_PDT 192.168.56.11 12.1.0.5.0 //01/em_agent //01/em_agent/agent_inst 3872 ORALE:SYISMAN		
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host encc.example.com OMS Upload Port 4900 Host Information Linux x86-64 Hosts Agent Software Version Instalation Base Directory Instance Directory Named Credential Privileged Delegation Setting	ep_20_2015_4:17:10_AM_PDT 192.168.56.11 12.1.0.5.0 //u01/em_agent/agent_inst 3872 ORACLE:SYSMAN NU Provided		
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host emcc.example.com OMS Upload Port 4900 Host Information Linux x86-64 Hosts Agent Software Version Instalation Base Directory Instance Directory Port Named Credental Privileged Delegation Setting Preinstalation Script	ep_20_2015_4:17:10_AM_PDT 192.168.56.11 12.1.0.5.0 /u01/em_sgent /u01/em_sgent/agent_inst 3872 ORACLESYSMAN Not Provided Not Provided		
Session Name ADD_HOST_SYSMAN_S Deployment Type Fresh Agent Instal OMS Host encc.example.com OMS Upload Port 4900 Host Information Linux x86-64 Hosts Agent Software Version Instalation Base Directory Instance Directory Named Credential Privileged Delegation Setting	ep_20_2015_4:17:10_AM_PDT 192.168.56.11 12.1.0.5.0 /u01/em_agent/ /u01/em_agent/agent_inst 387 20 ORACLE:SYSMAN Not Provided Not Provided Not Provided		





k) Wait for the deployment of the agent (several minutes)

https://192.168.56.5:7799/em/fi	aces/agentpush-task-flow/core-agentpush-platforms	election?_adf.ctrl-state=k4glookne_368_afrLoop=11213	1343598215#1%40%2Fcore- ♥ C	Q. Search	☆ 自 ♣	♠ ∢	9 🔳 -
RACLE Enterpris	e Manager Cloud Control 12c					Setup 🔻 📔	🙎 SYSMAN 🔻
Enterprise 🔻 🌀 <u>T</u> argets 🔻	🐈 Favorites 🔻 🞯 Hist <u>o</u> ry 🕶				Search Target Name		
l Host	and and an				Page Refreshed Se	p 20, 2015 4	:22:30 AM PD
gent Deployment Su	mmary: ADD_HOST_SYSMAN_	Sep_20_2015_4:17:10_AM_PE	Deployment Succeeded )T				D
Platform	Host			Initialization	Remote Prerequisite Check	Agent	Deployment
Linux x86-64	192.168.56.11			1	A		1
gent Deployment Detail Initialization Details							
Initialization Details Remote Prerequisite Ch	eck Details						
Initialization Details Remote Prerequisite Ch Agent Deployment Deta OMS Log Location emcc	eck Details ails	/em/EMGC_OM51/sysman/agentpush/2015-	09-20_04-17-10-AM/applogs	/192.168.56.11_deplo	y.log		
Initialization Details Remote Prerequisite Ch Agent Deployment Deta OMS Log Location emcc	eck Details ails .example.com:/u01/OracleHomes/gc_inst/	/em/EMGC_OMS1/sysman/agentpush/2015- Error	09-20_04-17-10-AM/applogs Cause	/192.168.56.11_deplo			
Initialization Details Remote Prerequisite Ch Agent Deployment Deta OMS Log Location emcco	eck Details ails .example.com:/u01/OracleHomes/gc_inst/ ow only warnings and failures Status ion						
Initialization Details Remote Prerequisite Ch Agent Deployment Detz OMS Log Location emcc Sh Deployment Phase Name	eck Details ails .example.comr/u01/OracleHomes/gc_inst/ ow only warnings and failures Status			Recomme	endation		
Initialization Details Remote Prerequisite Ch Agent Deployment Detr OMS Log Location emcc Sh Deployment Phase Name Installation and Configurat	eck Details ails .example.com:/u01/OracleHomes/gc_inst/ ow only warnings and failures Status ion		Cause	Recomme Manually (		host as a root u	Iser
Initialization Details Remote Prerequisite Ch Agent Deployment Deta OMS Log Location emcc Sh Deployment Phase Name Installation and Configurat Secure Agent	eck Details ails .example.com/u01/OracleIomas/gc_inst/ ow only warnings and failures ion Status ov only warnings and set of the set	Error The root.sh script was not run because you did not provide any Privilege	Cause	Recomme Manually (	endation run the following script(s) on the remote l	host as a root u	iser

- When finished, run the mentioned script as root on the VM to complete the agent deployment # /u01/em\_agent/core/12.1.0.5/root.sh
- m) Click Done

The EM12 agent is now up and running on the  $\ensuremath{\mathsf{VM}}$ 







## 5.2 Add Database targets

ORACLE

WORLD

Before we can deploy Pluggable Database, we must add the Database targets corresponding to database container instance and listener running on the VM.

EM12c will monitor the DB12c container instance running on the VM (called CDB1) using database user **DBSNMP.** This user is locked by default so we first need to unlock this account.

a) Unlock the DBSNMP user
 # su - oracle
 \$ sqlplus / as sysdba
 SQL> alter user dbsnmp account unlock identified by oracle;
 SQL> quit

Now, let's discover the database targets in EM12c

- b) In EM12c console (still logged as user sysman), click Setup, Add Target, Add Target Manually
- c) Start Guided Process
  - o Select "Add Targets Using Guided Process"
  - o Select Target Type "Oracle Database, Listener and Automatic Storage Management"

Click "Add Using Guided Process…"  Add Targets Manually - Oracle E X +	
A https://192168.565.7799/em/faces/agentpush-task-flow/core-agentpush-platformselection?_adf.trl-tate=k4glookne_368_afri.cop=112	213343558215er%40%2Fcore- 🔍 😋 🔍 Storm
ORACLE Enterprise Manager Cloud Control 12c	Setup 🗸   🎎 SYSMAN 👻 📿
🐗 Enterprise 🔹 🔘 Targets 👻 🌟 Favorites 👻 🮯 Hist <u>o</u> ry 👻	Search Target Name
Add Targets Manually	💿   Page Refreshed Sep 20, 2015 4:44:56 AM PDT 🕻
Instruction     Add Host Targets     Add Jost Targets Using Guided Process     Add Targets Declaratively by Specifying Target Monitoring Properties     Target Types Oracle Database, Listener and Automatic Storage Management      Add Using Guided Process	

d) In the "Database Discovery: Search Criteria" window,

0	Select Host	"192.168.56.11'	' in the " <b>S</b>	Specific H	lost or (	Cluster" field
---	-------------	-----------------	---------------------	------------	-----------	----------------

<ul> <li>Click Next</li> </ul>								
Database Discovery X +							- 0	×
← ▲ https://192168.56.5:7799/em/faces/agentpush-task-flow/co	e-agentpush-platformselection?_adf.ctrl-state=k4glookne_368c_afrLo	op=11213343598215#1%40%2Fdb-d ♥ C Search	☆自	<b>↓</b> ∩	-	9	•	≡
ORACLE Enterprise Manager Cloud	ser Cloud Control 12c SYSMAN ▼ ○							
Search Criteria Results Review				Back	· · · · · ·	62 No.	+ 0	
Database Discovery: Search Criteria	Manager you must first specify the best or shutter on	which those targets reside. Click the icon to select host or cluster target name.		Dark	scep 1 0	13 Nex		
a cardene sectore sectore and Antonio Sector Sector Sector Sector	manager, you must list specify the nost of cluster on	which blose targets reside. Cick the icon to select host of duster target hane.						
* Specify Host or Cluster 192.168.56.11		Overview This process allows you to add databases, listeners, and Automativ targets. A monitored target is an entity that you want to monitou Enterprise Manager will search for targets of these types on the h	r and administe	er using Er	terprise			н
		Discovery Options Additional discovery options can be provided to change the defau 'db_name', 'db_target_prefk', 'db_target_suffk', 'dscovery_time <true false="">. For example: db_name=PRODUCTS, discovery_time</true>	out' <in secor<="" td=""><td></td><td></td><td></td><td></td><td></td></in>					
				_	_	_	_	1.00





- After the target discovery, in the "Database Discovery: Results" window, e)
  - 0 Enter the monitor password : oracle
  - Check password 0
    - .
    - Select CDB1 (Checkbox) Click Test Connection and then click OK
    - Select LISTENER\_192.168.56.11 (Checkbox)
    - Click Next

0

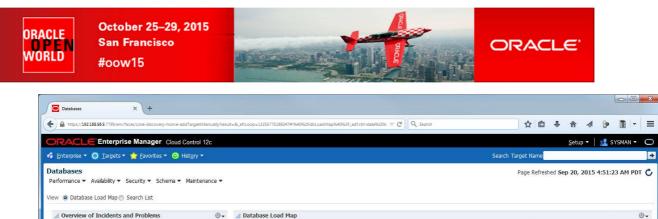
RAC	LE Enterprise Manager Cloud Com	trol 12c								1000		SYSMA	IN 🖛	C
- 6														
arch Crite	ria <b>Results</b> Review													
ataba	se Discovery: Results			🖉 Set (	alobal Targ	get Properties	Specify Group	for Targe	Bad	k Ste	p 2 of 3	Next	Can	nce
d Datab	2028													
	database targets using the 'Specify Common Mo g.		ring credentials and s s' action. You can set			for all selected t	argets or add them	to a Targe	et Group (					
		onitoring Credential	s' action. You can set Test Connection	: Global Target P		for all selected t	argets or add them	to a Targe	t Group (					
nonitoring	g. Specify Common Monitoring Credentials	onitoring Credential	s' action. You can set	: Global Target P	roperties f	for all selected t rget Group	argets or add them	to a Targe	et Group 1					
nonitoring View 🔻	g. Specify Common Monitoring Credentials Target Name	onitoring Credentiak	s' action. You can set Test Connection Monitoring Credentia	t Global Target P Ils Role	roperties f		argets or add them	to a Targe	et Group 1					
View View View View View View View View	2. Specify Common Monitoring Credentials Target Name CDB1 (Container Database)	onitoring Credentials	S' action. You can set Test Connection Monitoring Credentia Monitor Password	t Global Target P Ils Role	roperties f			to a Targe	et Group •					
View View View View View View View View	G. Specify Common Monitoring Credentials Target Name (CDB1 (Container Database)	onitoring Credentials	S' action. You can set Test Connection Monitoring Credentia Monitor Password	t Global Target P Ils Role	roperties f			to a Targe	et Group 1					
View  View  Listen The follow	g. Specify Common Monitoring Credentials Target Name CDB1 (Container Database) ving listeners have been discovered on this hos Specify Configure	onitoring Credentials	e' action. You can set Test Connection Monitoring Credentia Monitor Password	t Global Target P Ils Role	roperties f		٩	to a Targe	et Group v					

f) In the "Database Discovery: Review" window, click Save

https://192.168.56.5:7799/em/faces/sdk/nonFacesWrapper?target=CDB18	&_em.coBM=/console/rac/conf/racTargetDelete%3FreturnUrl% 🔍 🤁 🗌 🔍 Sea	rch 🗘 自 ·		9 🗐 –
Cloud Control 12	2c			👥 SYSMAN 🔻
0-0-0				
ch Criteria Results Review				
tabase Discovery: Review		Back St	itep 3 of 3 Next	Save Car
co review the targets helew and click on 'Caus' to start may	abaring the targets			
ise review the targets below and click on 'Save' to start mor	nitoring the targets.			
tabase Systems				
	I databases and related targets.			
tabase Systems Nowing Database systems will be created for the discovered Target Name	I databases and related targets. Target Type	Host		
ollowing Database systems will be created for the discovered		Host		
ollowing Database systems will be created for the discovered	Target Type	Host 192.168.56.11		
Nowing Database systems will be created for the discovered Target Name CDB1_sys	Target Type Database System			
Nowing Database systems will be created for the discovered Target Name CDB1_Sys CDB1	Target Type Database System			
Nowing Database systems will be created for the discovered Target Name CDB1_sys A CDB1 A Pluggable Database	Target Type Database System Database Instance	192.168.56.11		
Nowing Database systems will be created for the discovered Target Name CDB1_sys CDB1 Pluggable Database CDB1_CDBROOT	Target Type Database System Database Instance Pluggable Database	192.168.56.11		
Nowing Database systems will be created for the discovered Target Name CDB1_sys CDB1_sys CDB1_VS CDB1_Database CDB1_CDBROOT CDB1_PDB1	Target Type Database System Database Instance Pluggable Database	192.168.56.11		
Nowing Database systems will be created for the discovered Target Name CDB1_sys CDB1 Pluggable Database CDB1_CDBROOT	Target Type Database System Database Instance Pluggable Database	192.168.56.11		
Nowing Database systems will be created for the discovered Target Name CDB1_sys CDB1_sys CDB1_sys CDB1_Database CDB1_CDBROOT CDB1_PDB1 her Targets	Target Type Database System Database Instance Pluggable Database	192.168.56.11		

- Click Close g)
- h) Click Targets, Database





Overview of Incident	s and Proble	ms		٠.	🔟 Database Load Map				٢
Incidents				^	Total Active Sessions : 0.00		.\	/iew Level : 🖲 Da	tabase 🔘 Instance 🔘 Pluggable Datab
Updated in last 7 days		h							
Breakdown of incidents u Category	poated in the	ast 7 day	/s						
Availability			-						
Performance	12		2			Database Load Map not A	Avallable		
Security	2.85	-	-						
Others		-	-						
Show Latest Run 💌			. / uujsi	*	3 Members () Status Pending 3				
View - Status	00	<b>B</b> 0	00	10	Name	Туре	Status	Availability (%)	
lame		9.9		×	CDB1	1	•		n/a
o job runs found	V 😡	4 9	Started		CDB1_PDB1		•	L	n/a
o joo rana rounu					CDB1_CDBROOT	6	•		n/a
	1			P. 1					
۰ ( m									

#### 5.3 Create a guest user on the virtual machine

We will create a guest user on our virtual machine to be used by the Self Service user later (the Self Service user is not supposed to have access to the root or oracle users).

