

Solution Engineer Assisted Workshop Day

Lab 04 – Database Provisioning

V1.1

ORACLE LAB BOOK | JANURARY 2019





Disclaimer

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Overview

Oracle Exadata Cloud Service enables you to leverage the combined power of Exadata and Oracle Cloud inside your own datacenter. You have full access to the features and operations available with Oracle Database, but with Oracle owning and managing the Exadata infrastructure.

In this Lab you will provision own database on Exadata Cloud Service.

Definitions:

Configurations:

Base System: Containing 2 compute nodes and 3 Exadata Storage Servers. Previously known as an Eighth Rack, a Base System is an entry-level configuration that contains Exadata Storage Servers with significantly less storage capacity and compute nodes with significantly less memory and processing power than other configurations.

Quarter Rack: Containing 2 compute nodes and 3 Exadata Storage Servers.

Half Rack: Containing 4 compute nodes and 6 Exadata Storage Servers.

Full Rack: Containing 8 compute nodes and 12 Exadata Storage Servers.

* Each Exadata Cloud at Customer configuration is equipped with a fixed amount of memory, storage and network resources. However, you can choose how many compute node CPU cores are enabled, up to a fixed maximum for each configuration.

Oracle Data Guard: Enables Oracle databases to survive disasters and data corruptions by providing a comprehensive set of services that create, maintain, manage, and monitor a standby database. Oracle Data Guard maintains the standby database as a copy of the primary database.

Oracle GoldenGate: Is a secure, high performance data integration and replication service that can replicate data in real time from on-premises databases to databases in Oracle Database Exadata Cloud at Customer.

Pre-Requisites

- Oracle Cloud Infrastructure account credentials (User, Password, and Tenant)
- SSH Key pair generated
- (optional) Oracle Cloud Infrastructure Object Storage Classic for Oracle Database Backup Cloud Service
 - (Optional) Create a cloud storage backup location in Oracle Cloud Infrastructure Object Storage Classic.

Practice 4-1: Accessing Oracle Database Cloud Service Console

Overview

Access the My Services dashboard on Oracle Database Exadata Cloud at Customer. We'll be using a new account since this tenancy has Exadata provisioned.

Workshop materials:

<http://moonbase.us.oracle.com/ocmws/exacc/> or
<http://10.136.208.135/shares/export/nas/pcm/workshop/web/>

Updated Exadata Workshop:

<http://moonbase.us.oracle.com/ocmws/exacc/> or
<http://10.136.208.135/shares/export/nas/pcm/workshop/web/exacc/>

New Email details:

Hello Tenant4,

Thank you for signing up for Oracle Cloud. Use the information in this email to log in to your new account.

As the primary administrator, you can create additional users and assign those users specific roles and responsibilities within your Cloud Account. For more information, see Adding Users and Assigning Roles.

Email: <http://10.136.208.135/shares/export/nas/pcm/ocm#O/t#TWelcome.html>

Access Details for My Services

Username: t#Tadmin@mail.cloud.osc.oracle.com

Password: <password>

Cloud Account: **tenant#T**

Access your Cloud Services

<link>

Task

1. Open your web browser and go to URL that was provided by your tenant administrator. The Sign In page opens.
2. Sign in with your Exadata Cloud at Customer credentials.
 - a. The My Services dashboard opens.
3. To access the Oracle Database Cloud Service console:
 - a. Go to the My Services dashboard.

- b. Click the action menu (Menu icon) in the tile that is associated with Exadata Cloud at Customer and choose **Open Service Console**.

Service: Oracle Database Exadata Cloud Service

Open Service Console

Overview Billing Metrics Resource Quotas Business Metrics Documents Status

Overview Information

Category Oracle Database Exadata Cloud Service

Data Region reg01 DC1 (Time zone: US/Pacific)

Cloud Account Name rscsa041020

Cloud Account Id cacct-ba4f61a064dd4aa095f9024eece2f6

Subscription Paid

Additional Information

Plan Oracle Database Exadata Cloud Service

Service Start Date 22-Mar-2018

Subscription ID 50011020

Service Instance ID 500022489

Customer Account Quest International Users Group (US)

CSI Number 57947412

Buyer RADHA.SRINIVASAN@ORACLE.COM

Data Region reg01 DC1

Cloud Account Name rscsa041020

Cloud Account Id cacct-ba4f61a064dd4aa095f9024eece2f6

Identity Service Id idcs-ca35268dfe4e48d08a735ae1ef9ee42e

Status Active

Service Instances

Create Service Instance Show: Active

sujaathac

Open Service Console

Service Type	ExadataCM	Administrator	Radha.Srinivasan@oracle.com
Instance Id	500024570	Requested By	Radha.Srinivasan@oracle.com
Status	Active	REST Endpoint	https://pam.cloud.lab01.ocmlab.oc9gdev.com
Plan	Exadata Cloud Service - Custom		

Note: If the tile is not visible, click Customize Dashboard and use the resulting dialog to show the tile.

