

# Operating Exadata Cloud at Customer

## Technical How To

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# Safe Harbor Statement

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# Agenda

- Introduction
- The best of Oracle technology stays the same with the Cloud at Customer
- Positive change when you go to Oracle's Cloud at Customer
- Starting point for handoff
- Top 10 new ways to operate Exadata through Oracle Cloud at Customer

# Introduction

- We are likely running on-premises gear
- We are likely running Exadata Database Machine
- We are moving to cloud (perhaps cautiously)
- We need tactics to succeed at the transition
- This talk is about the tactics of how to succeed at the transition

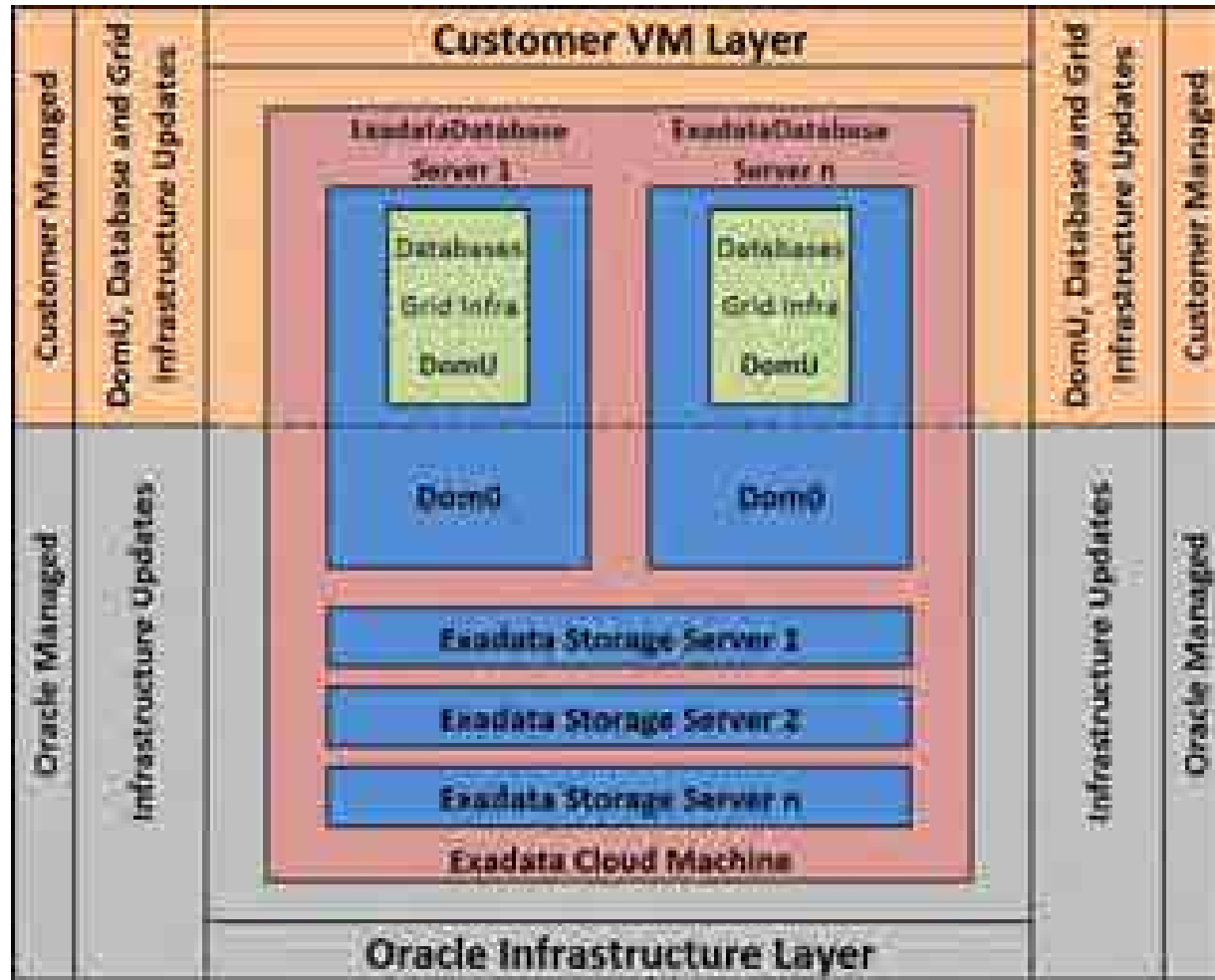
# The Best of Oracle Stays the Same

- Business is still business, people are still people, data is still data
- Exadata Cloud at Customer (ExaCC) runs the same hardware and software as on-premises Exadata Database Machine
- Oracle Enterprise Linux, x86 chips, Oracle ASM, Oracle Database, etc.
- SQL, tables, tablespaces, logs, backups, DR, etc.
- AWR, Data Guard, EM, OMC, etc.
- Ask Tom, user community, developer support

# Positive Changes with Oracle Cloud

- Mindset shift from products to services for
  - Infrastructure
  - Platforms
  - Databases and applications
- What it means to be an administrator
  - Applying tooling to automate processes
- What it means to be an architect
  - Cloud security, connectivity
  - Deployment and maintenance flexibility and automation

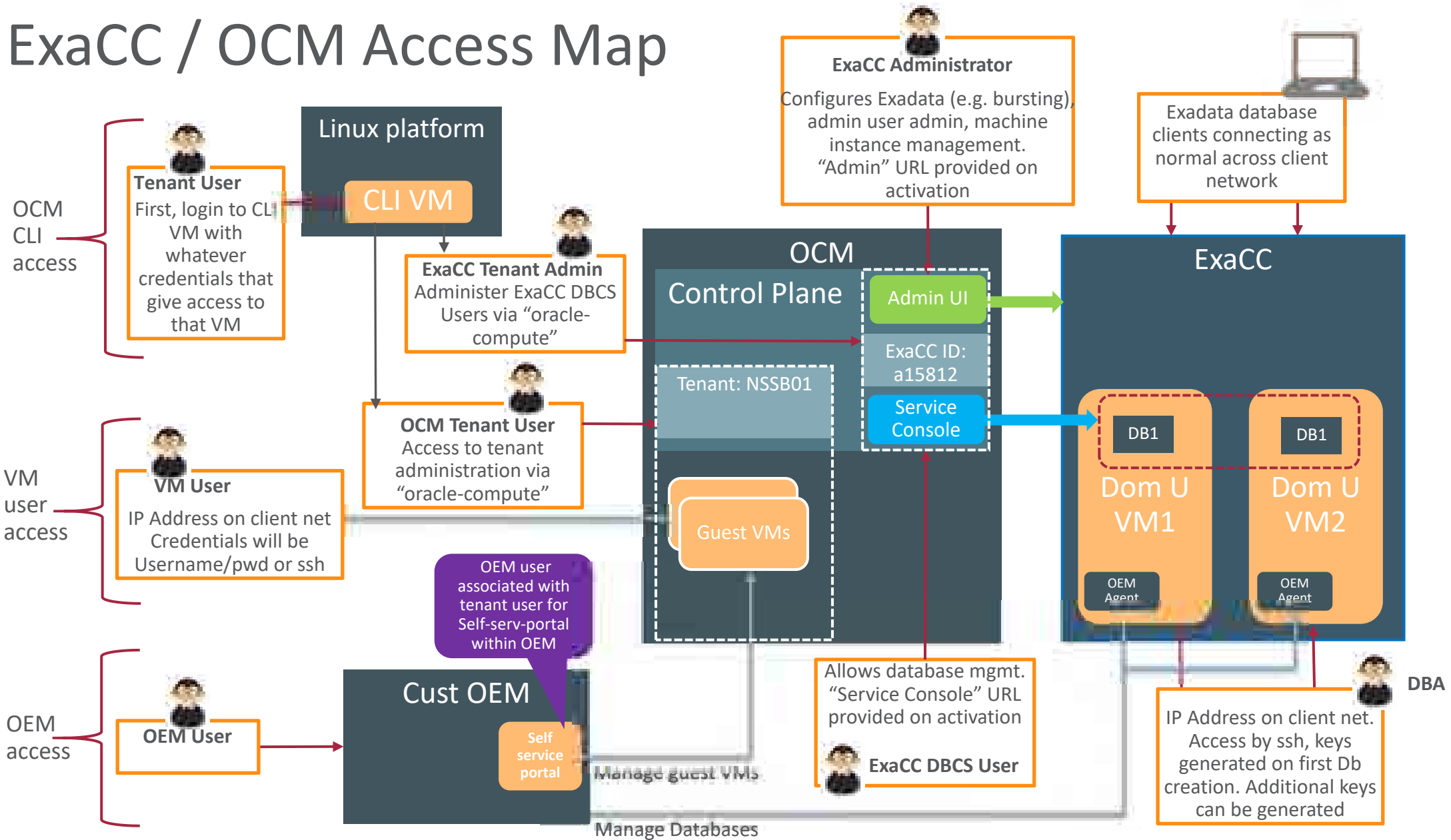
# Starting Point for Handoff



- Virtual machine (VM) operating systems running the Exadata compute node software
- Grid Infrastructure on the compute node
- Database software on the compute node