- a) From your Gnome environment, open a new terminal
- b) Create the guest user

```
$ ssh root@192.168.56.11
```

(password is dev)

# passwd guest

(set guest as password)

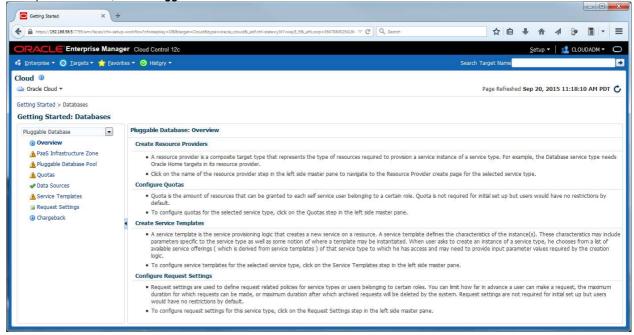


- # useradd -g users guest
- # cp /home/oracle/.bash\_profile /home/guest



## 5.4 Create a PaaS infrastructure zone

- Log out from EM12c console and log in again with following credentials: a) User Name : cloudadm (cloud administrator) 0
  - Password 0 : cloud
- Click Setup, Cloud, Database b)
- In the pull-down menu, select Pluggable Database C)



In the left panel, click PaaS Infrastructure Zone d)

#### Click Create e)

Getting Started × +	÷																			
https://192.168.56.5:7799/em/faces/cfw-set	up-workflow?cfwste	pkey=DB8ttarget=(	Cloud&type=ora	acle_cloud&_ac	if.ctrl-state≃y3t7v	wey8_98c_a	frLoop=3647	8845254164	~ C Q	Search			1	2	÷	俞		9		-
DRACLE Enterprise Mana	ger Cloud C	ontrol 12c													s	etup 🔻	22	CLOU	JDADM •	• (
🖁 Enterprise 👻 🎯 <u>T</u> argets 👻 🐈 Eavo	orites 👻 🞯 His	it <u>o</u> ry <del>-</del>										learch	Target	Name						
Cloud ③ 													Page	Refresh	ed Sep	20, 20	015 11	1:19:3	1 AM P	DT
Getting Started > Databases Getting Started: Databases																				
Pluggable Database	Pluggabl	e Database: F	PaaS Infras	tructure 7	Zone															
Overview	View 🕶	Create	/ Edit §	🕷 Delete	Reso	urces 🕶	Search	Name	•			+	Adv	inced S	earch					
PaaS Infrastructure Zone Pluggable Database Pool	Name		Тур	De		Owner	r	Туре			Resources Cou	nt	Dynar	nic Prov	isioning			Servio	ce Instar	nces
Quotas  Data Sources  Service Templates  Request Settings  Otargeback	<ul> <li>No data t</li> </ul>	o display																		

f) Enter the following information Target name : dev\_paas\_zone 0

 $\circ$ 

Name : dev\_paas\_zone then click Next





Create Paa	S Infrastructure Zone: General	Back	Step 1 of 7	Next	Cancel
* Target Name	dev_paas_zone				
* Name	dev_paas_zone				
Description					

#### In the "Create PaaS Infrastructure Zone: Members" window, g)

#### 0 Click Add

0

Select line Host 192.168.56.11 and click Select 0 Click No.

ICK Next													
Create PaaS Infrastructure Zone:	× +												
► A https://192.168.56.5:7799/em/fac	ces/core-uifwk-console-home	e?_afrLoop=1341495168	26608c,afrWin	dowMode=08.,a	ifrWindowld=1boyf97r	rpo_6#19640%2Frsrc-prov-tri ⊽ 🤇	a Search	☆ 自	+	A		8 1	1 -
DRACLE Enterprise	e Manager Cloud C	ontrol 12c									.1	CLOUDA	DM 🕶
ev_paas_zone 💿													
aparal Members Gradentiak	k Discoment Constraint		Rolas	Roudowy									
eneral Members Credentials	ls Placement Constraint	ts Characteristics	Roles	Review					_	_			_
			Roles	Review					Bac	k Step	2 of 7	7 Next	Can
Create PaaS Infrastruc			Roles	Review					Bac	k Step	2 of 7	7 Next	Can
Create Pa <mark>aS Infrastruc</mark>			Roles	Review					Bac	k Step	2 of 7	7 Next	Can
Create PaaS Infrastruc	cture Zone: Meml		Roles	Review					Bac	k Step	o 2 of 7	7 Next	Can
Seneral Members Credentiak Create PaaS Infrastruc ember type Host View - Add & Remov Host	cture Zone: Meml		+	Review	Location				Bac	k Step	o 2 of 7	7 Next	Car

#### h) In the "Create PaaS Infrastructure Zone: Credentials" window,

#### Select New 0

- Enter the following information 0
  - : oracle UserName
  - Password : oracle
  - Run Privilege : none
  - Save As : UNIX\_ORACLE . -
- 0

Crease PasS Infrastructure Zone: X +										
▲ https://192168.56.9.7799/em/faces/core-uifwk-console-home?_afri.oop=134149516826608;_afrWndowMode=08;_afrWndowId=1boy/977po,64%40%2Fstrc-prov-tm	-tri ⊽ C <sup>4</sup> Q	Search		ň	Ê	÷	A	4	3• [	•
RACLE Enterprise Manager Cloud Control 12c								2	CLOUD	ADM 🔻
ev_paas_zone 🗓										
eneral Members Credentials Placement Constraints Characteristics Roles Review										
Create PaaS Infrastructure Zone: Credentials						Back	K Step	3 of 7	Next	Ca
										Contraction of the
cify the credentials that will be used for request processing										
A Host credentials							1			
Host credentials										
Host credentials Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential	al type (valid ac	icross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential © Named      New	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Gredentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential © Named @ New * UserName	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential Named I New * UserName oracle	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	ISET			
Host Credentals to be used for provisioning in this PaaS Infrastructure Zone. The credentals provided should be of global credental Credential Named  New UserName oracle * Password	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential Named  New * UserName oracle * Password ••••••	al type (valid ac	icross the members	s in the zone) and	owned by	the cu	rrent u	ISET			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential Named  New UserName oracle Password Confrm Password	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential Named  New UserName oracle Password Confirm Password Confirm Password Run Privlege	al type (valid ac	cross the members	s in the zone) and	owned by	the cu	rrent u	iser			
Host Credentials to be used for provisioning in this PaaS Infrastructure Zone. The credentials provided should be of global credential Credential Marked  New UserName oracle Password Confirm Password	al type (valid ac	cross the members	s in the zone) and	owned by	r the cu	rrent u	iser			





i) In the "Create PaaS Infrastructure Zone: Placement Constraints" window, click Next

Create PasS Infrastructure Zone: _ × +					
🖌 角 https://19216856517799/em/faces/core-ulfwk-console-home?_afti.cop=134149516826608_affWindowMode=08c_affWindowId=1boyf97/po_6#1940962Fsrc-prov-tr 🛡 😋 🛛 Q. Searc	♂ 自	↓ 俞	1 8	) 🔟	•
DRACLE Enterprise Manager Cloud Control 12c			<b>11</b>	CLOUDADN	м <del>т</del>
dev_paas_zone 🔋					
General Members Credentials Placement Constraints Characteristics Roles Review					
Create PaaS Infrastructure Zone: Placement Constraints		Back Step	p 4 of 7	Next	Cano
Placement Constraints allow the self service administrator to set maximum ceilings for any member in the Resource Provider. These constraints are used duri	ing deployment to filter out members that are over	rburdened.			
* Maximum Memory Allocation(%) 80					
* Maximum CPU Utilization(%) 80					

j) In the "Create PaaS Infrastructure Zone: Characteristics" window, click Next

Create PaaS Infrastructure Zone:	× +							
♦ https://192.168.56.5:7799/em/face	n/cons-ulfwic-console-home?_afriLoop=134145518828608v_affWindowNode=08v_affWindowNd=1boy/57/rpo_681%40%2Frarc-prov-trr 🖤 🤇	☆自	÷	俞	1 9	•	-	≡
ORACLE Enterprise	Manager Cloud Control 12c				👱 a	LOUDADI	M 🕶	0
dev_paas_zone 🗿								
General Members Credentials	Placement Constraints Characteristics Roles Review							
Create PaaS Infrastruc	ture Zone: Characteristics		Bac	Step	5 of 7	Next	Canc	BI
⊿ Target Properties								
These characteristics will be app	vied to the resource provider as target properties							
Name	Value							
Contact								
Cost Center								
Department								
Lifecycle Status								
Line of Business								
Location								
C#n								
	.m.	_		_			22	<b>F</b>

- k) In the "Create PaaS Infrastructure Zone: Roles" window,
  - o Click Add
  - In the "Select Roles" window:
    - Select line SSA\_DEV\_PDB and click Select
       Click Next

Create PauS Infrastructure Zone: X +							1 5
🔒 https://19216836557799/em/faces/core-utivek-console-home?_afiLoop=134149516826608_affWindowMode=08c_affWindowId=1boyf57rpo_66f9409k2Frarc-prov-trr 🛡 🧭	Q. Search	☆自	÷	合	a 😕	1	-
RACLE Enterprise Manager Cloud Control 12c					指 ατοι	DADM 🔻	C
v_paas_zone @							
neral Members Credentials Placement Constraints Characteristics Roles Review							
reate PaaS Infrastructure Zone: Roles			Back	Step	6 of 7 Ne	xt C	Cance
source Provider can be made available to a restricted set of users via the use of roles. Select the roles that can access this Resource Provider.							
Add 💥 Remove							
lame	Description						
SA_DEV_PDB	Role for self service developers using p	oluggable dat	abase				







I) In the "Create PaaS Infrastructure Zone: Review" window, click Submit

Create PaaS Infrastructure Zone: X +	
Constant	1boy/57/pa_6#/54/%2/fstrc-prov-tti V C 🔍 Search 🗘 🖨 🖡 🏠 🛷 🗊 🔻
ORACLE Enterprise Manager Cloud Control 12c	🛃 CLOUDADM 🔻 🛛
dev_paas_zone () General Members Credentials Placement Constraints Characteristics Roles Review Create PaaS Infrastructure Zone: Review	Back Step 7 of 7 Next Submt Cance
General Target Name dev_paas_zone Name dev_paas_zone Description	Members Member type Host Count 1 Host 192.168.56.11
Credentials Host credentials UNIX_ORACLE	Placement Constraints Maximum Memory Allocation(%) 80 Maximum CPU Utilization(%) 80
Characteristics Contact Cost Center Location Department Lifecycle Status	Roles         Name         Description           SSA_DEV_PDB         Role for self service developers using pluggable database

You should now see the newly created Paas Infrastructure zone

Getting Started × +													- 0	×
https://192168.56.5:7799/em/faces/cfw-setup	p-workflow?cfwstepk	ey=DB8ctarget=Clo	oud&type=oracle_cloud&_adf	f.ctrl-state=y3t7vw	ey8_98c_afrLoop=364	78845254164 🖤	C Q Search		☆自	+ 🏠		9	-	=
ORACLE Enterprise Manag	jer Cloud Cont	rol 12c								<u>S</u> etup	- 1 :		ADM -	0
🍕 Enterprise 👻 🎯 Targets 👻 🌟 Eavori	ites 👻 🥝 Hist <u>o</u>							Search	Target Name					•
Cloud (0)									Page Refreshe	ed Sep 20,	2015 1	1:24:44	AM PD	-
Information     The PaaS Infrastructure Zone 'dev_p	paas_zone' has b	een created.												×
Getting Started > Databases Getting Started: Databases														
Pluggable Database	Pluggable (	)atabase: Pa	aS Infrastructure Z	one										_
Overview PaaS Infrastructure Zone	View 🕶	Create	🖉 Edit 💥 Delete	Resou	rces 🔻 🛛 Search	Name		•	Advanced Se	arch				
Pluggable Database Pool	Name		Туре		Owner	Туре		Resources	Dynamic Provis	sionina		Service	Instanc	ces _
A Quotas	dev_paa	s_zone	PaaS Infrastruct	ure Zone	CLOUDADM	Host		1	-					0
<ul> <li>Data Sources</li> <li>Service Templates</li> <li>Request Settings</li> <li>Chargeback</li> </ul>														
														Ŧ

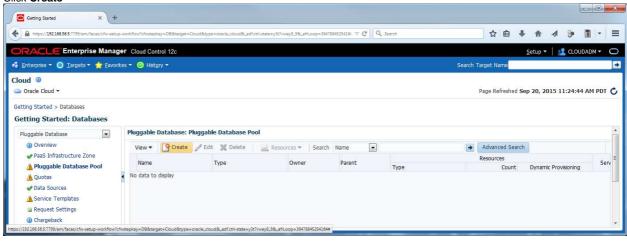




#### 5.5 Setup the database cloud Self Service for pluggable database

#### 5.5.1 Database pool setup

- In the left panel, click "Pluggable Database Pool" a)
- b) Click Create



In the "Create New Pool: setup" window, enter the following information: C)

Pools details: Name

: pdb\_pool

Credentials 0 .