The Oracle Database Cloud Service console opens and displays the Instances Page, which contains a list of database deployments. If a Welcome page is displayed, click Instances next to Database Cloud Service to display the Instances Page.

Service Instances

[Create Service Instance](#)[↻](#) Show: Active ▼**exacc2b**[Open Service Console](#)

Service Type	ExadataCM
Instance Id	500030695
Status	Active
Plan	Exadata Cloud Service - Custom
Additional number of OCPUs (Cores)	96
Exadata System Name	exacc2-clu1
Using X7 Options	N
Create sparse disk group?	Y
Database backups on Exadata Storage	N
Using X7 BYOL Options	N
Rack size	Full Rack
Database backups on ZDLRA	N
Administrator	t4admin@mail.cloud.osc.oracle.com
Requested By	t4admin@mail.cloud.osc.oracle.com
REST Endpoint	https://psm.ocm.s35004555.testoraclecloudatcust.com

As you scroll down you will see details of the service instance. Of particular interest for this exercise is the Open Service Console link.

Practice 4-2: Creating a Database Deployment

Overview

To create a database deployment on Oracle Database Exadata Cloud at Customer, use the Create Instance wizard as described in the following procedure. In this lab we won't be using database backups. **Please do not delete any database not created by you.**

After your database deployment is created you need to perform a few follow-on tasks to make sure your deployment is accessible and up-to-date, as described in After Your Database Deployment Is Created.

The screenshot shows the Oracle Database Cloud Service console. At the top, there's a summary for a database instance named 'e2db1st'. The details are as follows:

Property	Value
Version	12.2.0.1
Edition	Enterprise Edition - Extr...
Created On	Dec 3, 2018 10:11:55 PM UTC
Exadata System	exacc2-clu1
Cluster	exacc2-clu1
OCPUs	64.0
Memory	512 GB
Storage	96 TB

Below the summary, there's a note: "** CPU, Memory and Storage values shown are shared between Database Cloud Services running on the same Exadata System". At the bottom, there's a link to "Service Create and Delete History".

Here you will see the database instances that have been created. On a new system you will see just one (e2db1st in our example) which will be created by Cloud Ops prior to turnover. At the top you will see a summary of all the resources for the entire ExaCM .

Tasks

1. Click create Instance. The Create Instance wizard starts.

The screenshot shows the Oracle Database Cloud Service console. At the top, there's a header "Oracle Database Cloud Service" with a "Welcome!" message. Below the header, there's a navigation bar with "Instances", "Activity", and "SSH Access". The "Instances" tab is selected. Below the navigation bar, there's a summary section with the following data:

Summary	2	16	180 GB	9,216 GB	4
	Instances	OCPUs	Memory	Storage	Public IPs

Below the summary, there's a section titled "Instances" with a search bar. To the right of the search bar, there's a red callout bubble that says "Click Create Instance button to create a database". Below the search bar, there's a "Create Instance" button. Below the button, there's a list of database instances:

Instance Name	Version	Edition	Created On	Exadata System	Cluster	OCPUs	Memory	Storage
db2-sujathac	12.1.0.2	Enterprise Edition - Extr...	May 18, 2018 1:04:46 AM UTC	sujathac	qatest-dg	8.0	60 GB	3 TB
zhengtest	12.1.0.2	Enterprise Edition - Extr...	Apr 20, 2018 11:53:31 PM UTC	qatest1	qatest1	8.0	120 GB	6 TB

2. On the Instance Page Provide basic service instance information

- a. **Instance Name** — Instance name. <db1-14796>
- b. **Description** — enter a description for your database deployment. (Optional)
- c. **Exadata System** — select an available Oracle Exadata Database Machine configuration to host the database deployment. The Exadata System specifies the system hosting the primary database.
- d. **Tags** — specifies tags for the database deployment. (Optional)
 - * Tagging enables you to group database deployments that share similar characteristics or are used for a similar purpose. Click the plus icon to create a new tag.
- e. **Service Level** — select Oracle Database Exadata Cloud Service from the list. Choose “Oracle Database Exadata Cloud Service”
 - * Note: If Oracle Database Exadata Cloud Service is not available in the list of service level choices, you do not have active Exadata Cloud at Customer instance. You need to obtain a subscription and create an Exadata Cloud at Customer instance before you can create a database deployment.
- f. **Software Release** — select the Oracle Database software release that you want to run in your database deployment. Choose **Oracle 12c**
- g. **Software Edition** — the only valid option for use with Exadata Cloud at Customer is Enterprise Edition — Extreme Performance.
- h. **Database Type** — select Single Instance. Options explained:
 - i. Database Clustering with RAC — creates a clustered database that uses Oracle Real Application Clusters.
 - ii. Database Clustering with RAC and Data Guard Standby — creates two clustered databases with one acting as the primary database and one acting as the standby database in an Oracle Data Guard configuration.

Create Instance

Cancel



Next >

Instance

Provide basic service instance information.