- Ethernet switches
- InfiniBand switches
- Power supplies
- Exadata Storage Servers
- Hypervisor running on the physical servers

# ExaCC / OCM Access Map





# Quick Review of the Service

- ASM storage configuration
- OCPU subscription and bursting
- Cloud administration
- Compute node access
- Database deployment
- Database migration
- Backup and recovery
- Enterprise Manager

# Top 10 New Ways to Operate Exadata in the Cloud



# 10. Cloud Access Points – Refer to Your Handoff Document

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## Account

## When to Use:

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### Cloud Administration Account

This will be used by the cloud service administrator. This account was used to create the Cloud Service Instance on each Exadata Cloud at Customer purchased.

### Exadata Cloud at Customer Service Administration (My Services)

The Service Console will be used to manage the Exadata Cloud Service and shows you the REST endpoints

### Database Cloud Service Administration (Service Console)

The DBaaS console is used to create and manage databases running in your Exadata Cloud Service

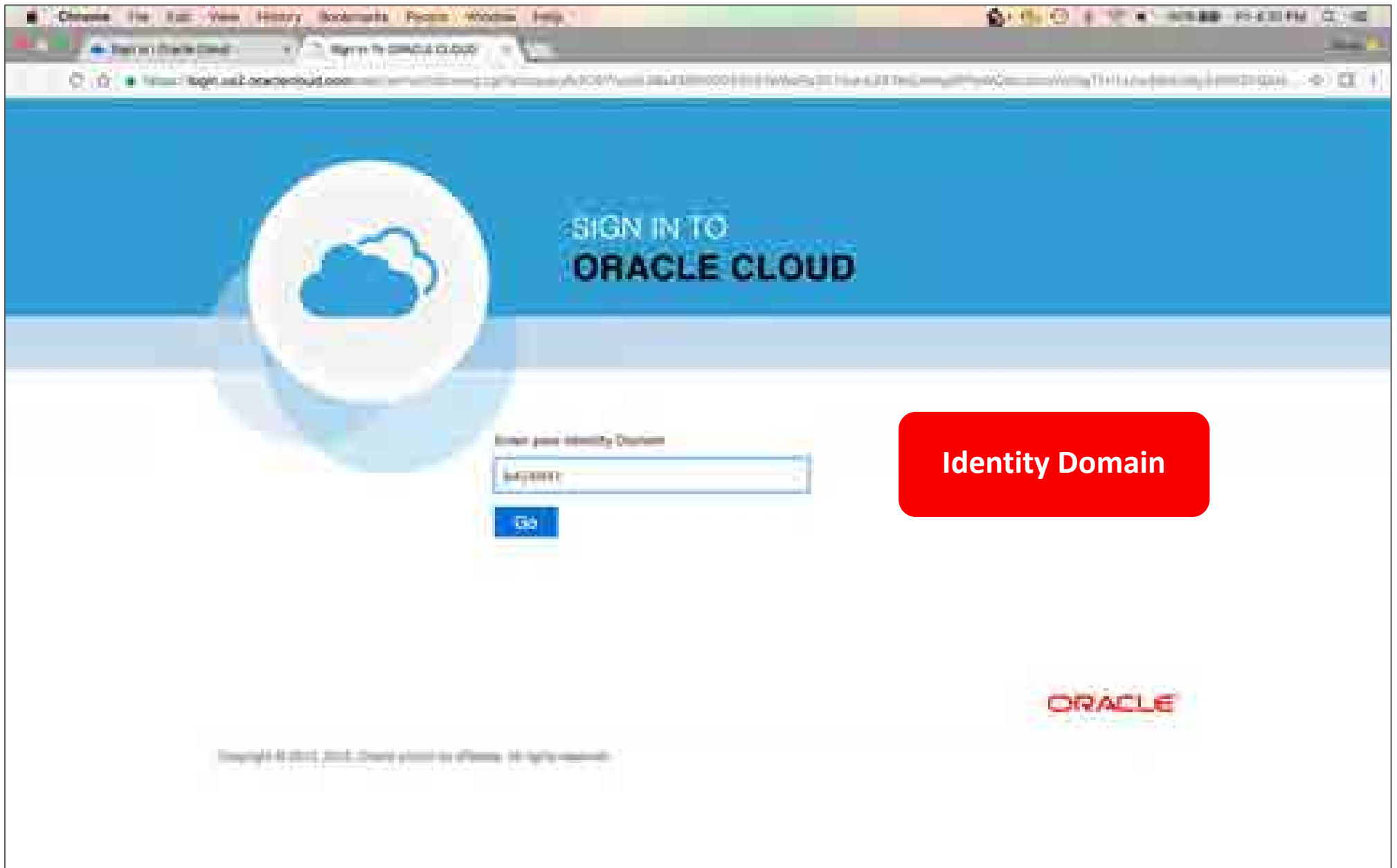
### Customer Support Identifier (CSI)

When this CSI is used, your problem will be directed to the appropriate team at Oracle based on the options you choose at the time you open the service request.

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## 9. Create an Exadata with Software

- Web UI
  - One time events, quick way to get started
- REST API
  - Lights out operations, zero user input, full automation
- Mindset change
  - Making hardware softer, not software harder
  - Experiment to find best way to solve a problem
  - Mistakes are not permanent





Account a424641

0 Important notifications

# Dashboard

Create Instance

Customize Dashboard

You have access to services not currently displayed on your dashboard. Click on Customize Dashboard to view the list of all services you have access to, add to, and update your favorite services.

**No Exadata instance yet!**

Account a424641

0 Important Notifications

# Dashboard

Switch to original Dashboard

You have access to services not currently displayed on your Dashboard. Click on Customize Dashboard to view the list of all services you have access to and to update your favorite services.

Create Instance Customize Dashboard

Exadata

Time to create one!



### Create New Oracle Database Cloud - Exadata Service Instance

[Cancel](#) Instance Details [Next](#)

#### Instance Details

Provide the Instance details you want for your service.

**Instance Details**

\*Name:

\*Data Center:

\*Plan:

\*Rack size:

Additional number of OCPUs (Cores):

\*Exadata System Family:

\*Database Storage on Exadata Storage:

**Administrator Details**

\*Email:

Use Oracle Web Console

\*User Name:

\*First Name:

\*Last Name:

**Fill in Service Details,  
including Preferred  
Data Center Location**

## Create New Oracle Database Cloud - Exadata Service Instance

Cancel



Next >

### Instance Details

Fill in the instance details you want for your service.

#### Instance Details

Name

Data Center

Plan

Rack size

Additional number of OCPU's (Cores)

Exadata System Name

Database Storage  on Exadata Storage

#### Administrator Details

Email

Use email as user name

User Name

First Name

Last Name

Details filled in

### Create New Oracle Database Cloud - Exadata Service Instance



#### Confirmation

Please confirm your response to create the instance.

When you click Create Instance, the provisioning of the new instance will be initiated and you will be navigated to the instance list page for the selected service where you can monitor the status of the new instance. When the new service instance is active, the status will be updated and links to the administrator console and the service instance will be available in the instance list page.

Also, when the service instance is active all the administrator and access to the new instance will be notified by email.