0

- Host : UNIX\_ORACLE(CLOUDADM)
- Grid Infrastructure : Leave unanswered (Select a credential) as we won't need them here. .
- Database credential: Click +
  - Username : sys
  - Password : Welcome1
- : SYSDBA Role : DB\_SYS
- Save As

	×
rou want to use for this new credential. The SDBA privileges.	
sys	
SYSDBA	
DB_SYS	
	SVS SVSDBA

- **Container Databases** 0
  - PaaS Infrastructure Zone
- : dev\_paas\_zone : Linux x86-64
  - Platform : Database instance Database configuration
  - . Version : **12.1.0.2**
  - Select the container database
    - Click Add
      - Select line CDB1 •
      - Click Select .
- Then click Next 0







https://192168565:7799/em/faces/chv-setup-workflow?chvstepkey=DB⌖=Cloud&type=oracle_cloud&cadf.ctr		Search	☆ I				
Cloud Control 12c						🛃 CLOI	JDADM 🔻
base Pools							
ate New Pool: Setup				Ba	ck Step 1	of 2 Ne	ext Ca
ol Details	Credentials						
* Name pdb_pool		edentials that will be used for p ils require SYSDBA privileges.	performing databas	e operati	ons like Plugg	able Dat	abase crea
escription		* Host UNIX_ORACLE	(CLOUDADM)	+			
	Gric	Infrastructure Select a Crede	ntial 💌	+			
		* Database DB_SYS (CLOU	JDADM) 💌 💠				
itainer Databases	Container Database V						
d one or more Container Databases to the pool from a single PaaS infrastructure zone. Homog * PaaS Infrastructure Zone dev_paas_zone 💌 * Platform Linux x86-64			created.				
d one or more Container Databases to the pool from a single PaaS infrastructure zone. Homog * PaaS Infrastructure Zone dev_paas_zone * Platform Linux x86-64 * Target Type Database Instance * * Version 12.1.0.2.0 *	geneity is controlled by the target filters that canno		created.				
d one or more Container Databases to the pool from a single PaaS infrastructure zone. Homog * PaaS Infrastructure Zone dev_paas_zone 💌 * Platform Linux x86-64	geneity is controlled by the target filters that canno				c	ΩU	Memory
d one or more Container Databases to the pool from a single PaaS infrastructure zone. Homog * PaaS Infrastructure Zone dev_paas_zone  * Platform Linux X86-64 * Target Type Database Instance  * Version 12.1.0.2.0  Add % Remove Name Location Description	geneity is controlled by the target filters that canno	it be modified once the pool is	it.		C		М
d one or more Container Databases to the pool from a single PaaS infrastructure zone. Homog * PaaS Infrastructure Zone dev_paas_zone  * Platform Linux x86-64 * Target Type Database Instance  * Version 12.1.0.2.0  Add  % Remove	geneity is controlled by the target filters that canno	it be modified once the pool is			C	СРU 1	Memo

### d) In the "Create New Pool: Policies" window, Click Submit

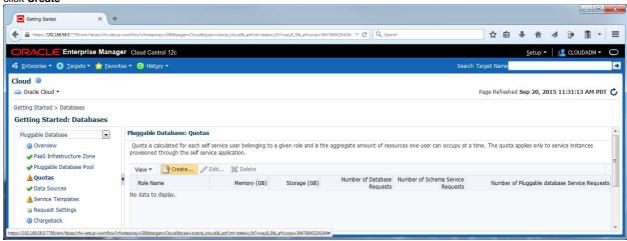
Create New Pool: Database Pools X								_
A https://192168.56.5:7799/em/faces/cfw-setup-workflow?cfwstepkey=DB⌖=Cloud&type=or	acle_cloud8x_adf.ctrl-state=y3t7vwey8	3_98c_afrLoop=36478845254164 ♥ 🧲	Q. Search	☆自	+ 1		9 II	•
RACLE Enterprise Manager Cloud Control 12c						2	CLOUDAD	M 🕶
tabase Pools								
Create New Pool: Policies					Back St	ep 2 of 2	Submit	Cano
Placement Constraints								
Placement policy constraints allow the self service administrator to set maximum c database pool might enforce more conservative limits, whereas a development da Constrain Placement on Each Container Database by I Pluggable Databases				in carries of resource con	ang done i	or examp	e, a produc	Sout
Maximum Number of Pi Workbads associated w Maximum CPU alloc		80 ÷						
Maximum Number of Pi Workbads associated w Maximum CPU alloc	ith the service requests ation never exceeds (%)	80 \$						





### 5.5.2 Quota setup

- a) In the left panel, click Quotas
- b) click Create



: SSA\_DEV\_PDB

: 2 : 50

: 0

: 0

: 2

- c) Enter the following information and click **OK** 
  - o Role Name
  - Memory (GB)
  - Storage (GB)
  - Number of Database Requests
  - Number of Schema Service Requests
  - Number of Pluggable database Service Requests

Quota		
* Role Name	SSA_DEV_PDB -	
Memory (GB)	2 🗘	
* Storage (GB)	50 💲	
* Number of Database Requests	0	
* Number of Schema Service Requests	0	
* Number of Pluggable database Service Requests	2 🗘	
<ul> <li>Destruction and construction of the second se Second second s</li></ul>	0	

https://192.168.56.5.7799/em/faces/cfw-set	up-workflow?cfwstepkey=DB⌖=Cloud&type=	oracle_cloud&_adf.ctrl-state=y	3t7vwey8_98_afrLoop=3647	8845254164 V C Q Sear	ch	☆		<b>۱</b>	1 8	•	=
ORACLE Enterprise Mana	ger Cloud Control 12c							<u>S</u> etup 🔻	👥 a	OUDADM 🕶	C
💰 Enterprise 👻 🌀 Targets 👻 🏫 Eavo	rites 🔻 🧿 Hist <u>o</u> ry 🕶				Search	n Target Na	ime				
Cloud    Cloud     Cloud						Page Ref	freshed S	Gep 20, 20	)15 11:31	:13 AM PD	г
Getting Started: Databases	Pluggable Database: Quotas										
Overview	Quota is calculated for each self se provisioned through the self service	application.	a given role and is the	aggregate amount of reso	ources one user can occupy at a	time. The o	quota ap	plies only t	o service in	stances	
<ul> <li>PaaS Infrastructure Zone</li> <li>Pluggable Database Pool</li> </ul>	View 🔻 🏼 💁 Create 🥒 Ed			Number of Database	Number of Schema Service	Nur	nber of P	luggable d	atabase Se	rvice Reque	sts
and the second s	View   Create   Create  Role Name SSA DEV PDB	Memory (GB)	Storage (GB)	Requests	Requests	, turi					





### 5.5.3 Service Templates setup

- a) In the left panel, click "Services Templates"
- b) Click Create

Getting Started X													
https://192168.56.5:7799/em/faces/cfw-setup	o-workflow?cfwstepkey=DB⌖=	Cloud&type=oracle_	cloud&_adf.ctrl-state=	y3t7vwey8_98c_afrLoop	3647884525416≠ . ♥	C Q Search		☆	ê 4	- <b>^</b>	4	9 🔳	+
	er Cloud Control 12c									Setup 🔻	22	CLOUDAD	м- (
🔹 Enterprise 👻 🧿 Targets 👻 🌟 Eavori	tes 👻 🥝 Hist <u>o</u> ry 👻							Search Target N	ame				
Cloud ③ ④ Oracle Cloud <del>▼</del> Getting Started > Databases								Page Re	freshed S	ep 20, 2	015 11:	31:13 <mark>A</mark> M	1 PDT
Getting Started: Databases	al that t	o 1 T 1											
Pluggable Database	Pluggable Database:			🦉 Edit 💥 Delet	e Search (	Display Name 💌		+	Advanc	ed Search	1		
PaaS Infrastructure Zone Pluggable Database Pool	Display Name			Service Type		Owner	Resource Providers	Service Instances De	scription				
A Quotas     Duotas     Data Sources     A Service Templates     Request Settings     Orargeback  pp://32185.85739/em/facesr/cfw-setup-workflowflower	No data to display												

- c) In the "Create New Service Template: General" window
  - Enter the following information:
    - Name
- : pdb\_svc\_template
- Pluggable Database
  - : Create Empty Pluggable Database
- In the Pools and Zones section:
- Click Add
- Select line dev\_paas\_zone and click Select
- Select line dev\_paas\_zone and click Assign Pool
- Select line pdb\_pool and click Select

### Click Next

0

0

Create New Service Template: Ser. X  Truce Templates  Create New Service Template: Configurations  Create New Service Template: Create New Service Template: Create New Service Template: Create New Service Template: Create New Service Template  Pluggable Database  Create Pluggable Database  Profile  Pools and Zones  A service template can be configured to provisio  A dd X Remove A Assign Pool  Name  Ress  dev_paas_zone  pdb	I Control 12c ustomization Roles Review al tabase from Profile	ud8_adf.chi-tata=j???vwsj8_38_affL	oop=3647884525416• ♥ ( <b>Č</b>	Q, Steron				<b>R</b>	✓ €	Next
rvice Templates  eneral Configurations Intakztion Parameters  Create New Service Template: Gene  * Name pdb_svc_template Descrption  Pluggable Database @ Create Empty Pluggable Database Profile  Pools and Zones  A service template can be configured to provisio  A service template can be configured to provisio  A dd & Remove Assign Pool Name Ress	ustomzation Roles Review al tabase : from Profile	<b>.</b>	,d				Ba	ck Ste		
	ustomization Roles Review al tabase : from Profile	<b>%</b>	, a				Ba	ck Ste	p 1 of 6	Next
	ustomization Roles Review al tabase : from Profile	<b>%</b> .					Ва	ck Ste	p 1 of 6	Next
* Name pdb_svc_template Description Pluggable Database @ Create Empty Pluggable Databas Profile Pools and Zones A service template can be configured to provisio A service template can be configured to provisio Name Reserve	tabase from Profile	Q.					Ва	ck Ste	p 1 of 6	Next
Description Pluggable Database  Create Empty Pluggable D Create Pluggable Databas Profile Pools and Zones A service template can be configured to provisio A service template can be configured to provisio Name Ress	from Profile	Q.								
Pluggable Database  Create Empty Pluggable Databas Create Pluggable Databas Profile Pools and Zones A service template can be configured to provisio A service template can be configured to provisio Name Ress	from Profile	Q.								
Create Pluggable Databas Profile Pools and Zones A service template can be configured to provisio Add X Remove Assign Pool Name Ress	from Profile	G.								
Create Pluggable Databas Profie Pools and Zones A service template can be configured to provisio Context and the configured to provisio Context	from Profile	٩.								
Profile ools and Zones A service template can be configured to provisio A add X Remove Assign Pool Name Resi		9								
ools and Zones A service templete can be configured to provisio Add X Remove Assign Pool Name Ress	pluggable databases in one or more pr									
A service template can be configured to provision A and A Remove A Assign Pool Name Res	pluggable databases in one or more p									
dev_paas_zone pdb	rce Pool									
	ool									
Reference Container Database CDB1	٩									
Placement										
Provision Pluggable Database on the Container	atabase () Selected by placement alg	jorithm								
	Selected by the user durin									
dentification										
Specify a prefix that should be used to generate more than 15 characters, rest of the characters	a unique Pluggable Database name at t ill be auto generated.	the time of database creation.	. The prefix helps to ide	ntify Pluggable Databases, which	are created usi	ing this	service te	mplate.	Prefix car	inot excee
Pluggable Database Name Prefix										





- In the "Create New Service Template: Configurations" window, enter the following information d)
  - In the Workload section, click Create 0
    - In the "Create Workload" window, enter the following information and click Create
    - Name : wkload

0

- . CPU : 1 cores
- . Memory : 1 GB
- Sessions : 100 units
- Storage : 10 GB

* Name	wkload		
Description			
* CPU	1	cores	
* Memory	1	GB	
Sessions	100	units	
* Storage	10	GB	
			Create Cancel

- In the "Pluggable Database Administrator Privileges" section, 0
  - Assign Pluggable Database Administrator Privileges: select "By creating a new Database role" .
    - Role Name: PDBADM

#### Click Next 0

						, 0
Create New Service Template: Ser	× (+					
https://192.168.56.5:7799/em/face	es/chv-setup-workflow?cfwstepkey=D8⌖=Cloud&type=oracle_cloud&_adf.ctvi-state=y3t7vwey&_9&_afiLoop=36478845254164 🛡 🦉 🛛 🔍 Search		☆自	* * 4	80 [	1 -
RACLE Enterprise	Manager Cloud Control 12c				CLOUD	DM 🕶
rvice Templates						
0-0-	altation Parameters Customization Roles Review					
reate New Service Te	mplate: Configurations		(	Back Step 2 (	of 6 Next	Car
Workloads						
Workload represents the expe	ected CPU, memory and storage requirements for each service.					
View - Create	🖉 Edit 💥 Delete 📲 Set as default workload					
Name	Description	CPU (cores)	Memory (GB)	Sessions (uni	ts) S	torage
wkload		1	1		00	
Pluggable Database Admin	istrator Privileges a role which will be assigned to the Pluggable Database Administrator.	1	1	1		
Pluggable Database Admin Select existing roles or create a			1	1		
Pluggable Database Admin Select existing roles or create a	a role which will be assigned to the Pluggable Database Administrator. dministrator Phyleges © From existing Database Roles © By creating a new Database Role	1	1	1		
Pluggable Database Admin Select existing roles or create a Assign Pluggable Database Ac * Role Name	a role which will be assigned to the Pluggable Database Administrator. dministrator Phyleges © From existing Database Roles © By creating a new Database Role		Ĩ			
Puggable Database Admin Select existing roles or create a Assign Pluggable Database Ac * Role Name Description * Privleges for administrator	a role which will be assigned to the Pluggable Database Administrator. dministrator Privleges © From existing Database Roles					
Puggable Database Admin Select existing roles or create a Assign Pluggable Database Ac * Role Name Description * Privleges for administrator	a role which will be assigned to the Pluggable Database Administrator. dministrator Pnvleges Prom existing Database Roles					
Pluggable Database Admin Select existing roles or create a Assign Pluggable Database Ac * Role Name Description * Privileges for administrator	a role which wil be assigned to the Pluggable Database Administrator. dministrator Privleges From existing Database Roles ® By creating a new Database Role PDBADM New db role to be assigned to pluggable database administrator. CREATE SESSION, ALTER SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY MODEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGEF, CREATE ANY TYPE, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY, SELECT ANY TABLE					
Pluggable Database Admin Select existing roles or create a Assign Pluggable Database Ac ® Role Name Description * Privleges for administrator Pluggable Database Storag Specify the Pluggable Database Maximum Size @ Ut	a role which will be assigned to the Pluggable Database Administrator. dministrator Privileges Prom existing Database Roles By creating a new Database Role PDBADM New db role to be assigned to pluggable database administrator. CREATE SESSION, ALTER SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY MODEX, OBEATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SEQUENCE, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY, SELECT ANY TABLE ge e Storage configurations. Inlimited					
Pluggable Database Admin Select existing roles or create a Assign Pluggable Database Ac ® Role Name Description * Privleges for administrator Pluggable Database Storag Specify the Pluggable Database Maximum Size @ Ut	a role which will be assigned to the Pluggable Database Administrator. dministrator Privileges From existing Database Roles © By creating a new Database Role PDBADM New db role to be assigned to pluggable database administrator. CREATE SESSION, ALTER SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY MORCEDURE, CREATE ANY SEQUENCE, CREATE ANY MOREX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, OREATE ANY TYPE, CREATE ANY MARK, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY, SELECT ANY TABLE					