* Instance Name	<input type="text" value="DBATEST"/>	?	* Service Level	<input type="text" value="Oracle Database Exadata Cloud Service"/>	?
Description	<input type="text" value="Test datasbase"/>	?	* Software Release	<input type="text" value="Oracle Database 18c"/>	?
Notification Email	<input type="text" value="Radha.Srinivasan@oracle.com"/>			<input type="text" value="Enterprise Edition - Extreme Performance"/>	?
* Exadata System	<input type="text" value="qatest1 - Quarter Rack (2 nodes)"/>	?	* Database Type	<input type="text" value="Database Clustering with RAC"/>	?
Tags	<div>Select Exadata system for this service instance.<ul style="list-style-type: none">qatest1 - Quarter Rack (2 nodes)suajathac - Quarter Rack (2 nodes)V0304-vlan - Quarter Rack (2 nodes) (reg01 DC1 / Dev Zone)</div>				

* Click **Next**

3. On the Instance Details page, configure details for your database deployment. Enter the following:

a. Database Configuration:

- i. **Cluster** – Ignore. This option is only available if your system environment is enabled to support multiple VM clusters.
- ii. **Hostnames** – List of Nodes(s) on which to provision the Oracle Database Exadata Cloud Service Instance.
- iii. **DB Name** - enter a name for the database instances.
- iv. **PDB Name** - enter a name for the default pluggable database (PDB).
- v. **Administration Password and Confirm Password** - enter and then re-enter an administration password. Make sure the password follows standard security using one lowercase, one uppercase, numbers, and symbols.
- vi. **(optional) SSH Public Key** - provide the SSH public key to be used for authentication. Click edit. Can drag the public key file or copy and paste.

1) Command: pbcopy < ~/.ssh/<sshkeyname>.pub

vii. **Advanced Settings** – skip the advanced settings but information of settings:

1) **Application Type** - select the application type that best suits your application:

- a. Transactional (OLTP) - configures the database for a transactional workload, with a bias towards high volumes of random data access.
- b. Decision Support or Data Warehouse - configures the database for a decision support or data warehouse workload, with a bias towards large data scanning operations.

2) **Character Set** - specify the database character set for the database.

3) **National Character Set** - specify the national character set for the database. The national character set is used for data stored in SQL NCHAR data types (NCHAR, NCLOB, and NVARCHAR2).

4) **Enable Oracle GoldenGate** - configures the database for use as the replication database of an Oracle GoldenGate Cloud Service instance.

b. Backup and Recovery Configuration:

- i. **Ignore this section for now.** In another database lab we'll discuss it in detail. For now, select none.

c. Click **Next** and **Confirm**

Create Instance

[< Previous](#)[Cancel](#)Instance Details **Details** Confirm[Next >](#)

Instance Details

Provide details for this Oracle Database Cloud Service instance.

[Selection Summary](#)

Database Configuration

* Cluster ⓘ

Hostnames ⓘ

* DB Name ⓘ

* PDB Name ⓘ

* Administration Password ⓘ

* Confirm Password ⓘ

Oracle Home Name ⓘ

Advanced Settings

* Character Set ⓘ

* National Character Set ⓘ

Enable Oracle GoldenGate ☐ ⓘ

Backup and Recovery Configuration

* Backup Destination ⓘ

* Cloud Storage Container ⓘ

* Username ⓘ

* Password ⓘ

Create Cloud Storage Container ☐ ⓘ

Initialize Data From Backup

* Create Instance from Existing Backup ⓘ

Create Instance

[< Previous](#)[Cancel](#)Instance Details **Confirm**[Create >](#)

Confirmation

Confirm your responses and create service instance.

Instance

Instance Name: **DBATEST**

Description: **Test database**

Bring Your Own License: **No**

Service Level: **Oracle Database Exadata Cloud Service**

Metering Frequency: **Monthly**

Software Release: **Oracle Database 18c**

Software Edition: **Enterprise Edition - Extreme Performance**

Exadata System: **qatest1 - Quarter Rack (2 nodes)**

Cluster: **qatest1**

Hostnames: **scaqag01dv0705m.us.ora...**

Application Type: **Transactional (OLTP)**

SSH Public Key: **id_rsa.pub**

Use High Performance Storage: **No**

Backup and Recovery Configuration

Backup Destination: **Cloud Storage Only**

Cloud Storage Container: **https://storage.oraclecor...**

Username: **Storageadmin**

Database Configuration

DB Name: **DBATEST**

PDB Name: **PDBTEST1**

Character Set: **AL32UTF8 - Unicode Univer...**

National Character Set: **AL16UTF16 - Unicode UTF-1...**

Include GoldenGate: **No**

Database Clustering with RAC: **Yes**

Standby Database Configuration

Standby Database with Data Guard: **Yes**

Disaster Recovery: **No**

Exadata System: **V0304-vlan - Quarter Rack (2 nodes) (reg01 DC1 / Dev Zone)**

Cluster: **v0304-2**

Hostnames: **scaqag01dv0305m.us.ora...**




Overview

1
Node

Administration

3
Patches available

Instance Overview

As of Jan 28, 2019 10:14:17 PM UTC 

1	8	64 GB	98,304 GB
Nodes	OCPUs	Memory	Storage

Status: Creating instance ...