**Instance Details:**

- Name: **binoybin**
- Data Center: **US002**
- Plan: **Exadata Cloud Service - Custom**
- Rack size: **Quarter Rack**
- Additional number of OCPU's (Cores): **0**
- Exadata System Name: **ac1234567**
- Database backups on Exadata Storage: **N**

**Administrator Details:**

- Email: **binoy.sukumar@oracle.com**
- User Name: **binoy.sukumar@oracle.com**
- First Name: **Admin**
- Last Name: **Admin**

**Review and Create the Exadata Instance! (a.k.a - RAC Cluster)**

Account **a15816**



# Dashboard



Customize Dashboard

### Exadata

100% Uptime

## 8. Secure Access to DomU with Passwordless SSH

- **opc (/home/opc)**
  - System administration
  - Access with ssh using preconfigured keys
- **oracle (/home/oracle)**
  - Database administration
  - Cannot use the sudo
  - Access with ssh using preconfigured keys
- **root (/root)**
  - Access using sudo -s from opc user
  - You do not have direct access to this account
- **grid (/home/grid)**
  - ASM and clusterware administration
  - Access using sudo and su
    - sudo -s as the opc user to get root access
    - su - grid to become the grid user.
  - You do not have direct access to this account

<https://docs.oracle.com/cloud-machine/latest/exadatacm/ExaCC/GUID-53778B80-072D-4968-B5F8-81D3216F1D9A.htm#ExaCC-GUID-53778B80-072D-4968-B5F8-81D3216F1D9A>

# 7. Automate Database Creation

- Web UI
  - One-time actions
  - Great way to learn
- REST API
  - Lights out automation
  - No human interaction
  - Codify execution of your business process
  - Provide databases for the masses



### Services

Create Service

You don't have any services. After meeting the prerequisites, use this button to create a service.

#### New to creating a service?

- Watch a video
- Play through a tutorial

Service create and delete history



Create a new DB Service



Provision New Oracle Database Cloud Service

### Create Oracle Database Cloud Service Instance



#### Subscription Type

Select the service level and billing frequency for this Oracle Database Cloud Service instance.

#### Service Level

##### Oracle Database Cloud - Exadata Service

- Oracle Database instances pre-installed on Oracle Exadata Machine. Database Service instances are created on available Exadata infrastructure. Additional cloud tooling is available for backup, recovery and patching.

##### Oracle Database Cloud Service

- Oracle Database instances pre-installed on Oracle Cloud VM or Machine. Database instances are created for you using configuration options provided in this wizard. Additional cloud tooling is available for backup, recovery and patching.





Previous New Oracle Database Cloud Service

### Create Oracle Database Cloud Service Instance

[Previous](#) [Cancel](#)



[Next](#)

#### Software Release

Select the database release version for the Oracle Database Cloud Service instance

##### Oracle Database 11g Release 2

- Oracle Database Version 11.2.0.4  
Installed on Oracle Grid Infrastructure 12.1.0.2

##### Oracle Database 12c Release 1

- Oracle Database Version 12.1.0.2  
Installed on Oracle Grid Infrastructure 12.1.0.2



### Create Oracle Database Cloud Service Instance

Navigation bar with buttons: Previous, Cancel, Progress indicator (Provisioning, Provisioning, Editing, Details, Configure), Next

#### Service Details

Provide details for this Oracle Database Cloud Service instance.

#### Service Configuration

Service Name	orad1a
Description	Oracle Test Service
Capacity Select	1 (1M Instance) - Quarter Rack (2 nodes)
Application Type	Transactional (OLTP)
Node Pools	Oracle Autonomous Database

#### Backup and Recovery Configuration

Backup Destination	Autonomous Backup
RMAN Backup Type	Full
RFS Remote Backup	dbfs://orad1a/backup/orad1a

#### Database Configuration

Administration Password	*****
Connect Password	*****
DB Name (DB)	ORCL
PDB Name	PDB1

**Assign name to Service**

**Backup information**

**Backup information**

**Credentials, CDB/PDB Names**



Provision New Oracle Database Cloud Service

### Create Oracle Database Cloud Service Instance



### Confirmation

Confirm your responses and create this Oracle Database Cloud Service instance:

	Service Level: Oracle Database Cloud - Exadata Service
	Software Release: Oracle Database 12c Release 9
	Software Edition: Enterprise Edition - Exadata Performance
	Service Name: exa016
	Description: ExaCR Test Service
	Exadata System: s15316axadm - Gemini Rack(2x0006)
	Application Type: Transactional (OLTP)
	Key: sck-vta-AAVADfnaC1rC2BAAADKQAWAANJAC02WwghN
	DB Name (SID): ORCL
	PDB Name: PDB1
	Standby Database with Data Guard: No
	Disaster Recovery: No
	Include GoldenGate: No
	Backup Distribution: Remote Storage Only
	RFS Remote Backup: .f1f13Avtfoocelbaakapaxad1s

**Review and Create the DB Service!**



Oracle Database Cloud Service

Services

Activity

SSH Access

Welcome!

Summary

3 Services	16 CPUs	480 Memory	43,008 Storage	2 Plans
---------------	------------	---------------	-------------------	------------

Services

Filter by: All Services (3)

As of Dec 7, 2016 11:52:23 PM UTC

Create Service

	<b>db02110</b> Version: 11.2.0.4 Edition: Enterprise Edition   Extreme Performance	Created On: Dec 6, 2016 4:07:03 AM UTC Exadata System: VMED	CPUs: 16.0 Memory: 480 GB Storage: 43 TB	
	<b>db020</b> Version: 11.2.0.4 Edition: Enterprise Edition   Extreme Performance	Created On: Dec 6, 2016 12:51:06 AM UTC Exadata System: VMED	CPUs: 16.0 Memory: 480 GB Storage: 43 TB	
	<b>db016</b> Version: 11.2.0.4 Edition: Enterprise Edition   Extreme Performance	Created On: Dec 7, 2016 9:15:04 PM UTC Exadata System: VMED	CPUs: 16.0 Memory: 480 GB Storage: 43 TB	

New DB Service created!!

Service create and delete history

```
{
  "exadataSystemName": "exaspendo",
  "serviceName": "JTWB",
  "level": "PAAS_EXADATA",
  "subscriptionType": "MONTHLY",
  "version": "12.2.0.1",
  "edition": "EE_EP",
  "description": "Created by JTW using the REST interface",
  "clusterName": "exaspendo-006",
  "vmPublicKeyText": "ssh-rsa
AAAAB3NzaC1yc2EAAAABIwAAAQEAt+c10terGailSUknJ9VbBoRvllw4Th56CYJGUWGkcqTjmki1XAYMiAFrQJx3upDRYg9LzSz8SOcbCdg
j1q+BmrVxAHWj+0EIdeQZNrbpfHN8WtK2axqlp7KfyZHtHannkb/YJXdmAa1oHbL9jL07/jmvNbXPbhLa3RHf4cB/z7M5esNoN5s0s2NPv/m
c3By9sbUf09IvGBGLKUCgwReyl1kk6S9KgevQfwMSGyeVGP4wZBTMoEnQPWnxZJ5Wp49/QSiTa9bjKSQikrcN8si4nJO8bBM9Uk43aAVJBY4
7SDn9X+zGJJHAWvcwPsfbVGOOAWfxRpzMrtbzJwwDixE0w== oracle@cfcldv0751m.us2.oraclecloud.com",
  "parameters": [
    {
      "type": "db",
      "adminPassword": "Welcome#1",
      "sid": "JTWB",
      "pdbName": "JTWBB",
      "backupDestination": "NONE",
      "isRac": "yes"
    }
  ]
}
```

```
curl -v --include --connect-timeout 5 --include --user jeff.wright@oracle.com --header "X-ID-TENANT-NAME:a462468" --header "Content-Type:application/json" --data @CreateDatabaseJTWB.json
https://dbaas.oraclecloud.com/paas/service/dbcs/api/v1.1/instances/a462468
```

## 6. Simplified Views of Database Services

- Web UI
  - Quick checks
  - Easy to get started
- REST API
  - Make developers self-sufficient
  - Increase the capacity of developers
  - Lights out automation
  - Reduce human error

Oracle Database Cloud Service / JTWA

- Overview
- Administration
- 6 Patching (available)
- 6 Snapshot (available)