In the "Create New Service Template: Initialization Parameters" window, Click Next e)

Service 1	Templates						
General	Configurations	Initialization Par	rameters Scripts R	oles Review			
Create	New Service	Template: In	itialization Paramet	ers			Back Step 3 of 6 Next Cance
		/ Set	itialization Paramet	Editable	Modified	Description	Back Step 3 of 6 Next Cance
View +	Detach	/ Set			Modified	Description	Back Step 3 of 6 Next Cance
View - Name	Detach	✓ Set			Modified	Description Maximum number of open cursors per session, for example,	ĸ





f) In the "Create New Service Template: Scripts" window, Click Next

ORACLE Enterprise Manager Cloud Control 12	c	👥 CLOUDADM 👻 📿
Service Templates		
General Configurations Initialization Parameters Scripts	Roles Review	
Create New Service Template: Scripts		Back Step 4 of 6 Next Cancel
Custom Scripts for Create		*
Specify the custom scripts to be executed before and after cre	ating the service instance.	
Pre Script	Q. X	
Post Script	Q. X	
Custom Scripts for Delete		
Specify the custom scripts to be executed before and after del	ting the service instance.	
Pre Script	Q. %	
Post Script	Q. %	

g) In the "Create New Service Template: Roles" window: o Click Add and select role SSA\_DEV\_PDB

Click Next		
ORACLE Enterprise	Manager Cloud Control 12c	👥 CLOUDADM 👻 🔘
Service Templates		
General Configurations Initializ Create New Service Temp		Back Step 5 of 6 Next Cancel
Roles		<b>k</b>
A service template can be config	gured for one or more roles in the Enterprise Manager.	
💠 Add 🛛 💥 Remove		
Role Name	Role Description	
SSA_DEV_PDB	Role for self service developers using pluggable database	

h) In the "Create New Service Template: Review" window, click Create

https://192.168.565.7799/em/faces/cfe-s	setup-workflow?cfwstepkey=D88target=Cloud&type=orack hager Cloud Control 12c	_cloud&_adf.ctrl-state=y3t7wwey8_98_afrLc	oop=3647884525416≠ ♥	C Q Search		<> ∉	1 E	合	4 90	m - =
	nager Cloud Control 12c					A		11111		A CONTRACT OF A
rvice Templates									💶 CLOU	IDADM 🔻 🔘
eneral Configurations Initialization P	Parameters Customization Roles Review									
Create New Service Templa	ite: Review						Back	Step 6	of 6 Crea	te Cancel
General			Configuration	s						
Name pdb_svc_template			Workloads							
Source Create Empty Pluggable Da Zones and Pools	atabase		Name	Description		CPU (cores)	Memory	(GB)	Sessions (units)	Storage (GB)
			wkload			1		1	100	
			Pluggable Da	atabase Administr	ator Privileges					
Name	Resource Pool		Role N	ame PDBADM						
dev_paas_zone	pdb_pool		administr	ator OPERATOR, C CREATE JOB, TRIGGER, CRE	ION, ALTER SESSION REATE ANY PROCEDI CREATE ANY MATER ATE ANY TYPE, CRE	URE, CREATE AN' IALIZED VIEW, C	Y SEQUEN	ICE, CREA	TE ANY IN CREATE A	DEX, NY +
			Tablespace E	etails						
Reference Container Database C Placement	IDB1		Encrypti Maximum Si	pu steroore.						
Provision Pluggable Database on t	the Container Database Selected by placement	algorithm	Initialization I	arameters						
Target Properties				Detach						
Name	Value	Required	Name	Decaci	Value			Descript		
a Global Property			A Common		value			Descript	on	
Site			open_	cursors	300			Maximun	number of	open cursors p
Contact		E1		sharing	EXACT					letermines what
Location										
LifeCycle Status										
Department										
Comment										
Line of Business										
Roles										
Role Name	Role Description									
SSA_DEV_PDB	Role for self service developers using plugg	able database								
			4			m				

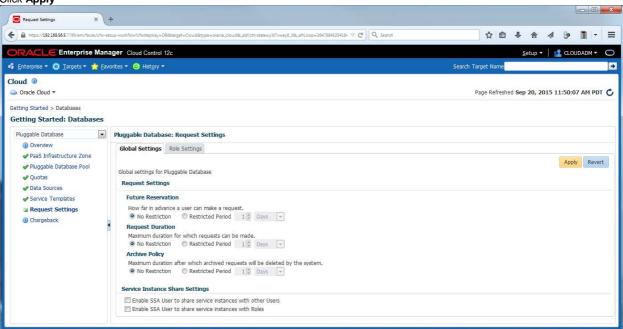




Plangeble Databases     Pluggable Databases         Pluggable Databases Pool Pluggable Databases Pool Pluggable Databases Pool Pluggable Databases Pluggable Databases Pluggable Databases Pluggable Databases Pool Pluggable Databases Pool Pluggable Databases Pool Pluggable Databases Pluggable Database Pluggable Dat		-workflow?cfwstepkey=DB⌖=Cloud&type=oracle_r	cloud&_adf.ctrl-state=y3t7vwey8_98_afrLoop=36478845254164 🖤 🥂	Q. Search		☆自	<b>↓</b> ∩		8	1
Information         The Service Template' has been created successfully.         Utiggsbie Databases         Pulggable Databases         Pulggable Databases Pulggable Databases Pool		er Cloud Control 12c					<u>S</u> etup	- 1	CLOU	ADM -
o nade dou	Enterprise 👻 🎯 Targets 👻 📩 Eavori	tes 👻 🥝 Hist <u>o</u> ry 🕶			Search	h Target Name				
The Service Template' has been created successfully.						Page Refresh	ned Sep 20,	2015 1	1:49:44	AM PDT
Puggable Database     Puggable Database:     Service Templates            O Verview         Pass Infrastructure Zone         Pluggable Database Pool         Quotas         Quotas         Service Templates           Overview         Pluggable Database:         Service Templates         Create © Create Like	The Service Template 'pdb_svc_tem ting Started > Databases	plate' has been created successfully.								
Pass Infrastructure Zone     Decisite View     Decisite Cleane Cl		Pluggable Database: Service Templa	ites							
Quotas     pdb_svc_templete     Pluggable Database     CLOUDADM     1       Data Sources       Service Templates	✓ PaaS Infrastructure Zone				Resource Providers In:			rch		
Request Settings     Grargeback		pdb_svc_template	Pluggable Database	CLOUDADM	1	Ō				

### 5.5.4 Request Settings setup

- a) In the left panel, click "Request Settings"
- b) Click Apply







# 6 Pluggable Database as a Service: deployment from the Self Service portal

## 6.1 Deploy a new PDB

ORACLE

WORLD

- a) In Oracle Enterprise Manager 12c console, log out and log in again with a Self Service user using the following credentials: • User Name : dev\_pdb1
  - Password : dev\_pdb1

Ignore "Accessibility Preferences" by clicking "Save and continue"

You should now see the "Infrastructure Cloud Self Service" portal

- b) In the Manage scroll down menu, select Databases to get the Database Self Service portal
- c) Click Request New Service

Self Service Portal X +			
https://192168.56.5:7799/em/faces/ssa-console-home?_adfctrl-state	=q483nflo0_268serviceFamily=IAA58x_affLoop=38537327012466#1%40%2Fcfw-family-home%64( 🖤 😋 🔍 Search	☆ 自 ♣ 合 ∢ 🍃	•
RACLE		👥 de	V_PDB1 -
f Service Portal		Page Refreshed Sep 20, 2015 11:52:	53 AM PDT
anage Databases		a Cloud Services Overview	Preference
		View Data Real Time: Manual Re	fresh 💌
Notifications	Services Actions  View  View  Request New Service Delete Search Name	•	
Service Offerings Published in Last 7 Days 1	Name Status Service Type Resource Provider Creation Date	and the second se	
	Requests ■ View ▼ Reschedule > Delete Search Name ▼		172
Usage	View *         Reschedule         Delete         Search         Name         Image: Control of the search           Name         Status         Type	Submission Date Begin Date	
	View - 🕅 Reschedule 🗙 Delete Search Name 💽	Submission Date Begin Date	
Usage Memory (GB): 0.0 0 2 Storage (GB): 0.0	View *         Reschedule         Delete         Search         Name         Image: Control of the search           Name         Status         Type	Submission Date Begin Date	
Usage Memory (GB): 0.0 0 2 Storage (GB): 0.0	View *         Reschedule         Delete         Search         Name         Image: Control of the search           Name         Status         Type	Submission Date Begin Date	

### d) Select Service Template pdb\_svc\_template

- e) In the "Create Pluggable Database" window:
  - o In the General section, enter the following information:
    - PDB Name : CHRISPDB
    - Database service name : CHRISPDBS
  - o In the "Administrator Credentials" section, enter the following information:
    - Administrator Name : chris
    - Password : chris
       Confirm Password : chris
    - Confirm Password : chris
  - o In the "Tablespaces" section, enter the following information:
    - Tablespace Name : TBS\_CHRISPDB
  - o Click Submit





Create Database × +							×
€ A https://192168.56.5:7799/em/faces/ssa-console-home?_adf.ct/-	tate=q483nf1o0_268xserviceFamily=IAA58c_afrLoop=38537327012466#1%40%2Fssa-c	ibaas-request-se 🔍 🥂	Q. Search	☆ 自 ♣ 俞	1 8		Ξ
ORACLE					🙎 DEV	_PDB1 🔻	С
Database Cloud Self Service Portal							
Create Pluggable Database					Submit	Canc	el 🔺
General		Administrator	Credentials				
Service Template pdb_svc_template		Create a Pluggab	le Database Administrator account				
* Request Name DEV_PDB1 - Sun Sep 20 2	D15 11:54:29 PDT						
* Zone dev_paas_zone 💌		* Administrator					
* PDB Name CHRISPDB			ssword ••••				-
* Database Service Name CHRISPDBS		Confirm Pa	ssword ••••				
* Workload Size wkload(CPU-1 cores, Mem	ory-1 GB, Sessions-100 units, Storage-10 GB) 💌	Tablespaces					
Schedule Request		Please enter t	ne name of the tablespace to be c	reated as part of this request.			
If Start Date is set to "Immediately", the timezone "F	acific Daylight Time (GMT -7:00)" will be used for End Date.	Serial No.	Tablespace Name				
Start 🔘 Immediately 🔘 Later	🚯 (UTC-08:00) Los Angeles - Pacific Time (PT)	1	TBS_CHRISPDB				
Duration 🖲 Indefinitely 🗇 Until	ĺ₽.	Service Instanc	e Properties				
		View 🕶					
		Name		Value			
		> Optional					

f) In the "Wiew data" scroll down menu, select "Real time: 15 seconds refresh" to enable automatic refresh

ORAÇLE WORLD

PACLE									DEV_PDB1
Service Portal							Page Refreshed Sep	o 20, 2015 11:5	56:11 AM
age Databases							🇠 Cloud Se	rvices Overview	遅 Prefe
							View Data	Real Time: 15 Sec	conds Refre
Notifications	Services								
1 Info	Actions ▼ View ▼				Search Name		•		
Service Offerings Published in Last 7 Days 1	Name No services found	Status	Service Type	E.	Resource Provider	Creation Date	Expires In		
	Requests								
		harlula 💓 Daleta	Courth N						
Usace	View -	hedule 💥 Delete	Search Na	Semant -	Tina	٠	Submission Data	Rodin Data	
Usage	View • 😥 Resc			Status	Type Craste Divosible Database	۲	Submission Date	Begin Date	
	View • 😥 Resc	hedule 💥 Delete Sep 20 2015 11:54:		Semant -	Type Create Pluggable Database	۲	Submission Date Sep 20, 2015	Begin Date Sep 20, 2015	ş
Usage	View • 😥 Resc			Status		۲			i
Usage Memory (GB): 1.0	View • 😥 Resc			Status		۲			1
Usage Memory (GB): 1.0	View • 😥 Resc			Status		٠			i
Usage Memory (GB): 1.0	View • 😥 Resc			Status		٠			1
Usage Memory (GB): 1.0	View • 😥 Resc			Status		۲			3
Usage Memory (GB): 1.0 0 2 Storage (GB): 10.0	View • 😥 Resc			Status		٠			5
Usage Memory (GB): 1.0 0 2 Storage (GB): 10.0	View • 😥 Resc			Status					





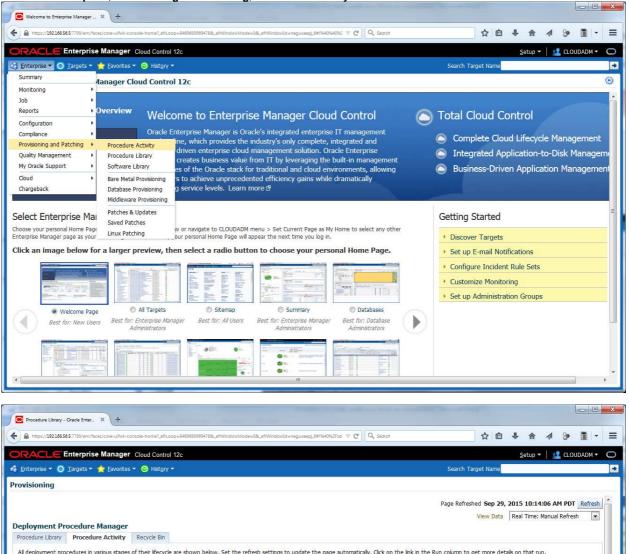


g) Wait for a few minutes to get your PDB

### Note: job details

If you want to see the job details:

- o Log out and log in using User Name cloudadm (password cloud)
  - Go to Enterprise, Provisioning and Patching, Procedure Activity



Al deployment procedures in various stages of their lifecycle are shown below. Set the refresh settings to update the page automatically. Click on the link in the Run column to get more details on that run.
Search Text Fields
Go Advanced Search
Edit Permissions... Stop Suspend Resume Retry Delete Reschedule
Select Run Status Procedure Type Owner Start Date Last Updated
OEV\_PDB1 - Tue Sep 29 2015 10:10:55 PDT\_CREATE\_11\_23\_1 Running Process Cloud Request Cloud Framework Request DEV\_PDB1 Sep 29, 2015 10:11:29 AM PDT Sep 29, 2015 10:11:52 AM PDT