Version: 12.2.0.1

Connect String: (DESCRIPTION=(ADDRESS_LIS...

Edition: Enterprise Edition - Extreme Performance


Backup Destination: None

PDB Name: PDB1

Container Name: ORCL

[Show more...](#)

Resources

	Host Name: exacc2adm01-vm01.us1.ocm.... Public IP: 10.136.20.2 SID: ORCL	OCPUs: 8 Memory: 64 GB Client IP: 10.136.20.2 Virtual IP: 10.136.20.3
---	---	--



Practice 4-2.2: After your Database Created (Optional/Skip)

After your database deployment is created, you should perform the following actions. **For this workshop please do not complete these patches.**

caupg – Patching and DB node subsetting

This DB was created on just 2 of the 8 nodes (nodes 1 and 2).

This DB will show patching and should have at least one patch available.

* Note if you execute the precheck or **patch it can take hours to complete.** Please do not patch! If you do patch, please roll back when you are done so patch will be available for the next request

1. Apply database patches

- a. Click the database deployment to which you want to apply a patch.
- b. Click the Administration tile and then click the **Patching** tab.
- c. The Oracle Database Cloud Service Patching page is displayed. A list of patches you can apply appears in the Available Patches section.
- d. Click the **action menu (Menu icon)** that is associated with the patch you want to apply, and then select Patch.
- e. The Patch Service window displays.
 - i. Enter a note that you wish to associate with the patch. Then, click **Patch**.
- f. The Patch Service window closes and the patching operation begins.

The screenshot shows the Oracle Database Cloud Service interface for deployment 'e2db1st'. The 'Patching' tab is selected, displaying a list of 'Available Patches'. The left sidebar shows 'Administration' with '3 Patches available'. The main content area lists three patches, all of which are 'PSU Update 12.2.0.1.180717' (except for the last one which is '180417'). Each patch entry includes a 'Readme' link, a 'Release Date' (Jul 17, 2018 1:40:00 AM UTC for the first two, and Apr 17, 2018 1:40:00 AM UTC for the last one), the 'Affected Component' (Exadata Grid or Exadata Database), and a 'Requires Restart: Yes' status. A 'Precheck results' link with a warning icon is visible for the last patch. The top right of the page indicates the data is 'As of Jan 28, 2019 10:24:55 PM UTC'.

Patch ID	Release Date	Affected Component	Requires Restart
PSU Update 12.2.0.1.180717	Jul 17, 2018 1:40:00 AM UTC	Exadata Grid	Yes
PSU Update 12.2.0.1.180717	Jul 17, 2018 1:40:00 AM UTC	Exadata Database	Yes
PSU Update 12.2.0.1.180417	Apr 17, 2018 1:40:00 AM UTC	Exadata Database	Yes



Backup

Patching

Snapshots

As of Jan 28, 2019 10:24:55 PM UTC

Available Patches

	PSU Update 12.2.0.1.180717 Readme	Release Date: Jul 17, 2018 1:40:00 AM UTC Affected Component: Exadata Grid Requires Restart: Yes	<div>Precheck</div> <div>Patch</div>
	PSU Update 12.2.0.1.180717 Readme	Release Date: Jul 17, 2018 1:40:00 AM UTC Affected Component: Exadata Database Requires Restart: Yes	
	PSU Update 12.2.0.1.180417 Readme Precheck results	Release Date: Apr 17, 2018 1:40:00 AM UTC Affected Component: Exadata Database Requires Restart: Yes	



2. Updating the Cloud Tooling (**skip!**)




- a. Connect to the compute node as the **opc** user. See Connecting to a Compute Node Through Secure Shell (SSH).
- b. Start a root-user command shell: `$ sudo -s`
- c. #Download and apply the patch containing the latest cloud tooling update:
`# /var/opt/oracle/exapatch/exadbcpatch -toolsinst -rpmversion=LATEST`
Note: If the command fails with an error indicating that LATEST is an invalid RPM version, then proceed as follows:
- d. List the available cloud tooling updates:
`# /var/opt/oracle/exapatch/exadbcpatch -list_tools`
Examine the command response, and determine the patch ID of the latest cloud tooling update.
The patch ID is listed in the patches group as the patchid value.
- e. Download and apply the patch containing the latest cloud tooling update:
`# /var/opt/oracle/exapatch/exadbcpatch -toolsinst -rpmversion=patchid`
where patchid is the patch ID that you located in the previous step.
- f. The exadbcpatch utility runs as a foreground process and does not return control to the user until it completes. Command output is written to a log file. You can monitor the progress of operations by executing:
`# /var/opt/oracle/exapatch/exadbcpatchsm -get_status transactionid`
- g. Exit the root-user command shell:
`# exit`