Service Overview As of Jul 26, 2017 4:11:55 PM UTC

<b>2</b> Nodes	<b>22</b> OCPUs	<b>1,440</b> GB Memory	<b>43,008</b> GB Storage
-------------------	--------------------	---------------------------	-----------------------------

Status: Ready Version: 12.2.0.1  
 Edition: Enterprise Edition - Extreme Performance  
 Connect String: (DESCRIPTION=(ADDRESS\_LIST=...))  
 Backup Destination: None Container Name: JETFA  
 PDB Name: TESTA  
[Show more...](#)

- Hosts**
- |  |   |
|--|---|
| <p>Host Name: otcv0751m.us2.oracleclou...<br/>                 Public IP: 129.152.216.130<br/>                 SID: JETFA1</p> | <p>OCPU: 11<br/>                 Memory: 720 GB<br/>                 Client IP: 129.152.216.135<br/>                 Virtual IP: 129.152.216.131<br/>                 Admin IP: 129.152.216.162</p> |
| <p>Host Name: otcv0752m.us2.oracleclou...<br/>                 Public IP: 129.152.216.132<br/>                 SID: JETFA2</p> | <p>OCPU: 11<br/>                 Memory: 720 GB<br/>                 Client IP: 129.152.216.133<br/>                 Virtual IP: 129.152.216.133<br/>                 Admin IP: 129.152.216.163</p> |

**Network Information**

SCAN IPs: 129.152.216.134,129.152.216.135,129.152.216.136  
 Client Network: 129.152.216.126/27  
 Admin Network: 129.152.216.160/28  
 Backup Network: 129.152.216.176/28



```
curl -s --connect-timeout 2 --user jeff.wright@oracle.com --header "X-ID-TENANT-NAME:a462468"
https://dbaas.oraclecloud.com/paas/service/dbcs/api/v1.1/instances/a462468/JTWA | ./jq .
{
  "service_name": "JTWA",
  "version": "12.2.0.1",
  "status": "Running",
  "description": "JTWA",
  "identity_domain": "a462468",
  "creation_time": "2017-05-24T16:38:46.619+0000",
  "last_modified_time": "2017-05-24T16:38:46.597+0000",
  "created_by": "jeff.wright@oracle.com",
  "sm_plugin_version": "17.2.3-539",
  "tools_version": "17.2.3-539",
  "service_uri": "https://dbaas.oraclecloud.com:443/paas/service/dbcs/api/v1.1/instances/a462468/JTWA",
  "database_id": "0",
  "num_nodes": 2,
  "level": "PAAS_EXADATA",
  "edition": "EE_EP",
  "use_high_performance_storage": false,
  "subscriptionType": "MONTHLY",
  "creation_job_id": "12093280",
  "num_ip_reservations": 2,
  "backup_destination": "NONE",
  "failover_database": false,
  "rac_database": true,
```



```
"current_version": "12.2.0.1.0",
  "sid": "JEFFA",
  "pdbName": "TESTA",
  "demoPdb": "",
  "listenerPort": 1521,
  "em_url": "https://129.152.216.130:5503/em",
  "connect_descriptor":
"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(HOST=129.152.216.134) (PORT=1521) (PROTOCOL=TCP)) (ADDRESS=(HOST=129.152.216.135) (PORT=1521) (PROTOCOL=TCP)) (ADDRESS=(HOST=129.152.216.136) (PORT=1521) (PROTOCOL=TCP)))) (CONNECT_DATA=(SERVICE_NAME=TESTA.us2.oraclecloud.com)))",
  "connect_descriptor_with_public_ip":
"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(HOST=129.152.216.134) (PORT=1521) (PROTOCOL=TCP)) (ADDRESS=(HOST=129.152.216.135) (PORT=1521) (PROTOCOL=TCP)) (ADDRESS=(HOST=129.152.216.136) (PORT=1521) (PROTOCOL=TCP)))) (CONNECT_DATA=(SERVICE_NAME=TESTA.us2.oraclecloud.com)))",
  "glassfish_url": "",
  "charset": "AL32UTF8",
  "ncharset": "AL16UTF16",
  "is_clone": false,
  "clone_supported_version": "17.2.1",
  "total_shared_storage": 0,
  "service_associations": [],
  "subscription_name": "exaspendo",
  "snapshot_service": false,
  "cluster_names": "exaspendo-006",
```

```
"networking_info": {
  "scan_ips": [
    "129.152.216.134",
    "129.152.216.135",
    "129.152.216.136"
  ],
  "admin_network": "129.152.216.160/28",
  "backup_network": "129.152.216.176/28",
  "client_network": "129.152.216.128/27",
  "computes": [
    {
      "hostname": "cfcldv0751m.us2.oraclecloud.com",
      "client_ip": "129.152.216.130",
      "virtual_ip": "129.152.216.131",
      "admin_ip": "129.152.216.162"
    },
    {
      "hostname": "cfcldv0752m.us2.oraclecloud.com",
      "client_ip": "129.152.216.132",
      "virtual_ip": "129.152.216.133",
      "admin_ip": "129.152.216.163"
    }
  ]
},
"jaas_instances_using_service": ""
}
```

## 5. Configure IORM with Cloud Tooling

- Easy web interface for quick and frequent changes
- Adapt and adjust to quickly changing workloads
- Ensure critical business objectives are met
- Safe way to consolidate workloads



Oracle Database Cloud Service

Home

Alerts

API Access

Account

Settings

Summary	5	16	480	43,008	2
	Instances	OCPU	Memory	Storage	Flash Disks

Services

Service Name	Created On	Created By	Status	OCPU	Memory	Storage	Flash Disks
ORACLE	Aug 26, 2016 09:04:44 AM UTC	ADMINISTRATOR	Running	16	480 GB	43,008 GB	2
ORACLE	Aug 26, 2016 09:04:44 AM UTC	ADMINISTRATOR	Running	16	480 GB	43,008 GB	2
ORACLE	Aug 26, 2016 09:04:44 AM UTC	ADMINISTRATOR	Running	16	480 GB	43,008 GB	2
ORACLE	Aug 26, 2016 09:04:44 AM UTC	ADMINISTRATOR	Running	16	480 GB	43,008 GB	2
ORACLE	Aug 26, 2016 09:04:44 AM UTC	ADMINISTRATOR	Running	16	480 GB	43,008 GB	2

Click Service



To configure IORM, click service menu



Cloud Database Cloud Service

Home

Alerts

API Access

Account

Settings

Summary

5

16

480

43,008

2

Instances

OCPU

Memory

Storage

Backup

Services

Search services

Refresh services list [Link](#)