Olick job DEV\_PDB1\_<xx>

€ 🔒	https://19216856.5:7799/em/faces/core-ulifwk-console-home?_afrLoop=84696899694788	&_afrWindowMode	*08_stWindowid=neguxaepj_581%40%52Fco 🔍 C 🔍 Search 🔄 🖨 🕼 🖗 👔 💌
OR,	ACLE Enterprise Manager Cloud Control 12c		Setup 🔻 📔 💶 CLOUDADM 🕶
🕯 <u>E</u> nti	erprise 🔻 🧿 Targets 👻 🏫 Favorites 👻 😒 Hist <u>o</u> ry 👻		Search Target Name
Provis	ioning		
Proce	ure Activity > DEV_POB1 - Tue Sep 29 2015 10:10:55 PDT_CREATE_ edure Activity: DEV_PDB1 - Tue Sep 29 2015 10:10 Elapsed Time: 3 minutes, 28 seconds edure Steps	R. S	Switch to Classic Vie REATE_11_23_1 View Data Real Time: Manual Refresh view Data Real Time: Manual Refresh view Office Actions
View		•	1 Information
Select		Status	Select an execution step from the Procedure Steps tree on the left to see the details.
	Initialization	1	
	Prerequisite Evaluation	1	
	Provision Resource	8	
	Request Configuration	1	
	Execute Request Job	3	
	Execute Request Procedure	9	
	Initialize Deployment Procedure	1	
	Validate the Quotas	1	
	Obtain the Target Node List using the Placement Algorithm	1	
	Build configuration data for Creating Pluggable database	1	
	Create the parameters file for scripts	3	
	Execute custom script	5	
	Create the Pluggable database	9	
	Execute custom script		
	Post Cleanup Operations		
	Assign the Target Privileges		
	Delete Resource		

- o In "View Data", select "Real Time: 30 seconds Refresh" to enable automatic refresh
- h) After a few minutes, you will see your PDB

RACLE										nand AV.	👥 DEV_PD	001 -
Service Portal												
Service Portai								Page Refre	shed Sep 29	9, 2015	10:18:24 A	AM PL
anage Databases									Cloud Service	es Overvi	ew 🛛 遅 Pr	refere
								Viev	Data Real	Time: Ma	anual Refresh	h
Services	Services											
Created 1 ( 1 1)	Actions 🔻	View 🕶			🗙 Delete	Search	A MARKAN AND A MARKAN			+		
Notifications	Name	-	Status	Service Ty			Resource Provider		Expires	In		
Into Into	CDB1_C	HRISPDB	1	Pluggable	Database		dev_paas_zone	Sep 29, 2015				
Service Offerings Published in Last 7 Days 1	Requests	6										
Service Offerings Published in Last 7 Days 1			e 💥 Delete	Search	Name 💌			•				
			e 🗙 Delete	Search	Name 💌 Status	Туре		۲	Submission	n Date	Begin Date	
	View -				Construction of the second		luggable Database	•	Submission Sep 29, 2		Begin Date Sep 29, 20	e
Usage	View -	Reschedul			Status		luggable Database	٠				e
Usage	View -	Reschedul			Status		luggable Database	٠				e
Usage Memory (GB): 1.0	View -	Reschedul			Status		luggable Database	٠				e
Usage Memory (GB): 1.0	View -	Reschedul			Status		luggable Database	٠				e
Usage Memory (GB): 1.0	View -	Reschedul			Status		luggable Database	•				e
Usage Memory (GB): 1.0 0 2 Storage (GB): 10.0	View -	Reschedul			Status		luggable Database	*				
Usage Memory (GB): 1.0 0 2 Storage (GB): 10.0	View -	Reschedul			Status		luggable Database	•				e







i) Click on the PDB CDB1\_CHRISPDB to get more details

https://192.16	.56.5:7799/em/faces/ssa-consc	le-home?_adf.ctrl-state=xawhn7i	48xserviceFamily=IAAS8_afrLoop=8807590046	815#1%40%2Fssa-pdb-hi 🔍 🧲	Q. Search	☆自♣	☆ 🌮 🖺 -
CDB1_CHRI	SPDB	ole Database Instance: CDE	CHRISPDB			Page Refreshed <b>Sep</b>	29, 2015 10:19:15 AM PDT
🔲 Shutdown	Startup						Auto Refresh Off
Summary		<b>⊚</b> .	Performance				
String (PF (PC (SE (IN (SE User chr Name	.0.2.0 tails SCRIPTION=(ADDRESS, OTOCOL=TCP)(HOST= IRT=IS21))(CONNECT_ RVICE_INAME=CHRISPDI STANCE_INAME=CDB1)( RVER=DEDICATED))) S	92.168.56.11) DATA= 35) UR=A)	1.00 0.75 0.50 0.25 0.00 10:39 AM 10:49 AM 1	0:59 AM 11:09 AM	11:19 AM 11:29 AM	Walt User I/O CPU — Expected CPU W — Maximum CPU W	
Resource Us Resource	Expected Workload	© + Actual Workload					
femory (GB)	1	0.02					
torage (GB)	10	0.75	SQL Monitoring				
			Status Duration	SQL ID Sea	sion ID Para	allel Database Time Co	ntainer

## 6.2 Access the PDB

### 6.2.1 Test with SQLPLUS

a) From a SQL client, connect to the PDB

```
Here, for simplicity, we use the SQL client installed on our virtual machine (dev1.example.com)

$ ssh guest@192.168.56.11 (password is guest)

$ sqlplus chris/chris@192.168.56.11:1521/chrispdb

SQL>
```

b) Try to create a table
 SQL> create table toto (coll varchar2(30)) tablespace TBS\_CHRISPDB;

Notes: tablespace

o It is necessary to force tablespace because the default tablespace for this user is SYSTEM.

## **Congratulations** !

You have successfully deployed your first pluggable database (PDB) in "DBaaS / PDB as a Service" mode.







# 7 Appendix A: preparation of the environment before the lab

## 7.1 Purpose

This section explains how to prepare the environment to run this lab. It is useful if you want to run this lab at home or office.

The first step is to find an X86 machine (server, desktop or labtop) with the required resources (4 vcpus, 16 GB of ram, and 100 GB of disk space) and install Oracle VM VirtualBox on it.

Then, there are three servers to install (three Oracle VM VirtualBox virtual machines in fact):

- Oracle VM Server
- o Oracle VM Manager
- o Oracle Enterprise Manager Cloud Control 12c

## 7.2 Download required binaries

This section lists the required binaries and explains how to download them.

### For your X86 machine:

- 1) Oracle Java Runtime Environment (JRE) 7 Download the version for your OS from <u>http://java.com/en/download/manual.jsp</u>
- 2) Oracle VM VirtualBox 5.0.x binaries (5.0.4 during writing of this document) Download the version for your OS from <a href="https://www.virtualbox.org/wiki/Downloads">https://www.virtualbox.org/wiki/Downloads</a> For Oracle/Redhat Linux 6 64 bits: Direct link: <a href="http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0-5.0.4\_102546\_el6-1.x86\_64.rpm">http://download.virtualbox.org/virtualbox.org/virtualbox.org/virtualBox-5.0-5.0.4\_102546\_el6-1.x86\_64.rpm</a> Filename : <a href="http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4\_102546\_el6-1.x86\_64.rpm">http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0-5.0.4\_102546\_el6-1.x86\_64.rpm</a> Filename : <a href="http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4-102546-win.exe">http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0-5.0.4\_102546\_el6-1.x86\_64.rpm</a> For Microsoft Windows: Direct link: <a href="http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4-102546-Win.exe">http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4-102546-Win.exe</a> Filename : <a href="http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4-102546-Win.exe">http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4-102546-Win.exe</a> Filename : <a href="http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4-102546-Win.exe">http://download.virtualbox.org/virtualbox/5.0.4/VirtualBox-5.0.4-102546-Win.exe</a> For other

For others...

### 3) Oracle VM VirtualBox Extension Pack 5.0.x

Download from <a href="https://www.virtualbox.org/wiki/Downloads">https://www.virtualbox.org/wiki/Downloads</a> (same file for all OSes) Direct link: <a href="http://download.virtualbox.org/virtualbox/5.0.4/Oracle\_VM\_VirtualBox\_Extension\_Pack-5.0.4-102546.vbox-extpack">http://download.virtualbox.org/virtualbox/5.0.4/Oracle\_VM\_VirtualBox\_Extension\_Pack-5.0.4-102546.vbox-extpack</a> (size 16 MB)

### For Oracle VM Server:

Oracle VM Server 3.3.3 iso image
 Download from My Oracle Support <u>http://support.oracle.com</u> (Patch 20492240)
 Filename: p20492240\_30\_Linux-x86-64.zip (size 523 MB)

### For Oracle VM Manager:

- 5) Oracle VM VirtualBox template for Oracle VM Manager 3.2.4 Download from http://www.oracle.com/technetwork/server-storage/vm/template-1482544.html Direct link: http://download.oracle.com/otn/vm/OracleVMManager3.2.4-b524.ova Filename: OracleVMManager.3.2.4-b524.ova (size 2.75 GB)
- 6) Oracle VM Manager patch for 3.3.3 (to upgrade from 3.2.4 to 3.3.3) Download from My Oracle Support <u>http://support.oracle.com</u> (Patch 20492250) Filename: p20492250\_30\_Linux-x86-64.zip (size 2.6 GB)

### For Oracle Enterprise Manager Cloud Control 12c:

 7) Oracle VM VirtualBox template for Oracle Enterprise Manager 12c release 5 (12.1.0.5) Download for Oracle E-delivery platform (<u>https://edelivery.oracle.com</u>) Login, filter products by "Linux/OVM/VMs" and enter "cloud control" Then select "Oracle VM VirtualBox for Oracle Enterprise Manager Cloud Control" Select Platform "x86 64 bit" Click continue twice Download the 6 files listed here Filenames: V76836-01.zip (size 3.4 GB)

V76837-01.zip (size 3.5 GB)





ORACLE

NORLD



V76838-01.zip (size 3.5 GB) V76839-01.zip (size 3.5 GB) V76840-01.zip (size 3.1 GB) V77049-01.zip (size 2.6 KB, extraction instructions)

## 7.3 Installation of Oracle VM VirtualBox

- 1) Find an x86 machine (desktop, laptop, server) matching the following prerequisites:
  - At least 16 GB of RAM
  - o X86 64 bits CPU (Intel or AMD) with at least 4 cpus threads and with Virtualization Extensions (Intel VT or AMD-V)
  - o OS supported by Oracle VM VirtualBox (Microsoft Windows, Linux distributions, Oracle Solaris, Apple Mac OSX...)
  - 100 GB of disk space
- 2) Install the Oracle Java JRE on your OS (javaws binary needed to get the VNC console)
- 3) Install the Oracle VM VirtualBox binaries on your x86 machine
- 4) Start the Oracle VM VirtualBox console
- If not already created, create a host only network in Oracle VM VirtualBox using the defaults IP information (IPv4 address 192.168.56.1 and Netmask 255.255.255.0 for your x86 machine).
   (go to File, Preferences, Network)
- 6) Choose the folder you want to use to store the virtual machines files. (go to File, Preferences, General, Default Machine Folder)
- 7) Install the Oracle VM VirtualBox extension Pack (go to File, Preferences, Extensions)







## 7.4 Installation of Oracle VM Server

### 7.4.1 Installation of version 3.3.3 from ISO image

- a) In the Oracle VM VirtualBox console, create a new VM
  - Name: HOL10469\_ovm\_srv
  - Type: Linux, Oracle (64 bits)
  - Memory Size: 4096 MB
  - Storage HDD: create 1 HDD: VDI, Dynamically allocated, 20 GB
- b) Edit the VM

ORACLE WORLD

- System, Processor: set 2 VCPUs
- o Storage:
  - CDROM: choose ISO image for OVM Server 3.3.3
  - HDD: create a second HDD: VDI, Dynamically allocated, 150GB (for repo)
  - Enable Host I/O cache on the SATA Controller (optional, will improve performance on laptop)
- Network: 2 adapters enabled with Host Only adapters, vboxnet0, Promiscuous mode "Allow All"
- c) Start the VM

0

- d) Install & Configure Oracle VM Server 3.3.3
  - Set root password to ovsroot
  - Set Agent password to ovsroot
  - Configure network
    - IP address : 192.168.56.2
    - Netmask : 255.255.255.0
    - Gateway : 192.168.56.1
    - DNS server : 192.168.56.1
      - (we will not use DNS, but we have to give an IP address here)
    - Hostname
       ovm-srv.example.com
    - Reboot with installation completed
- e) Open a terminal on your Unix/Linux x86 machine and connect to the VM with ssh (you can use Putty on Microsoft Windows) \$ ssh root@192.168.56.2 (password is ovsroot)
- f) Add the following lines to the /etc/hosts file
  - 192.168.56.3 ovm-mgr.example.com ovm-mgr
  - 192.168.56.5 emcc.example.com emcc
  - 192.168.56.1 os.example.com os







## 7.5 Installation of Oracle VM Manager

#### 7.5.1 Installation of version 3.2.4 from Oracle VM VirtualBox template

- a) In the Oracle VM VirtualBox console, import the VM from the Oracle VM Manager template
  - Click File 0

ORACLE

WORLD

- **Click Import Appliance** 0
- Select the file OracleVMManager.3.2.4-b524.ova 0
- Click Next 0
- Change the name of the Virtual System 1 from "Oracle VM Manager 3.2.4-b524" to "HOL10469\_ovm\_mgr" 0
- Click Import 0
- Modify the settings of the virtual machine "HOL10469\_ovm\_mgr" b)
  - Configure the network (Network, Adapter 1, Attached to Host only Adapter, vboxnet0) 0
  - Memory: Set to 4096 MB 0
- Start the virtual machine "HOL10469\_ovm\_mgr" C)
- Configure the virtual machine (in the VM console) d)
  - Set root password to ovsroot 0
  - Configure network 0
    - IP address : 192.168.56.3
    - Netmask : 255.255.255.0
    - Gateway : 192.168.56.1
    - DNS server : 192.168.56.1
      - (we will not use DNS, but we have to give an IP address here)
      - Hostname : ovm-mgr.example.com
  - Wait for the end of boot 0
- e) Open a terminal on your Unix/Linux x86 machine and connect to the VM with ssh (you can use Putty on Microsoft Windows) \$ ssh root@192.168.56.3
- Add the following lines to the file /etc/hosts f)
  - 192.168.56.5 emcc.example.com emcc 192.168.56.2 ovm-srv.example.com ovm-srv
  - 192.168.56.1 os.example.com os