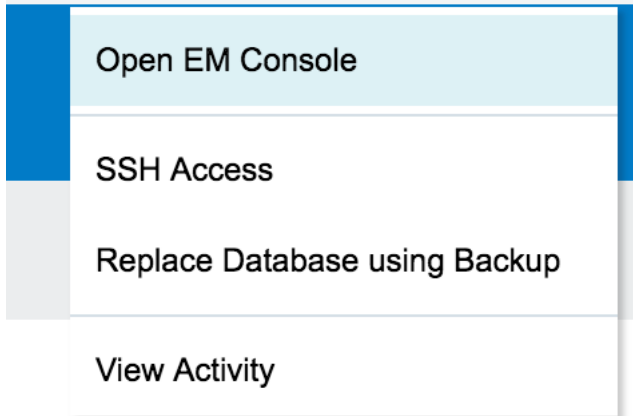
More Information: <https://docs.oracle.com/en/cloud/cloud-at-customer/exadata-cloud-at-customer/exacc/update-cloud-tooling.html>

Practice 4-3: Viewing Database Information

Overview: Logged in to the Oracle Database Cloud Service console.

1. Click on the name of the database deployment for which you want to view more information.
 - a. The Oracle Database Cloud Service Overview Page is displayed.
2. Click Activity.
 - a. The Activity Page is displayed, showing the list of all activities started within the past 24 hours. You can use the Start Time Range field to specify a start time range other than the default of the previous 24 hours.
 - b. Use the options in the Search Activity Log section to filter the results to meet your needs. You can search on start time range, full or partial service name, activity status, and operation type. Click Search. View the results in the table that follows.

Instances									
<div>Search by instance name or tags</div>									
<div>Create Instance</div>									
	capat	Version: 12.2.0.1 Edition: Enterprise Edition - Extr...	Created On: Dec 11, 2018 3:42:05 PM UTC Exadata System: exacc2-clu1 Cluster: exacc2-clu2	<div>OCPUs: 16.0 Memory: 128 GB Storage: 48 TB</div> <div>Open EM Console SSH Access Update Exadata IORM Delete</div>					
	caupg	Version: 12.2.0.1 Edition: Enterprise Edition - Extr...	Created On: Dec 11, 2018 5:32:37 AM UTC Exadata System: exacc2-clu1 Cluster: exacc2-clu2	<div>OCPUs: 16.0 Memory: 128 GB Storage: 48 TB</div>					
	shared2	Version: 12.2.0.1 Edition: Enterprise Edition - Extr...	Created On: Dec 4, 2018 4:49:51 AM UTC Exadata System: exacc2-clu1 Cluster: exacc2-clu2	<div>OCPUs: 32.0 Memory: 256 GB Storage: 48 TB</div>					



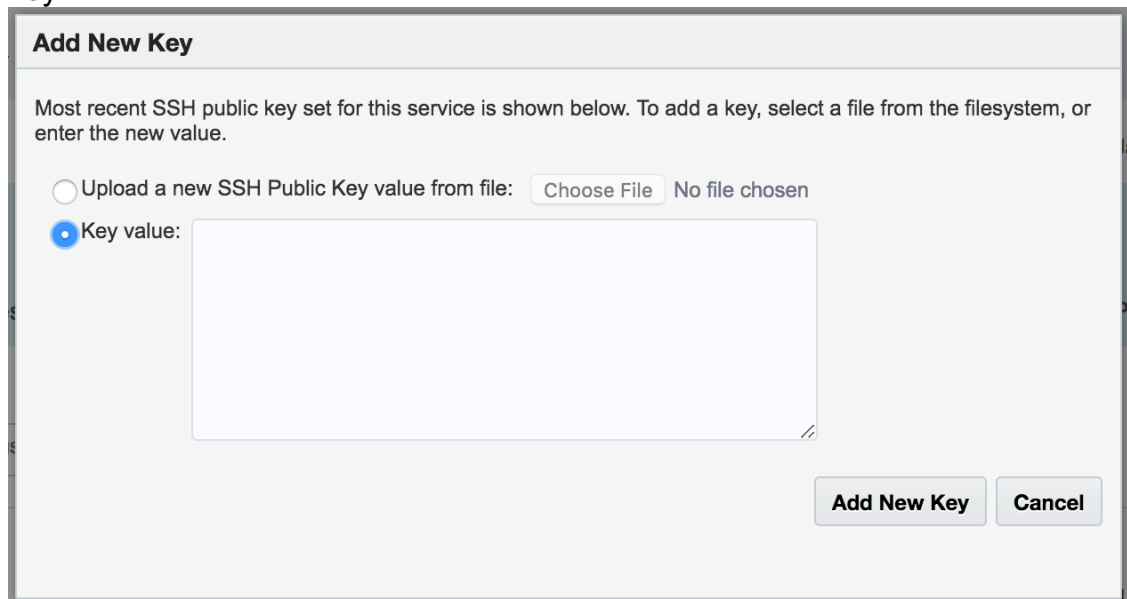
TC 

The menu bar here lets you **Open EM Console**, Update Exadata IORM (covered in other lessons) or delete the instance.

It also provides access to another security feature of Cloud Automation which is managing **SSH access** to the virtual machines running the Exadata Compute Node software. On this screen we can install a public key into the authorized_keys files of the oracle and opc users on the virtual machine, and we can install the key by uploading a public key file, for example id_rsa.pub, or simply pasting the contents of a public key.