EXADAT

Created On: Aug 26, 2019 10:44 AM UTC  
Backup System: EXADAT002



EXADAT002

Created On: Aug 26, 2019 10:44 AM UTC  
Backup System: EXADAT002



EXAD

Created On: Aug 26, 2019 10:44 AM UTC  
Backup System: EXADAT002



EXAD00

Created On: Aug 26, 2019 10:44 AM UTC  
Backup System: EXADAT002



EXAD002

Created On: Aug 26, 2019 10:44 AM UTC  
Backup System: EXADAT002

Open EM Console

SSH Access

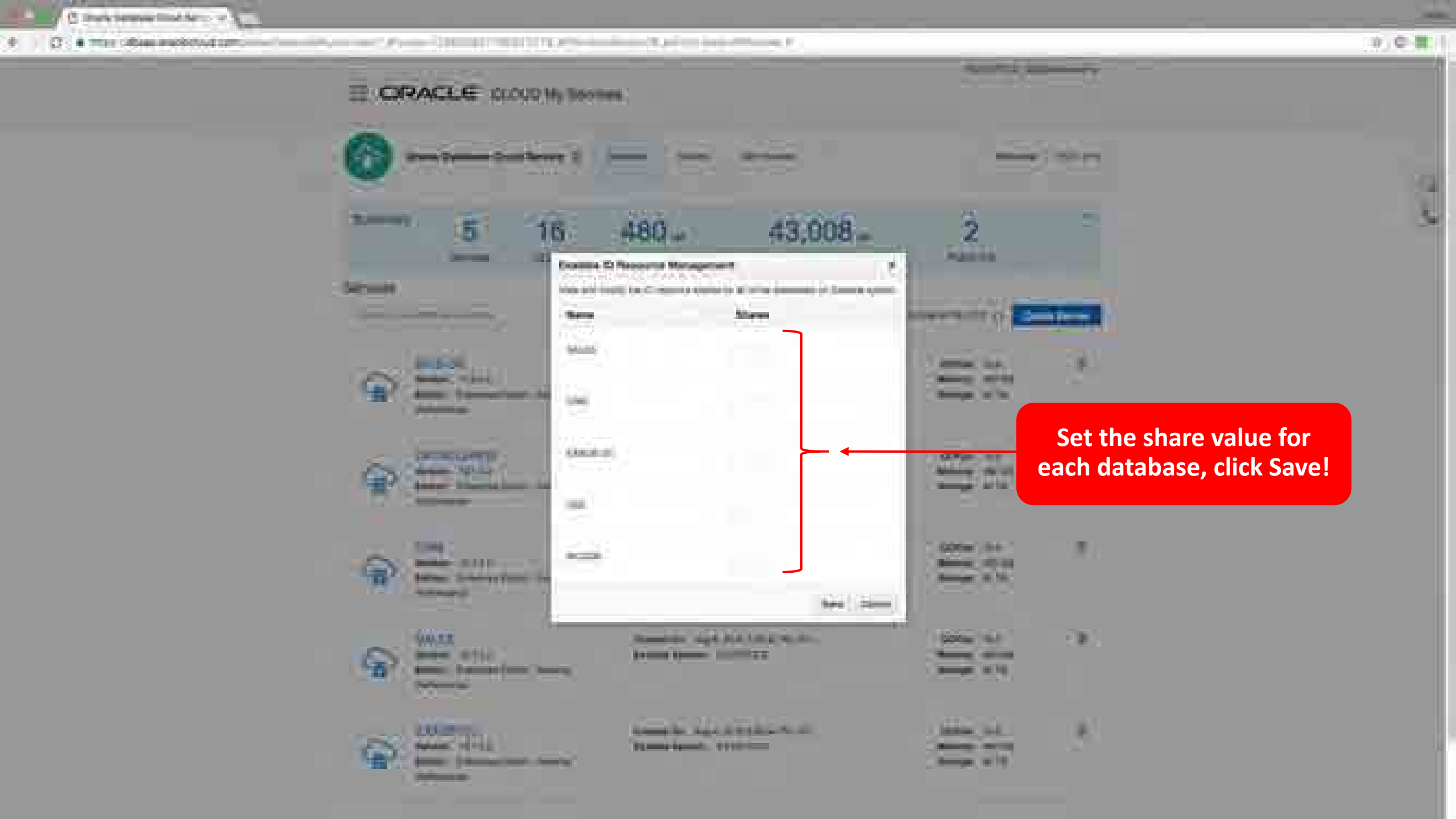
Update Exadata IORM

Delete

OCPU: 16  
Memory: 48 TB  
Storage: 43 TB

OCPU: 16  
Memory: 48 TB  
Storage: 43 TB

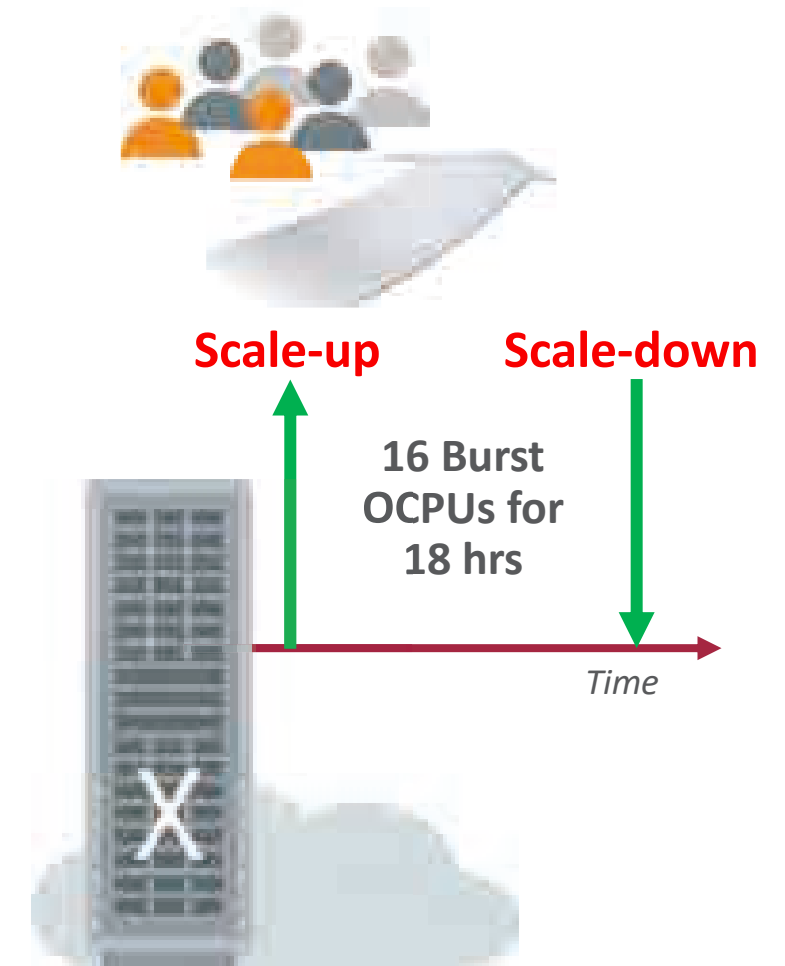
OCPU: 16  
Memory: 48 TB  
Storage: 43 TB