#### 7.5.2 Upgrade to version 3.3.3

- Unzip file p20492250\_30\_Linux-x86-64.zip to get file ovmm-3.3.3-installer-OracleLinux-b1085.iso a)
- b) Copy this ISO file to /var/tmp on the VM
- Run the upgrade c) # mount -o loop /var/tmp/ovmm-3.3.3-installer-OracleLinux-b1085.iso /mnt # /mnt/runInstaller.sh

Choose Upgrade (2), then enter the 3 passwords asked (Welcome1 each time)

Note: ignore the warning about Recommended memory

- d) Wait for the upgrade to complete (a few minutes)
- Cleanup e)
  - # cd /
  - # umount /mnt
  - # rm /var/tmp/ovmm-3.3.3-installer-OracleLinux-b1085.iso





7.5.3 Configuration for Oracle Enterprise Manager 12c (part 1)

- a) Create the directory where we will install the EM12c agent later
   # mkdir /u01/em\_agent
   # chown oracle /u01/em\_agent
- b) Change the password for the oracle unix user
   # passwd oracle (Choose oracle as the password)

Configure Oracle VM Manager keystore (to have a secure connection with EMCC) C) # cd /u01/app/oracle/ovm-manager-3/bin # ./secureOvmmTcpGenKeyStore.sh Generate OVMM TCP over SSH key store by following steps: Enter keystore password: **Store00** Re-enter new password: Store00 What is your first and last name? [Unknown]: oow What is the name of your organizational unit? [Unknown]: oow What is the name of your organization? [Unknown]: oow What is the name of your City or Locality? [Unknown]: oow What is the name of your State or Province? [Unknown]: oow What is the two-letter country code for this unit? [Unknown]: oow Is CN=oow, OU=oow, O=oow, L=oow, ST=oow, C=oow correct? [no]: yes Enter key password for <ovmm> (RETURN if same as keystore password): # ./secureOvmmTcp.sh Enabling OVMM TCP over SSH service Please enter the Oracle VM manager user name: admin Please enter the Oracle VM manager user password: Welcome1 Please enter the password for TCPS key store : Store00 The job of enabling OVMM TCPS service is committed, please restart OVMM to take effect.

# service ovmm stop
# service ovmm start

# cd ..
# mkdir keystore
# chown oracle ./keystore
# /u01/app/oracle/java/bin/keytool -keystore /u01/app/oracle/ovm-manager-3/ovmmCoreTcps.ks
 -exportcert -alias ovmm -file ./keystore/export.jks
Enter keystore password: Store00
Certificate stored in file <./keystore/export.jks>

Stop here in the Oracle VM Manager preparation Go to Oracle Enterprise Manager preparation Come back when Oracle Enterprise Manager server is ready





### 7.5.4 Deploy Oracle Enterprise Manager agent on the Oracle VM Manager server

- a) Go to Oracle Enterprise Manager Cloud Control 12c console (open URL <u>https://192.168.56.5:7799/em</u> in your Web browser) Log in with user **sysman** and password **welcome1**.
- b) Click Setup, "Add Target", "Add Target Manually"
- c) Select "Add host target" and click "Add Host..."
- d) Select "Manually" in the "Add" scroll down menu
- e) Enter the following information o Host : 192.168.56.3 o Platform : Linux x86-64 Then click "**Next**"

Note: Ignore Warning about Fully qualified hostnames.

- f) In the "Add Host Targets: Installation Details" window, enter the following information, then click "Next"
  - Installation Base Directory : /u01/em\_agent
    - Instance Directory : /u01/em\_agent/agent\_inst
  - Named Credential

0

- Click "+" to add a new credential
- Username : oracle
- Password : welcome1
- Save As : oracle
- Click OK
- Privileged Delegation Setting : <empty>
- g) In the "Add Host Targets: Review" window, click "Deploy Agent".
- h) Wait for the agent to be deployed (several minutes)
- i) Execute the mentioned scripts as root on the Oracle VM Manager to complete deployment \$ ssh root@192.168.56.3
  - # /u01/em\_agent/core/12.1.0.5.0/root.sh
  - # /u01/app/oraInventory/orainstRoot.sh
- j) In the "Agent Deployment Summary" window, click "Done".
- k) Install the "Oracle Virtualization" plug-in on the EM Agent just deployed In Oracle Enterprise Manager Cloud Control console
  - Click Setup, Extensibility, Plug-ins
  - Expand "Servers, Storage and Network"
  - Select "Oracle Virtualization"
  - Click "Deploy On", "Management Agent..."
  - o Click Continue
  - o Select the "192.168.56.3" line and click Continue
  - Click Next
  - Click Deploy





- 7.5.5 Configuration for Oracle Enterprise Manager 12c (part 2)
  - a) Finish configuring the secure connection between Oracle VM Manager and Oracle Enterprise Coud Control
     \$ ssh oracle@192.168.56.3 (password is oracle)
     oracle\$ cd /u01/app/oracle/ovm-manager-3
     oracle\$ /u01/em\_agent/agent\_inst/bin/emctl secure add\_trust\_cert\_to\_jks -trust\_certs\_loc
     ./keystore/export.jks -alias ovmm
     Oracle Enterprise Manager Cloud Control 12c Release 5
     Copyright (c) 1996, 2015 Oracle Corporation. All rights reserved.
     Password: welcome (default password)

```
Message : Certificate was added to keystore ExitStatus: SUCCESS
```

- b) Enable HTTP server and copy the Database 12c Oracle VM assembly (see Appendix B on how to create this assembly)
  - The Oracle VM Manager virtual machine has already an Apache HTTP server configured and running. The "Document Root" directory is /var/www/html
  - Create a subdirectory called files in /var/www/html # cd /var/www/html # mkdir files # chmod 777 files
  - Copy the Database 12c Oracle VM assembly (file OVM\_OL6U5\_DB12\_PVM.ova) in it (use scp or WinSCP) # ls -lh /var/www/html/files total 4.8G
     -rw-r--r-- 1 root root 4.8G aug 27 08:05 OVM\_OL6U4\_DB12\_PVM.ova





# 7.6 Installation of Oracle Enterprise Manager Cloud Control 12c

- Create the Oracle Enterprise Manager Cloud Control template file from the downloaded zip files. a) Unzip the files V76836-01.zip, V76837-01.zip , V76838-01.zip , V76839-01.zip , V76840-01.zip
  - 0 0
  - This will create 5 files with .ova extension
  - Concatenate the 5 .ova files to create a single .ova file 0 \$ cat VBox\_EM12cR5\*.ova > EM12cR5.ova
  - This will create a 17 GB file called EM12cR5.ova 0
- b) In the Oracle VM VirtualBox console, import the VM from the Oracle Enterprise Manager Cloud Control template File 0
  - Import Appliance 0
  - Select the file EM12cR5.ova 0
  - Next 0

ORACLE

NORLD

- Change the name of the Virtual System 1 to "HOL10469\_emcc" 0
- 0 Import
- Modify the settings of the virtual machine "HOL10469\_emcc" c)
  - Configure the network (Network, Adapter 1, Attached to Host only Adapter) 0
  - Set the Base memory to 5120MB instead of 3072MB (System, Motherboard) 0
- Start the virtual machine "HOL10469\_emcc" d)
- On the VM graphic console, log in using user root and password welcome1 e)

WARNING: the VM is preconfigured with US/qwerty keyboard, if you have another keyboard make sure to press the keys corresponding to qwerty layout. Once logged, if you want, you can change the keyboard layout by clicking System, Preferences and Keyboard.

- f) Open a terminal
- Change the network configuration (replace DHCP par static IP address) a)

```
To do that, modify the file /\texttt{etc/sysconfig/network-scripts/ifcfg-eth0}
and replace line
         BOOTPROTO=dhcp
```

by lines

```
BOOTPROTO=static
IPADDR=192.168.56.5
NETMASK=255.255.255.0
```

- h) Apply the network changes now # service network restart
- i) Open a terminal on your Unix/Linux x86 machine and connect to the VM with ssh (you can use Putty on Microsoft Windows) \$ ssh root@192.168.56.5 (password is welcome1)

Note: If not using US/qwerty keyboard, you will have the correct keyboard layout in this terminal.

- j) Change the root password (Easier to have the same root password for all servers) # passwd root (choose ovsroot)
- Disable the Linux Firewall to authorize HTTP/HTTPS traffic between the X86 machine web browser and Oracle Enterprise k) Manager

```
# chkconfig iptables off
# chkconfig ip6tables off
```

I) Edit file /home/oracle/start\_oms.sh and set its content to the following:

```
#!/bin/bash
export ORACLE_HOSTNAME=emcc.example.com
echo "Starting the Oracle Management Server ....."
echo ""
cd /u01/OracleHomes/Middleware/oms/bin
./emctl start oms
```

Note: the original script does not start all services (to save memory). Here we need all services.





m) Edit file /home/oracle/stop\_oms.sh and set its content to the following:

```
#!/bin/bash
export ORACLE_HOSTNAME=emcc.example.com
echo "Stopping the Oracle Management Server ....."
echo ""
cd /u01/OracleHomes/Middleware/oms/bin
./emctl stop oms
```

n) Edit file /home/oracle/stop\_db.sh and set its content to the following: Replace

```
shutdown
By
```

shutdown immediate

o) Create a startup script named /etc/init.d/emcc to automatically start EMCC at boot with following content #!/bin/bash

```
case "$1" in
    start)
    echo -n "Starting Oracle Enterprise Manager 12c R5"
    su oracle -c /home/oracle/start_all.sh
    ;;
    stop)
    echo -n "Stopping Oracle Enterprise Manager 12c R5"
        su oracle -c /home/oracle/stop_all.sh
        ;;
    *)
    echo "Usage: $0 {start|stop}"
    ;;
esac
# chmod +x /etc/init.d/emcc
# ln -s /etc/init.d/emcc /etc/rc3.d/S98emcc
```

```
# ln -s /etc/init.d/emcc /etc/rc0.d/K01emcc
# ln -s /etc/init.d/emcc /etc/rc1.d/K01emcc
# ln -s /etc/init.d/emcc /etc/rc6.d/K01emcc
```

- p) Change file /etc/hosts
  - Remove emcc.example.com on existing lines (without deleting the lines)

```
Add the following lines at the end of the file192.168.56.5emcc.example.com emcc192.168.56.3ovm-mgr.example.com ovm-mgr192.168.56.2ovm-srv.example.com ovm-srv192.168.56.1os.example.com os
```

q) Disable the graphic environment (Gnome) to save resources (CPU and memory) Edit file /etc/initab And replace line id:5:initdefault:

by line id:3:initdefault:

- r) Reboot the server # reboot
- s) Wait for the end of boot and for EMCC start. (Wait for the prompt "emcc login:" on the VM console)
- t) Go back to "Deploy Oracle Enterprise Manager Agent on the Oracle VM Manager server" to finish Oracle VM Manager configuration.







## 7.7 Pre-configuration of Oracle Enterprise Manager 12c

Some operations were done before the Oracle OpenWorld actual lab to save time and fit in the one hour slot.

Those operations are:

ORACLE

VORLD

- o Creation of the Oracle Enterprise Manager 12c users (cloud administrator and Self Service users)
- o Import of an Oracle VM assembly into the Oracle Enterprise Manager 12c software library
- Creation of a network profile
- Configuration of the chargeback feature

### 7.7.1 Creation of Oracle Enterprise Manager users and roles

We will create 3 users and 2 roles

- o cloudadm user which will be in charge of cloud administration (set up Self Service portal, chargeback, ...)
- dev\_vm1 user which will represent a developer using virtual machines (laaS)
- o dev\_pdb1 user which will represent a developer using pluggable databases (PDBaaS)
- ssa\_dev\_vm role (used by user dev\_vm1)
- ssa\_dev\_pdb role (used by user dev\_pdb1)

7.7.1.1 Creation of the cloudadm user (cloud administrator)

- a) In your Web browser, connect to Oracle Enterprise Manager Cloud Control 12c console using URL: <u>https://192.168.56.5:7799/em</u> User: **sysman** Password: **welcome1**
- b) Click Setup, Security, Administrators
- c) Click Create
- d) Enter the following information:
  - o Name : cloudadm
  - Password : cloud
  - Confirm Password : cloud
- e) Leave defaults values for other fields and click Next
- f) Add role EM\_CLOUD\_ADMINISTRATOR to existing roles (EM\_USER and PUBLIC) and click Next
- g) In the "Create Administrator cloudadm: Target Privileges" window, click Next
- h) In the "Create Administrator cloudadm: EM Resource Privileges" window, click Next
- i) In the "Create Administrator cloudadm: Review" window, click Finish

7.7.1.2 Creation of the ssa\_dev\_vm role (custom role for Self Service users using virtual machines)

As explained in the section 3.3 of the "Oracle Enterprise Manager Cloud Control 12c r5: Cloud Administration Guide" (see Appendix C: References), we need to create a custom role for Self Service application users.