Cloud automation ensures accurate installation of this key to remove operator error from this management task. This action is also audited, so you can watch to make sure that actions such as installing ssh keys are due to valid business reasons and not unauthorized use of the system.

3. Upload your SSH key for virtual database VM connection
 - a. Click **SSH Access** in the menu for the specific Exadata
 - b. In dialog box 'Add New Key' choose 'Key Value' option. Paste in the public ssh key



Add New Key

Most recent SSH public key set for this service is shown below. To add a key, select a file from the filesystem, or enter the new value.

☐ Upload a new SSH Public Key value from file: No file chosen

☒ Key value:

- c. Confirm that you want to add the key. Click **Submit**

Add New Key

Most recent SSH public key set for this service is shown below. To add a key, select a file from the filesystem, or enter the new value.

☐ Upload a new SSH Public Key

☒ Key value:

ssh-rsa
AAAAB3NzaC1y
P0NUGvbSOFN
qojOTC1zUpbVF
01GCirR2pcnXL
NmvU1hUhM5G
PC7kd2ls/RYeB
ai8w21Z2hKtsLg
4CQ-LQ-VOD--RC--V77H0V-0B7D-J-F6L-00--0B

Add New Key

Confirm that you wish to add a new key.

Submit **Cancel**

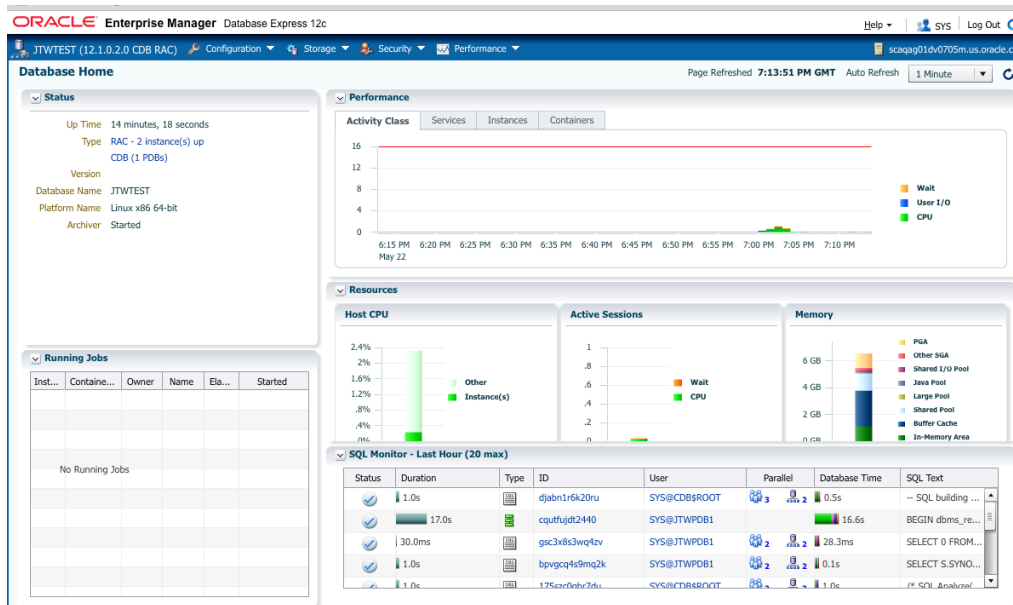
Add New Key **Cancel**

- d. Wait till the instance updates with the SSH key. Now you should be able to SSH into the database.

Cloud automation ensures accurate installation of this key to remove operator error from this management task. This action is also audited, so you can watch to make sure that actions such as installing ssh keys are due to valid business reasons and not unauthorized use of the system.

4. Viewing EM Console

- Go to Oracle Database Cloud Service to see instances. Click the action menu and select **Open EM Console**
- It opens the Oracle Enterprise Manager



When prompted for a user name and password, enter the name of a user with the DBA privilege (such as SYS or SYSTEM) and the password.

Enter a PDB name if you want to access a specific PDB or leave it blank to access the root container.

If you want to connect with **SYSDBA** privileges, select as SYSDBA.

After entering or selecting the required values, click Login.

More Info: <https://docs.oracle.com/en/cloud/cloud-at-customer/exadata-cloud-at-customer/exacc/access-em-database-express-18c.html>

Username: sysdba

Password: Password used to create Exadata

Select: as sysdba

4b. Create a database users

- a. Go to security and users and select **create user**. Opens up a new dialog box