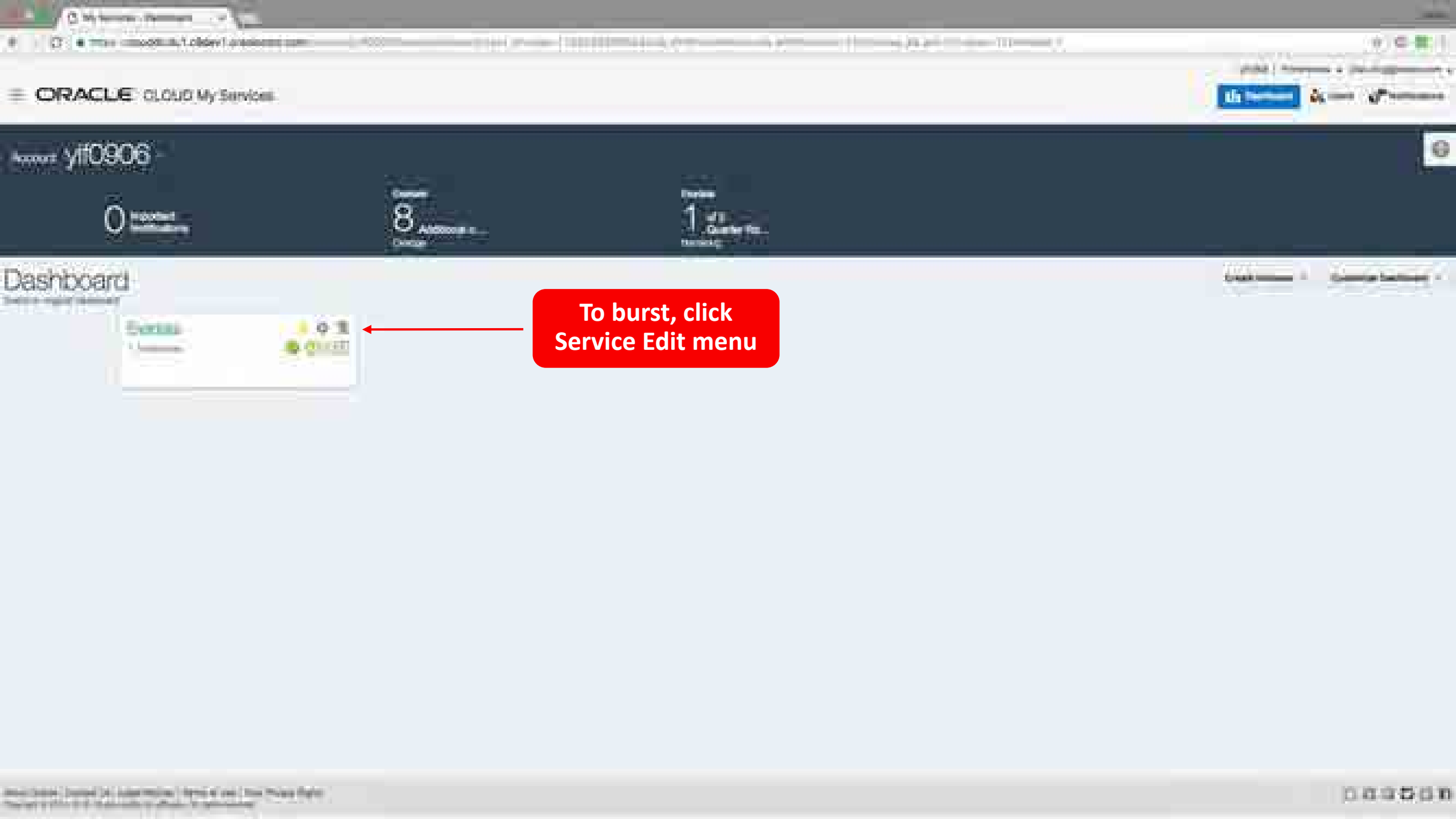


Set the share value for each database, click Save!

## 4. Online Scale-up Through Compute Bursting

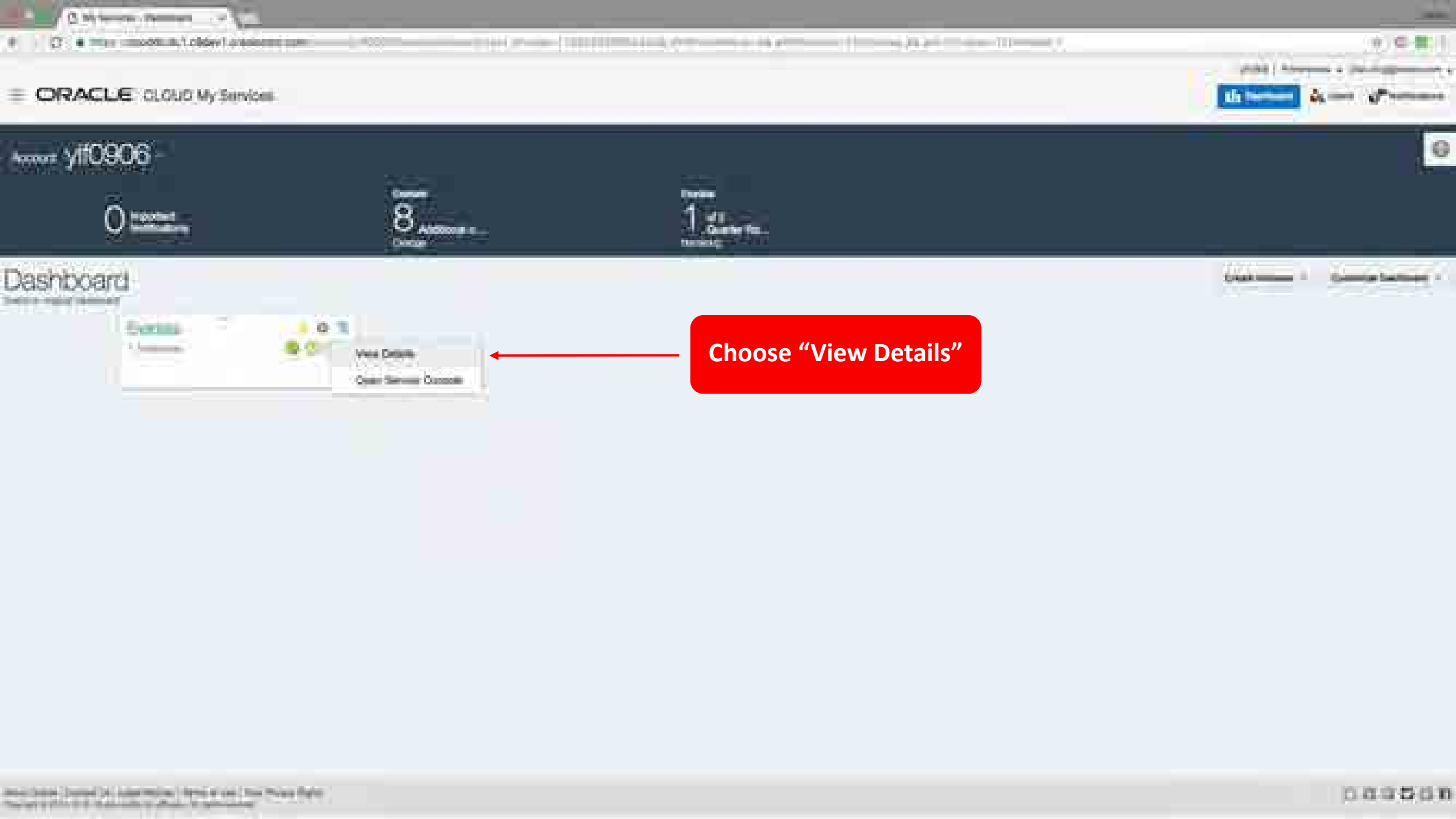
- Grow/shrink compute capacity to meet peak or seasonal demands
- **Dynamically** add or reduce OCPUs as often as once an hour
- Hourly rates to lower costs – avoids the need to provision for peak
- Burst up to 2x the base number of OCPUs or max capacity (whichever is lower)
- GUI-based self-service



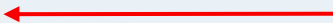


To burst, click  
Service Edit menu





Choose "View Details"



View Details

Open Service Console



Oracle Database Exadata Cloud Service

Get Service Details

- Overview
- Billing Metrics
- Resource Quotas
- Documents
- Forecast
- Status
- Security Configuration

Additional Information

<b>Plan:</b> Oracle Database (Standard)	<b>DB Config:</b> DB Config 1
<b>Service Plan ID:</b> 000000	<b>Version:</b> 19.3.0.0
<b>Service Instance ID:</b> 00000000	<b>State:</b> OK
<b>Service Account:</b> Cloud Infrastructure (OCA)	<b>DB Config:</b> (Oracle Database)
<b>DB Instance:</b> 00000000	

Service Instances

Create Service Instance | Show All



**exadatacloud001**

Service Plan: Oracle Database (Standard)

Service Instance ID: 00000000

State: OK

DB Config: (Oracle Database)

DB Instance: (Oracle Database)

Created by: (User)

Created on: (Date)

Updated on: (Date)

Address: (IP Address)

Exadata Instance Service Console



### Service Details: Oracle Database Exadata Cloud Service

View Service Details

- Overview
- Usage Metrics
- Resource Quotas
- Documents
- Network
- Status
- Security Configuration

#### Additional Information:

Plan: Oracle Database Exadata Cloud Service  
 Service Type: Oracle Database Exadata Cloud Service  
 Instance ID: 502309542  
 Service Instance ID: 502309542  
 Exadata Account: Exadata Instance (2024) (L)  
 (24 Nov 2024 - 2024 11 28)  
 Size: Exadata Cloud Service - Custom  
 Version: 19.3.0.0  
 Rack: Q1R3  
 RMT System: (Exadata Cloud Service)

#### Service Instances

Create Service Instance + Show/Hide +



## exadatacloud02

**Service Type:** Exadata  
**Instance Id:** 502309542  
**Status:** Active  
**Size:** Exadata Cloud Service - Custom  
**Exadata System Name:** exadata-sys  
**Database backups on Exadata Storage:** Y  
**Rack size:** Quarter Rack  
**Additional number of Burst OCPUs (Cores) Hourly:** 0

**Exadata Quarter Rack, Zero OCPUs burst so far**



Service Details: Oracle Database Exadata Cloud Service

Get Service Details

- Overview**
- Billing Metrics
- Resource Quotas
- Documents
- Firewall
- Status
- Security Configuration

Additional Information:

<p>Region: <b>us-east-1</b></p> <p>Service Plan Code: <b>10000</b></p> <p>Service Instance ID: <b>exadatecloud01</b></p> <p>Scanner Account: <b>Cloud Infrastructure (ORA)</b></p> <p>Creation: <b>2023-09-14</b></p>	<p>DB Tier: <b>DB Exadata 1</b></p> <p>Version: <b>19.3.0.0</b></p> <p>State: <b>Ready</b></p> <p>DBT Engines: <b>Unlimited</b></p>
---	---

Service Instances

Create Service Instance | Show All



**exadatecloud01**

Service Plan: **10000**

Service ID: **10000**

State: **Ready**

DB Tier: **DB Exadata 1**

Version: **19.3.0.0**

Creation: **2023-09-14**

Creation Location: **us-east-1**

Creation Region: **us-east-1**

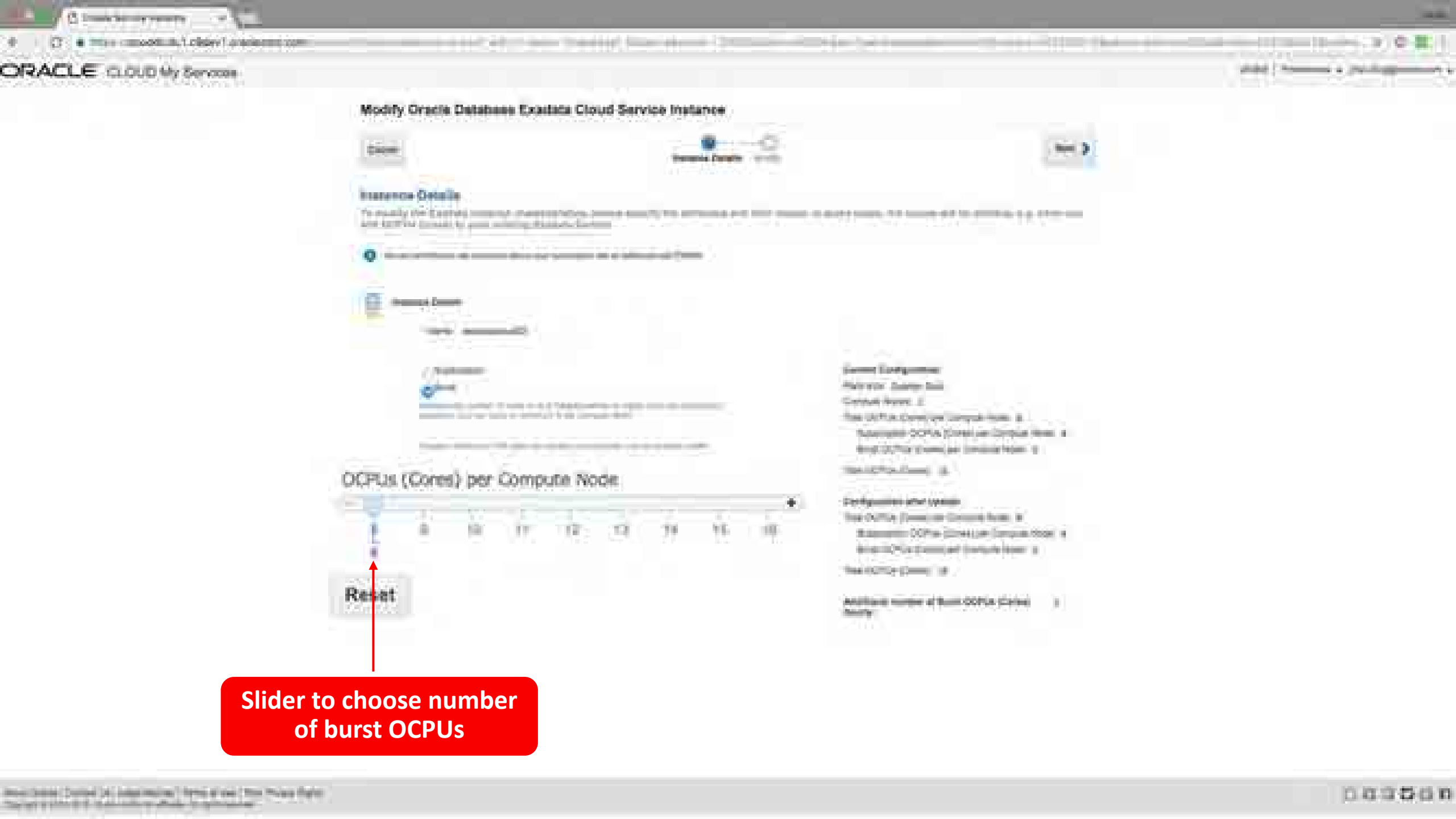
Creation Availability Domain: **us-east-1a**

Created By: **admin@oracle.com**

DBT Engines: **Unlimited**



- Delete
- Modify**
- Create Like
- Associate Security Gr...



### Modify Oracle Database Existing Cloud Service Instance

Back

Next

#### Instance Details

To modify the existing instance, you must first stop the instance and then change its configuration. The changes will be applied to the instance after you click the **Next** button.

Warning: Modifying the instance configuration may result in data loss.

#### Instance Name

Instance Name

#### Instance ID

Instance ID

#### OCPUs (Cores) per Compute Node



Reset

Slider to choose number of burst OCPUs

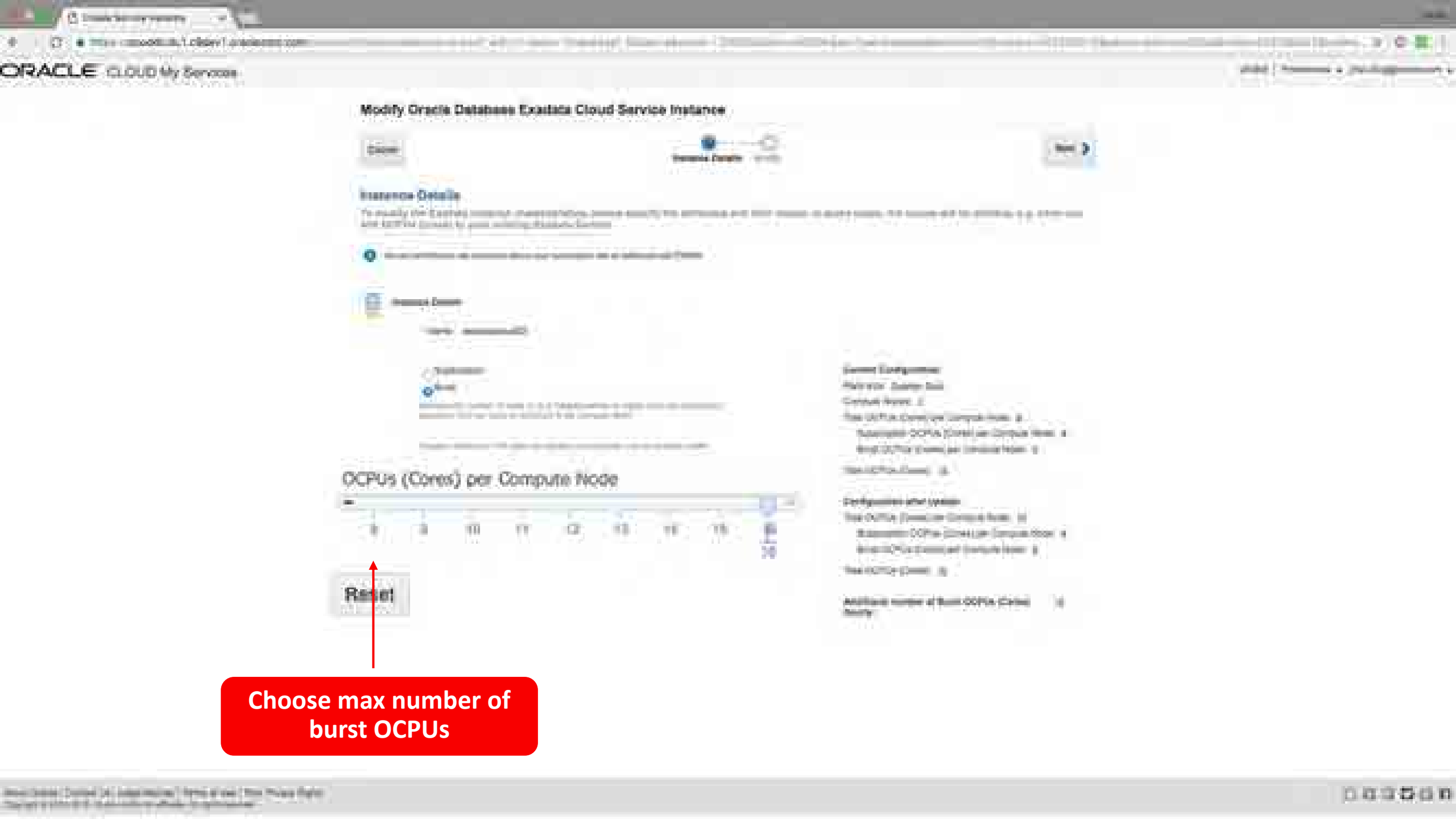
#### Service Configuration

- Admin User: Admin User
- Compute Node: 2
- OCPUs (Cores) per Compute Node: 1
- Maximum OCPU (Cores) per Compute Node: 1
- Max OCPU (Cores) per Instance Node: 1
- Max OCPU (Cores): 1