- a) In Oracle Enterprise Manager Cloud Control 12c console (still logged in with the sysman user), click Setup, Security, Roles
- b) Click Create
- c) Enter the following information and click Next
  - Name : SSA\_DEV\_VM
  - o Description : Role for Self Service developers using virtual machines
- d) Add role EM\_SSA\_USER (no existing roles) and click Next
- e) In the "Create Role SSA\_DEVELOPER: Target Privileges" window, click Next
- f) In the "Create Role SSA\_DEVELOPER: EM Resource Privileges" window, click Next
- g) In the "Create Role SSA\_DEVELOPER: Administrators" window, click Next





- h) In the "Create Role SSA\_DEVELOPER: Review" window, click Finish
- 7.7.1.3 Creation of the ssa\_dev\_pdb role (custom role for Self Service users using pluggable databases)
  - Repeat previous steps to create a role named SSA\_DEV\_PDB with description "Role for Self Service developers using a) pluggable databases"
- 7.7.1.4 Creation of user for a Self Service developer using Virtual Machines
  - In Oracle Enterprise Manager Cloud Control 12c console (still logged in with the sysman user), click Setup, Security, a) Administrators
  - Enter the following information: b)
    - Name dev\_vm1 0
    - Password : dev\_vm1 0
    - Confirm Password : dev vm1 0
    - : DEV\_VM1 0 Cost Center
    - 0 Description : Self Service developer using virtual machines
  - C) Leave defaults values for other fields and click Next
  - Add role SSA\_DEV\_VM d)
  - Remove existing roles EM\_USER and PUBLIC e)
  - f) Then click Next
  - In the "Create Administrator dev\_vm1: Target Privileges" window, click Next g)
  - h) In the "Create Administrator dev vm1: EM Resource Privileges" window, click Next
  - i) In the "Create Administrator dev\_vm1: Review" window, click Finish
- 7.7.1.5 Creation of user for a Self Service developer using pluggable databases
  - Repeat previous operations with the following information: a)
    - 0 Name : dev pdb1
    - Password : dev\_pdb1 0
    - Confirm Password : dev\_pdb1 0
    - Cost Center : DEV\_PDB1 0
    - Self Service developer using pluggable databases 0 Description 0
      - Role : SSA\_DEV\_PDB

#### 7.7.2 Import of an Oracle VM Assembly into EMCC Software Library

To save disk space on the EMCC VM, we will not actually import the Oracle VM Assembly into EMCC Software Library, but rather create a link to its actual location (on a web server installed on the Oracle VM Manager).

- In Oracle Enterprise Manager Cloud Control 12c console (still logged in with the sysman user), click Setup, Provisioning and a) Patching, Software Library
- Select tab "Referenced File Locations" b)
- Select Storage Type HTTP and click Add C)
- d) Enter the following information and click OK
  - Name : http\_mgr 0 : http://192.168.56.3/files Location 0
- Click Enterprise, Provisioning and Patching, Software Library e)
- Right click "Software Library", then click "Create Folder" f)
- g) Enter "\_HOL10469" as the name, and click OK
- Right click "\_HOL10469", then click "Create Entity", "Virtualization" h)
- i) Select Subtype Assembly and click Continue







- j) In the "Create Assembly: Describe" window,
  - Set name to db12\_ol64 0
  - Click Next 0
- k) In the "Create Template: Upload Files" window
  - Select "Refer Files" 0 Select the "Referenced File Location" (choose http\_mgr) 0
  - Click Add 0
  - Enter the following information and click OK 0
    - : OVM\_OL6U4\_DB12\_PVM.ova Source File
    - : OVM\_OL6U4\_DB12\_PVM.ova Name
  - 0 Click Next
- In the "Create Assembly: Customize" window, click Next I)
- m) In the "Create Assembly: Review" window, click "Save and Upload"

#### 7.7.3 Creation of a network profile

A network profile is used to automate assignment of IP addresses to guest virtual machines. A network profile is a list or range of IP address along with host names. It defines a set of IP addresses, their associated host-names, and common networking attributes for them.

- In Oracle Enterprise Manager Cloud Control 12c console (still logged in with the sysman user), click Setup, Provisioning and a) Patching, Network Profile
- b) Click Create
- Enter the following information: C)
  - 0 Name : dev\_netprofile
  - Domain name : example.com 0
  - : 255.255.255.0 Netmask 0
  - 0 Gateway : 192.168.56.1 : 192.168.56.1
  - DNS 0 : Range
  - **IP** Address 0 Click Add 0
  - - Hostname Pattern : dev
    - Start Value 1 :
    - First IP Address : 192.168.56.11 Last IP Address : 192.168.56.20
  - Click OK







### 7.7.4 Configuration of Chargeback

Setup of Chargeback consists of 3 steps:

0

- Configure Charge Plans
  - Configure the Universal Charge Plan (set cost per CPU, Memory and Disk Space usage)
  - Optionally, define an Extended Charge Plan
  - Configure Cost Centers
- Configure Entities (Charge Plan/Cost Center assignment)

The Chargeback feature is based on monthly reports. You can have different Charge Plans, Cost Centers and Targets assignment for each month.

	Charge Plan Setup		
>	Configure Universal Plan	Entities Setup       Self Service Zone	
	Create and Configure additional Plans (Optional)	Add Self Service Do not assign Cost Center	
	Cost Center Setup Add Cost Center	Other Entities • Assign Charge Plan Other Entities Other Entities • Assign Charge Plan Other Entities • Assign Charge Plan Other Entities • Assign Charge Plan Other Entities •	ports
5	OR Import Cost Center from LDAP	Add Entities • Assign Cost Center	

7.7.4.1 Configure the Universal Charge Plan for current month

- a) In Oracle Enterprise Manager Cloud Control 12c console (still logged in with the sysman user), click Enterprise, Chargeback
- b) Click tab "Charge Plans"
- c) Select "Universal Charge Plan"
- d) Click Create, then Revision to create a new revision of the Universal Charge Plan for current month
- e) Enter the following costs and duration for resources usage: (just an example)
  - CPU Usage : 0.50 \$ / CPU / hour
  - Memory Allocation
     2.00 \$ / GB / Day
     Storage Allocation
     2.00 \$ / CB / Day
  - Storage Allocation : 0.50 \$ / GB / Day
- f) Click Save

### 7.7.4.2 Create an Extended Charge Plan

- a) Click Create, then Plan to create a new Extended Charge Plan
- b) Name it dev\_plan (since it will be use to charge the developers resource consumptions)
- c) In the panel "Entity Types", Click "Add"
- d) Select "Oracle Pluggable Database" and "Oracle VM Guest" and click "OK"

The new extended plan will be based on the Universal Charge Plan using Multipliers for CPU, Memory and Storage.

- e) For Oracle Pluggable Database
  - Leave Multipliers to default values (1)
  - Click "Add Item"
    - o Select "Base Charge" in the Item Name and Click OK
  - Set the cost for the Base Charge: for instance, 5.00 \$ per Day
- f) For Oracle VM Guest
  - Leave Multipliers to default values (1)
  - o Click "Add Item"
  - Select "Base Charge" in the Item Name and Click OK
  - Set the cost for the Base Charge: for instance, 10.00 \$ per Day
- g) Click Save





0



#### 7.7.4.3 Setup the Cost Centers

- Click tab "Cost Centers" a)
- Add a cost center for the developer group that will use Oracle VM guests b)
  - Click Add 0
    - Enter the following information
    - : DEV\_VM Cost Center . •
    - **Display Name** : DEV\_VM
    - Select the level "Top Level (Root)"
    - Click OK 0
- Add a cost center for the developer group that will use only Pluggable Databases C) Repeat the same operations with Cost Center and Display Name set to DEV\_PDB
- d) Move cost center DEV\_VM1 as a sub-cost center for DEV\_VM
  - Select Cost Center DEV\_VM1 0
  - Drag and drop it over cost center **DEV\_VM** 0
  - A new window will appear ("Move DEV\_VM1 to") 0
  - 0 Select "Member of" and "DEV\_VM"
  - Click OK 0
- Move cost center DEV\_PDB1 as a sub-cost center for DEV\_PDB e) Repeat the same operations with cost centers DEV\_PDB1 and DEV\_PDB

🖁 Enterprise 🔻 🎯 Iargets 🔻 🊖 Eavorites 🔻 🥝 Hist <u>o</u> ry 🔫							
hargeback	eback						
Home Charge Plans Cost Centers Entities	Reports						
Use a cost center to aggregate charges across multiple entities. Cost centers are typically organized in a hierarchy to provide a roll							
Date Range Aug 1, 2015 - Aug 31, 2015 -							
△ Cost Center							
⊿ Cost Center	Display Name	Category					
Action ▼ View ▼	Display Name DEV_PDB	Category Manual					
✓ Cost Center         Action ▼ View ▼       ♣ Add ※ Remove         Cost Center							
✓ Cost Center         Action ▼ View ▼       ♣ Add ※ Remove         Cost Center         ▲ DEV_PDB	DEV_PDB	Manual					
✓ Cost Center         Action ▼ View ▼       ♣ Add ※ Remove         Cost Center         ▲ DEV_PDB         ▷ DEV_PDB1	DEV_PDB DEV_PDB1	Manual Manual					

#### 7.7.4.4 Assign the Charge Plans to Targets

Since we have not yet configured the Oracle VM infrastructure cloud (done during the lab), we don't have the Oracle VM targets (zone, pool, ...) and we cannot assign the charge plans at this time. The assignment will be done during the lab.





### Appendix B: Create Oracle VM Assembly for DB12c 8

In this section, we show how to create the DB12c Oracle VM assembly we use in the lab. This creation was done before the lab during the preparation phase. This operation can be done on any Oracle VM environment.

We create the DB12 Oracle VM assembly based on the publicly available Oracle Linux 6 update 4 Oracle VM Assembly.

The basic tasks to create this DB12c assembly are:

- Download the products (Oracle VM assembly for Oracle Linux 6u4 ISO image, Oracle Linux 6u4 ISO image and Oracle 0 Database 12c)
- Import this assembly into an Oracle VM environment 0
- Create a new VM from this assembly and increase disk space 0
- Install Oracle DB12c binaries in this VM 0
- Create a DB12c container database 0
- Create an Oracle VM assembly from this VM 0

Operations are done from Oracle VM Manager (no need to use Oracle Enterprise Manager 12c here)

#### 8.1 Download the Oracle VM assembly for Oracle Linux 6 Update 4

From your web browser, go to Oracle E-delivery Linux/Oracle VM platform (https://edelivery.oracle.com/oraclevm)

- Select Product Pack "Oracle VM Templates" 0
- Click Go 0
- Click "Oracle VM 3 Templates (OVF) for Oracle Enterprise Linux 6 Media Pack for x86\_64 (64 bit)" (look for B65790) 0
- Click "Download" in front of "Oracle Linux 6 Update 4 template (OVF) Paravirtualized x86\_64 (64 bit)" (line V38315) 0
- You should get a file called V45138-01.zip (size 460 MB) 0
- Unzip it to get a file called OVM\_OL6U4\_x86-64\_PVM.ova (size 513 034 240 Bytes) 0
- Copy this file on a web server accessible from your Oracle VM environment

## 8.2 Download the Oracle Linux 6 Update 4 ISO image

From your web browser, go to Oracle E-delivery Linux/Oracle VM platform (https://edelivery.oracle.com/linux)

- Select Product Pack "Oracle Linux" 0
- Select Platform "x86 64 bit" 0
- Click Go 0
- Click "Oracle Linux Release 6 Update 4 Media Pack for x86\_64 (64 bit)" (look for B72264) 0
- Click "Download" in front of "Oracle Linux Release 6 Update 4 for x86\_64 (64 bit)" (line V37084) 0
- You should get a file called V37084-01.iso (size 3.5 GB)

#### **Download Oracle Database 12c** 8.3

From your web browser, go to Oracle E-delivery standard platform (https://edelivery.oracle.com)

- Select Product Pack "Oracle Database" 0
- Select Platform "Linux x86 64 bit" 0
- 0 Click Go
- Click "Oracle Database 12c Release 1 (12.1.0.2.0) Media Pack for Linux x86\_64 (64 bit)" (look for B78470) 0
- Click "Download" in front of "Oracle Database 12c Release 1 (12.1.0.2.0) (Part 1 of 2)" (line V46095) Click "Download" in front of "Oracle Database 12c Release 1 (12.1.0.2.0) (Part 2 of 2)" (line V46095) 0
- 0
- You should get 2 files called V46095-01\_1of2.zip (size 1.6 GB) and V46095-01\_2of2.zip (size 967 MB)

## 8.4 Import the Oracle VM Assembly into the storage repository

- Open the Oracle VM Manager of your Oracle VM environment a) (In Firefox open https://<IP\_address>:7002/ovm/console)
- Go to tab "Repositories", and select "Assemblies" in your repository b)
- Click (Import icon) C)
- Enter the URL of the web server to access the file OVM\_OL6U4\_x86-64\_PVM.ova in the "VM Assembly download location" d)
- e) Click OK





f) Wait for the import to be completed (status "Completed" in the "Job Summary" window)

## 8.5 Create a new VM from the assembly

- a) Actually, VMs are not directly created from the Oracle VM assemblies but rather from the Oracle VM templates which are created from the Oracle VM assemblies.
- b) Create an Oracle VM Template from the Oracle VM assembly
  - Right click the assembly, then click "Create VM Template..."
  - $\circ$   $\,$  Choose a name for the template (for instance ol64\_tpl) and Click OK
  - Wait for the template to be created
  - (status "Completed" in the "Job Summary" window)
- c) Create a new VM from the Oracle VM Template
  - Go to tab "Servers and VMs"
     Right click your Oracle VM server, then click "Create Virtual Machine"
  - Select "Clone from an existing VM Template"
  - Choose a VM name (for instance ol64)
  - Click Finish

## 8.6 Edit the VM

Here, we will increase the size of the virtual disk to have enough space to install DB12c. We will also add a second virtual disk to store temporary data (to avoid increasing size of the dynamically allocated first virtual disk)

We will also configure the network and modify CPU configuration

- a) Right click your VM, then click Edit
- b) Configure the network
  - Go to tab Networks
  - o Select your Network
- c) Increase size of virtual disk
  - Go to tab Disk
  - Click (pen icon) to edit Virtual Disk in slot 0
  - Change size from 12.0 GB to 50 GB, and click OK
- d) Create a second virtual disk (temporary)
  - In slot 1, select "Virtual Disk"
  - Click icon "+" to create a new virtual Disk
  - Set the following information
    - Virtual Disk Name : tmp
    - Size (GiB) : 50
    - Allocation Type : Sparse Allocation
  - Click OK
- e) Click OK to confirm the modifications.

## 8.7 Start and configure the NEW VM

- a) Right click your VM (ol64), then click "Start"
- b) Right click your VM (ol64), then click "Launch VNC console" to get the VM console
- c) In the console, enter the following information to configure network

10 00	noole, enter the following information a	o ooningare network
0	System host name	: ol64
0	Network device to configure	: eth0
0	Activate interface on system boot	: yes
0	Boot protocol	static
0	IP address	: 192.168.56.10
0	Netmask	: 255.255.255.0
0	Gateway	: 192.168.56.1
0	DNS	: 192.168.56.1
0	System root password	: SunOra00





Note: the IP addresses shown here are examples. You may need to enter different IP addresses depending on the Oracle VM environment you are using.