ORACLE Enterprise Manager Database Express 12c

Container: PDB1

Actions: Create User, Create Like, Drop User

Users, Roles, Profiles

Open Name

Name	Account Status	Common	Expiration Date	Default Tablespace	Temporary Tablespace	Profile	Created
ANONYMOUS		✓	Fri Mar 2, 2018 1:43:13 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:18:21 AM
APPQOSSYS		✓	Fri Mar 2, 2018 1:17:06 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:17:06 AM
AUDSYS		✓	Fri Mar 2, 2018 12:56:10 AM	SYSTEM	TEMP	DEFAULT	Fri Mar 2, 2018 12:56:10 AM
C#DBAAS_BACKUP		✓	Sat Jul 27, 2019 10:57:13 PM	SYSTEM	TEMP	DEFAULT	Mon Jan 28, 2019 10:57:13 PM
CTXSYS		✓	Mon Jan 28, 2019 10:47:52 PM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:24:56 AM
DBSFUSER		✓	Fri Mar 2, 2018 1:11:51 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:11:51 AM
DESNMP		✓	Sat Jul 27, 2019 10:47:52 PM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:17:06 AM
DIP		✓	Fri Mar 2, 2018 1:11:23 AM	SYSTEM	TEMP	DEFAULT	Fri Mar 2, 2018 1:11:23 AM
DVF		✓	Fri Mar 2, 2018 1:43:14 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:42:33 AM
DVSY		✓	Fri Mar 2, 2018 1:42:47 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:42:33 AM
GGSYS		✓	Fri Mar 2, 2018 1:17:14 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:17:14 AM
GSMADMIN_INTERNAL		✓	Fri Mar 2, 2018 1:11:15 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:11:15 AM
GSMCATUSER		✓	Fri Mar 2, 2018 1:17:12 AM	SYSTEM	TEMP	DEFAULT	Fri Mar 2, 2018 1:17:12 AM
GSMUSER		✓	Fri Mar 2, 2018 1:11:15 AM	SYSTEM	TEMP	DEFAULT	Fri Mar 2, 2018 1:11:15 AM
LBACSYS		✓	Fri Mar 2, 2018 1:43:14 AM	SYSTEM	TEMP	DEFAULT	Fri Mar 2, 2018 1:41:55 AM
MDDATA		✓	Fri Mar 2, 2018 1:43:13 AM	SYSTEM	TEMP	DEFAULT	Fri Mar 2, 2018 1:37:56 AM
MDSYS		✓	Fri Mar 2, 2018 1:25:23 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:25:23 AM
OJMSYS		✓	Fri Mar 2, 2018 1:22:35 AM	SYSTEM	TEMP	DEFAULT	Fri Mar 2, 2018 1:22:35 AM
OLAPSYS		✓	Fri Mar 2, 2018 1:33:41 AM	SYSAUX	TEMP	DEFAULT	Fri Mar 2, 2018 1:33:41 AM

Create User

User Account Tablespaces Privilege

Name * default2

Authentication * ☒ Password ☐ External ☐ Global

Password *

Confirm Password *

Profile: DEFAULT

Password Expired ☐

Account Locked ☐

Show SQL OK Cancel

Fri Mar 2, 2018 1:12:22 AM SYSTEM TEMP

- b. For this workshop we restricted some access so you can't fully create a user. You are able to browse the rest of the enterprise manager for this database.

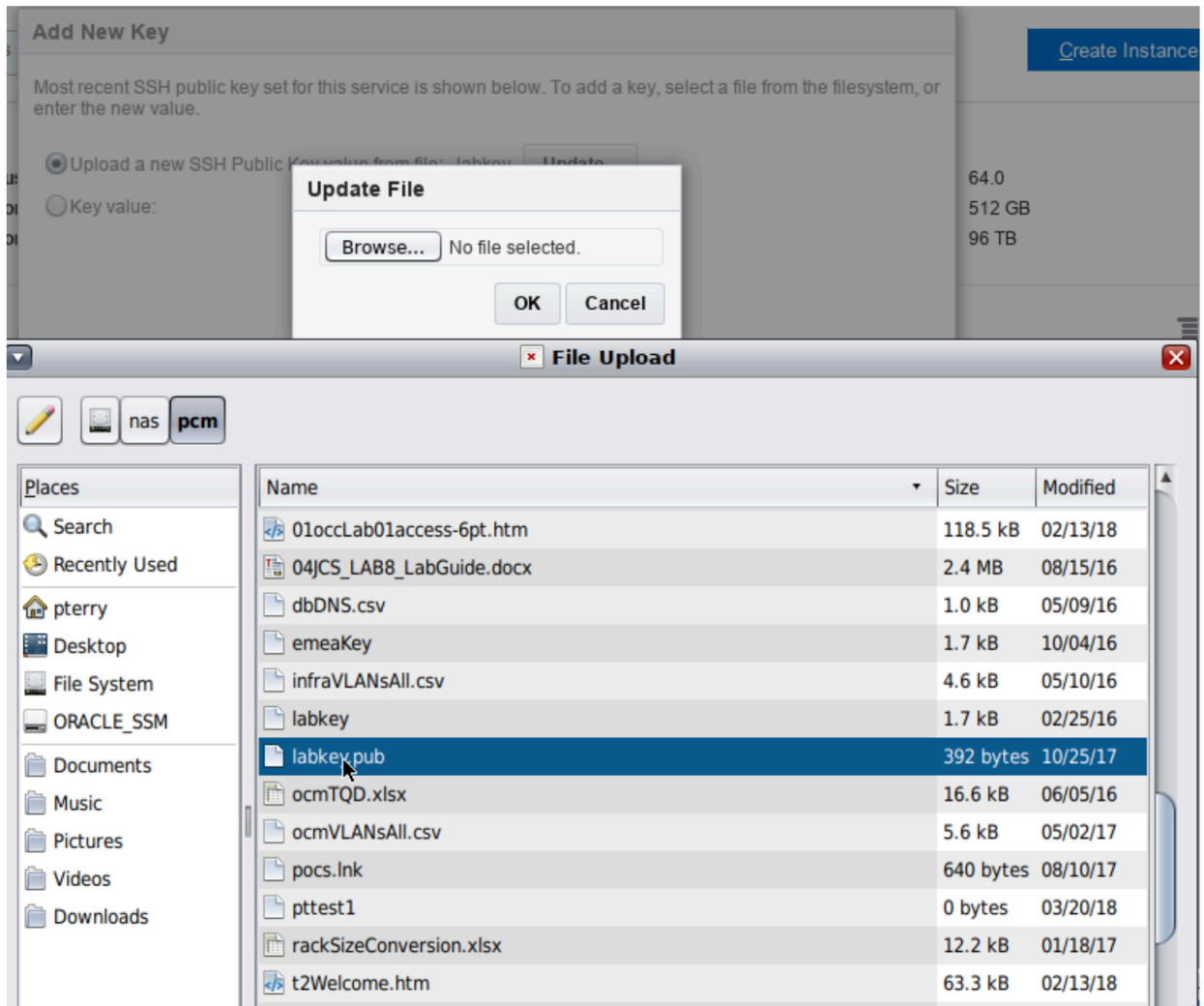
Practice 4-4: Accessing Database using SSH (Optional)