(disable Linux Firewall)

(change to ovsroot, easier to remember)

- d) Once the VM is ready, connect to it from laptop # ssh root@192.168.56.10
- e) Change root password# passwd root
- f) Disable Linux firewall# chkconfig iptables off
- g) Create /u01 filesystem on the virtual disk
  # fdisk /dev/xvda
   puis n, p, 4, 12289, enter, w
  # reboot
  - \$ ssh root@192.168.56.10 (password is ovsroot)
    # mkfs -t ext4 -L U01 /dev/xvda4
    # vi /etc/fstab
  - Add following line at the end of the file LABEL=U01 /u01 ext4 defaults 0 2 # mount /u01 # mkdir /u01/src
- - # mkdir /u02

C)

# mount /dev/xvdb1 /u02

## 8.8 Install Oracle DB12c binaries

```
a) Create users and groups for Oracle Database 12c
# groupadd dba
# groupadd oinstall
# useradd -G dba -g oinstall -d /home/oracle -m -s /bin/bash oracle
# passwd oracle (set password to oracle)
# chown oracle:oinstall /u01 /u02
```

b) Install Oracle Linux 6 rpms required by Oracle Database 12c

Copy the ISO image for Oracle Linux 6u4 (file V37084-01.iso) to directory /u02 on your VM (use scp or WinSCP)

```
# mount -o loop /u02/V37084-01.iso /mnt
# cd /etc/yum.repos.d
# rm public-yum-ol6.repo
# vi iso.repo
Put following content
[iso]
name=OL6u4 iso
baseurl=file:///mnt/Server
enabled=1
# yum install unzip sysstat ksh gcc gcc-c++ libaio libaio-devel
# yum install make compat-libcap1 compat-libstdc++-33
# yum install libX11 libXext libXtst libXau libXi libxcb xorg-x11-xauth
# umount /mnt
# rm /etc/yum.repos.d/iso.repo
Copy Oracle Database 12c (12.1.0.2) distribution
Copy the 2 files for Database 12c to directory /u02 on your VM (use scp or WinSCP)
# cd /u02
# unzip V46095-01_1of2.zip
# unzip V46095-01_2of2.zip
```





d) Install Oracle Database 12c

From Oracle VM Manager Gnome desktop (Oracle VM VirtualBox console) Open Gnome terminal \$ xhost + \$ ssh -X -1 oracle 192.168.56.10 (password is oracle) \$ cd /u02/database \$ ./runInstaller Uncheck "I wish to receive security updates" Skip software updates Install database software only Single instance database installation Product Language : English Database Edition: Enterprise Edition Oracle base : /u01/app/oracle (default) Software location : /u01/app/oracle/product/12.1.0/dbhome\_1 (default) Inventory direction: /u01/app/oralnventory oralnventory Group Name: oinstall Database Administrator group: dba Database Operator group: dba Database Backup and Recovery group: dba Data Guard administrative group: dba Encryption Key Management administrative group: dba

Prerequisistes -> click "Fix and Check again"

In another terminal, run as root:

# /tmp/CVU\_12.1.0.2.0\_oracle/runfixup.sh

Click OK to re-check Prerequisites -> only 1 warning about swap Check "Ignore all" and click Next Click Install

When finished, in another terminal, run as root: # /u01/app/oraInventory/orainstRoot.sh # /u01/app/oracle/product/12.1.0/dbhome\_1/root.sh

Click OK and Close

## 8.9 Create DB12c container database and listener

- a) In Oracle VM Manager gnome desktop, still logged as oracle, run the DB Configuration Assistant \$ /u01/app/oracle/product/12.1.0/dbhome\_1/bin/dbca
- b) Enter the following answers:
  - Create Database
  - o Global Database Name: CDB1
  - o Administrative Password: Welcome1
  - Make sure "Create as a Container Database" option is checked
  - Pluggable Database Name: PDB1
  - Click Next
  - o Click Finish
- c) Wait for creation of database to be completed
- d) Click OK to exit DBCA
- e) Set environment variables for user oracle
   \$ vi /home/oracle/.bash\_profile

(add following contents in the file)

ORACLE\_HOME=/u01/app/oracle/product/12.1.0/dbhome\_1 export ORACLE\_HOME

ORACLE\_SID=CDB1 export ORACLE\_SID

PATH=\$PATH:\$ORACLE\_HOME/bin export PATH

 f) Create a trigger to automatically start all PDBs with the container database \$ sqlplus / as sysdba
 SQL> create or replace trigger Sys.After\_Startup after startup on database





execute immediate 'alter pluggable database all open';

begin

g)

h)

i)

i)

k)

I)

a)



end After\_Startup; SQL> exit Disable Oracle Database users password expiration \$ sqlplus / as sysdba SQL> alter profile default limit password\_life\_time unlimited; SOL> exit In Oracle VM Manager gnome desktop, still logged as oracle, run the Network Configuration Assistant \$ /u01/app/oracle/product/12.1.0/dbhome\_1/bin/netca In NetCA, create a new listener Select Listener configuration, then click Next 0 Select Add, then click Next 0 Enter LISTENER as the Listener name, then click Next 0 0 Leave TCP as the only Selected Procotol, then click Next Use the standard port number 1521, then click Next 0 Answer No to the question "Would you like to configure another listener", then click Next 0 Click Next, then Finish to exit NetCA 0 Edit the listener file /u01/app/oracle/product/12.1.0/dbhome\_1/network/admin/listener.ora and replace ol64 by localhost Create scripts to startup the container database at boot (password is ovsroot) \$ su · # vi /etc/init.d/dbora (set following contents in the file) #! /bin/sh ORACLE\_HOME=/u01/app/oracle/product/12.1.0/dbhome\_1 ORACLE=oracle case \$1 in 'start') su - \$ORACLE -c "\$ORACLE\_HOME/bin/dbstart \$ORACLE\_HOME" su - \$ORACLE -c "\$ORACLE\_HOME/bin/lsnrctl start" ;; 'stop') su - \$ORACLE -c "\$ORACLE\_HOME/bin/lsnrctl stop" su - \$ORACLE -c "\$ORACLE\_HOME/bin/dbshut \$ORACLE\_HOME" ;; \*) echo "usage: \$0 {start|stop}" exit ;; esac exit Create Symbolic links to startup Container DB at boot # chmod +x /etc/init.d/dbora # ln -s /etc/init.d/dbora /etc/rc3.d/S99dbora # ln -s /etc/init.d/dbora /etc/rc5.d/S99dbora # ln -s /etc/init.d/dbora /etc/rc0.d/K01dbora # vi /etc/oratab Replace N by Y at end of line for CBD1 8.10 Create Oracle VM Template Stop VM # /etc/init.d/dbora stop # halt In Oracle VM manager, remove the second virtual disk (temporary)

- b) In Firefox, open https://192.168.56.3:7002/ovm/console 0
  - Log in using the following credentials 0
    - Username admin
      - Password : Welcome1







- Go to tab "Servers and VMs"
- Click the Oracle VM Server
- Right click your VM (ol64) and click Edit
- Go to tab **Disks**
- o In slot 1, Click "X" to delete the virtual disk
  - Disk Type: Select "Empty" Click OK
- - -

0

0

C)

- Restart the VM Right click your VM (ol64) and click Start
- d) Connect to the Entreprise Manager Database Express 12c console to check everything is fine

   In Firefox, open <u>https://192.168.56.10:5500/em</u>
  - Log in using the following credentials
  - Username : svs
  - Password : Welcome1
    - As sysdba : <checked>
- e) Stop DB12c
   # /etc/init.d/dbora stop
- f) Run OVM template scripts and shutdown VM # ovmd -s cleanup; service ovmd enable-initial-config; shutdown -h now

**IMPORTANT**: make sure to avoid typos and to type all 3 commands on a single line as the first command will shutdown the network access.

- g) Go back to the Oracle VM Manager console
- h) Go to tab "Servers and VMs"
- i) Right click your VM (ol64), then click "Clone or Move..."
- j) Select "Create a clone of this VM" and click Next
- k) Enter the following information
  - Clone to a : Template
  - Clone count : 1
  - Clone Name : db12\_ol64
  - Leave default values for other Click OK
- I) Click Submit
- m) Go to tab Repositories, Expand all, and make sure db12\_ol64 is visible in the VM Templates

## 8.11 Create Oracle VM assembly

An Oracle VM assembly is a TAR file with suffix .ova

- In our case, this TAR file will contain 3 files: o An .ovf file (OVF format based on XML) describing the assembly
  - An ovi file (OVF formal based on XIVIL) describing the assembly
     A System ima file containing a gripped image of the disk.
  - A System img file containing a gzipped image of the disk.
  - A .mf file containing SHA1 checksum for the previous 2 files.
  - a) Creation of the System.img file
    - \$ ssh root@<IP\_address\_OVM\_server>
    - # cd /OVS/Repositories/0004f<xxxxx>

    - # cp VirtualDisks/0004f<yyyyy>.img System.img
    - # gzip System.img
    - # mv System.img.gz System.img
    - # 1s -1 System.img (to get size of file: should be 5154040064 or 4.8 GB)
  - b) Creation of the OVF file from the OVF file of the Oracle Linux 6u4 assembly
    - # tar xvf OVM\_OL6U4\_x86\_64\_PVM.ova
      - # mv OVM\_OL6U4\_x86\_64\_PVM.ovf OVM\_OL6U4\_DB12\_PVM.ovf
      - # vi OVM\_OL6U4\_DB12\_PVM.ovf
        - Replace OVM\_OL6U4\_x86\_64\_PVM string by OVM\_OL6U4\_DB12\_PVM (4 times)
        - Replace size of file System.img (replace 513020299 by 5154040064 size, 2 times)
  - c) Creation of the Checksum file (.mf file)





# shalsum System.img # shalsum OVM\_OL6U4\_DB12\_PVM.ovf # vi OVM\_OL6U4\_DB12\_PVM.mf SHA1(OVM\_OL6U4\_DB12\_PVM.ovf) = <yy..y> SHA1(System.img) = <xx..x>

ORACLE WORLD

> Display SHA1 checksum for System.img (xx..x) Display SHA1 checksum for the .ovf file (yy..y) Create file with following content

d) Creation of the final.ova file
 # tar cvf OVM\_OL6U4\_DB12\_PVM.ova OVM\_OL6U4\_DB12\_PVM.ovf OVM\_OL6U4\_DB12\_PVM.mf System.img

IMPORTANT: the .ovf file must be the first file contained in the .ova TAR file

The Oracle VM assembly OVM\_OL6U4\_DB12\_PVM.ova is now ready to be used in any Oracle VM environment.





# 9 Appendix C: References

## 9.1 Main documents

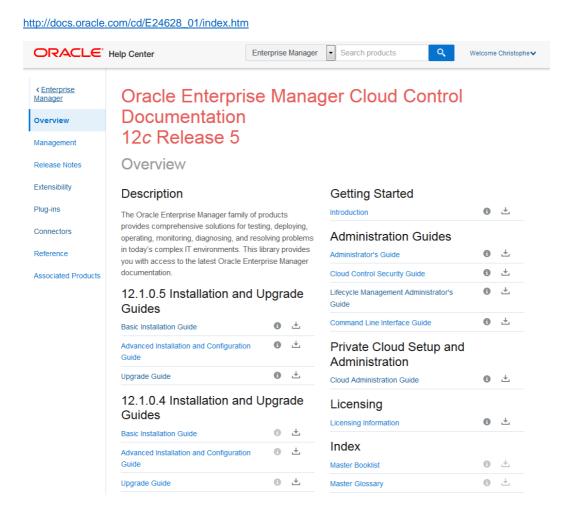
Entreprise Manager Cloud Control 12c R5 Cloud Administration Guide (July 2015)
 Direct link : <u>http://docs.oracle.com/cd/E24628\_01/doc.121/e28814.pdf</u>

• Book "Building and Managing a Cloud Using Oracle Enterprise Manager 12c" (Oracle Press)

Authors: Madhup Gulati, Adeesh Fulay, Sudip Datta



## 9.2 Oracle Enterprise Manager Cloud Control 12c documentation









Download Library

## 9.3 Oracle VM documentation

http://www.oracle.com/technetwork/server-storage/vm/documentation/index.html

Last Updated: 17 August 2015

ORACLE WORLD

### Oracle VM 3.3

### Oracle VM Release 3.3 Documentation

Oracle VM Release Notes for 3.3.1	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Release Notes for 3.3.2	<u>ePub</u>	HTML	PDF
Oracle VM Release Notes for 3.3.3	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Installation and Upgrade Guide for Release 3.3	<u>ePub</u>	HTML	PDF
Oracle VM Manager Getting Started Guide for Release 3.3	<u>ePub</u>	HTML	PDF
Oracle VM Concepts Guide for Release 3.3	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Manager User's Guide for Release 3.3	<u>ePub</u>	HTML	PDF
Oracle VM Administrator's Guide for Release 3.3	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Command Line Interface User's Guide for Release 3.3	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Web Services API Developer's Guide for Release 3.3	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Security Guide for Release 3.3	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Paravirtual Drivers Installation Guide for Microsoft Windows for Release 3.2.3	<u>ePub</u>	<u>HTML</u>	PDF
Oracle VM Third-Party Licensing Information for Release 3.3	<u>ePub</u>	<u>HTML</u>	PDF

Copyright © 2010, 2015, Oracle Corporation and/or its affiliates. All rights reserved. Legal Notices

## 9.4 Get this document

This document is available online on http://blogs.oracle.com/cpauliat/entry/hol\_oow2015



CONNECT WITH US

B blogs.oracle.com/oracle

facebook.com/oracle

twitter.com/oracle

oracle.com

Oracle Corporation, World Headquarters 500 Oracle Parkway Redwood Shores, CA 94065, USA Worldwide Inquiries Phone: +1.650.506.7000 Fax: +1.650.506.7200

### Hardware and Software, Engineered to Work Together

Copyright © 2014, Oracle and/or its affiliates. All rights reserved. This document is provided for information purposes only, and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group. 1015

Oracle is committed to developing practices and products that help protect the environment