Add SSH public key to the database instance

You will note the network information, such as the SCAN IP and other details, that you can use to connect to the vm's hosting the db and/or the database itself. From the menu bar (hamburger icon to the right of each VM) you can start/stop or restart the Vms. **For the purposes of this lab DO NOT stop or restart any VMs.** For now, click on Oracle Database Cloud Services to go back to the instance list.

Instances					
Search by instance name or tags					
	capat	Version: 12.2.0.1 Edition: Enterprise Edition - Extr...	Created On: Dec 11, 2018 3:42:05 PM UTC Exadata System: exacc2-clu1 Cluster: exacc2-clu2	OCPU Memor Storag	<div>Open EM Console SSH Access Update Exadata IORM Delete</div>
	caupg	Version: 12.2.0.1 Edition: Enterprise Edition - Extr...	Created On: Dec 11, 2018 5:32:37 AM UTC Exadata System: exacc2-clu1 Cluster: exacc2-clu2		
	shared2	Version: 12.2.0.1 Edition: Enterprise Edition - Extr...	Created On: Dec 4, 2018 4:49:51 AM UTC Exadata System: exacc2-clu1 Cluster: exacc2-clu2		
				OCPU: 16.0 Memory: 128 GB Storage: 48 TB	
				OCPU: 32.0 Memory: 256 GB Storage: 48 TB	

1. On this screen we can install a public key into the authorized_keys files of the oracle and opc users on the virtual machine, and we can install the key by uploading a public key file, for example id_rsa.pub, or simply pasting the contents of a public key.
2. This action is also audited, so you can watch to make sure that actions such as installing ssh keys are due to valid business reasons and not unauthorized use of the system.



Access Database with SSH

1. Run the ssh utility:
2. `$ ssh -i <private-key-file> <user-name>@<node-ip-address>`
 - a. private-key-file is the path to the SSH private key file.
 - b. user-name is the operating system user you want to connect as: **opc**
 - c. node-ip-address is the IP address of the compute node in x.x.x.x format.
3. If this is the first time you are connecting to the compute node, the ssh utility prompts you to confirm the public key. In response to the prompt, enter **yes**.



To connect to a compute node using the PuTTY program on Windows:

1. Download and install PuTTY.
2. To download PuTTY, go to <http://www.putty.org/> and click the You can download PuTTY here link.
3. In **Host Name** (or IP address) box, enter the IP address of the compute node.
4. Confirm that the **Connection** type option is set to **SSH**.
5. In the Category tree, expand Connection if necessary and then click Data.
6. The Data panel is displayed: In Auto-login username box, enter the user you want to connect as:
 - a. Connect as the user oracle to perform most operations; this user does not have root access to the compute node. **opc**
 - b. Confirm that the When username is not specified option is set to Prompt.
7. In the Category tree, expand SSH and then click Auth.
 - a. Click the Browse button next to the Private key file for authentication box. Then, in the Select private key file window, navigate to and open the private key file that matches the public key that is associated with the deployment.
8. In the Category tree, click Session.
 - a. In the Saved Sessions box, enter a name for this connection configuration. Then, click Save.
9. Click Open to open the connection.
10. The PuTTY Configuration window is closed and the PuTTY window is displayed.