#### Configurations after update

- OCPUs (Cores) per Compute Node: 1
- Maximum OCPU (Cores) per Compute Node: 1
- Max OCPU (Cores) per Instance Node: 1
- Max OCPU (Cores): 1

Apply the number of burst OCPUs (Cores) to this instance



## Modify Oracle Database Existing Cloud Service Instance

Cancel



Next >

### Instance Details

To modify the Existing instance, change OCPU cores, change the instance and add burst OCPUs, the burst OCPUs are available only for the burst OCPUs instance type.

OCPU Cores per Compute Node

### Instance Details

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

### OCPUs (Cores) per Compute Node



Reset

Choose max number of burst OCPUs

### Service Configuration

Admin: Admin Role

Default: Admin Role

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

### Configure other options

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

OCPU Cores per Compute Node

### Modify Oracle Database Existing Cloud Service Instance

Cancel



Next

#### Instance Details

To modify the existing instance, you must first stop the instance and then create a new instance with the desired configuration.

Information about the instance is displayed in the Instance Details section.

#### Instance Details

Name:

#### Configuration

Plan:

Subscription OCPUs (Cores) per Compute Node: 8

Burst OCPUs (Cores) per Compute Node: 8

#### Configuration after Update

Total OCPUs (Cores): 32

Next

#### Current Configuration

Subscription OCPUs (Cores) per Compute Node: 8

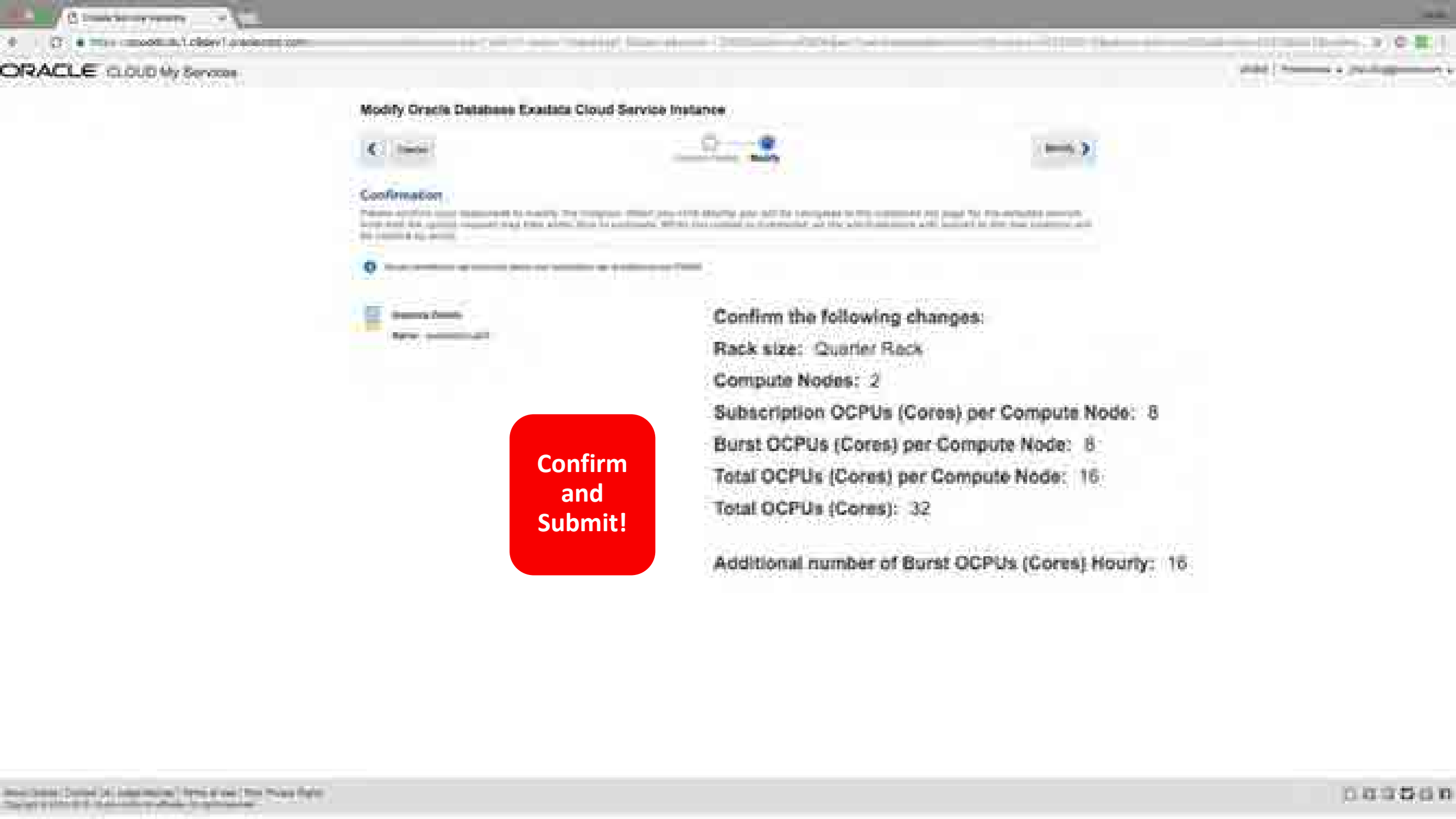
Burst OCPUs (Cores) per Compute Node: 8

Total OCPUs (Cores): 32

Additional number of Burst OCPUs (Cores) Hourly: 16

**Summary of Burst OCPUs**

**Configuration after Update:**  
Total OCPUs (Cores) per Compute Node: 16  
Subscription OCPUs (Cores) per Compute Node: 8  
Burst OCPUs (Cores) per Compute Node: 8  
Total OCPUs (Cores): 32  
Additional number of Burst OCPUs (Cores) Hourly: 16



Modify Oracle Database Existing Cloud Service Instance



Confirmation

Please confirm your selections to modify the instance. The changes listed below will be applied to the instance. You must confirm the changes before you can proceed to the next step.

Changes to be applied to the instance:

Instance Name:

- Confirm the following changes:
- Rack size: Quarter Rack
- Compute Nodes: 2
- Subscription OCPUs (Cores) per Compute Node: 8
- Burst OCPUs (Cores) per Compute Node: 8
- Total OCPUs (Cores) per Compute Node: 16
- Total OCPUs (Cores): 32
- Additional number of Burst OCPUs (Cores) Hourly: 16

**Confirm and Submit!**



### Service Details: Oracle Database Exadata Cloud Service

- Overview
- Billing Metrics
- Resource Quotas
- Documents
- Firewall
- Status
- Security Configuration

#### Additional Information:

Plan: Oracle Database Exadata Cloud Service	DB Comp: 10 Compartment 1
Service Type: Exadata	Version: 19.3.0.0
Instance Id: 902309542	Stack: AWS
Service Account: Cloud Infrastructure Admin (OCID: ...)	OCI Region: us-east-1 (us-east-1)
Creation Time: 2023-10-24T15:30:00Z	

#### Service Instances

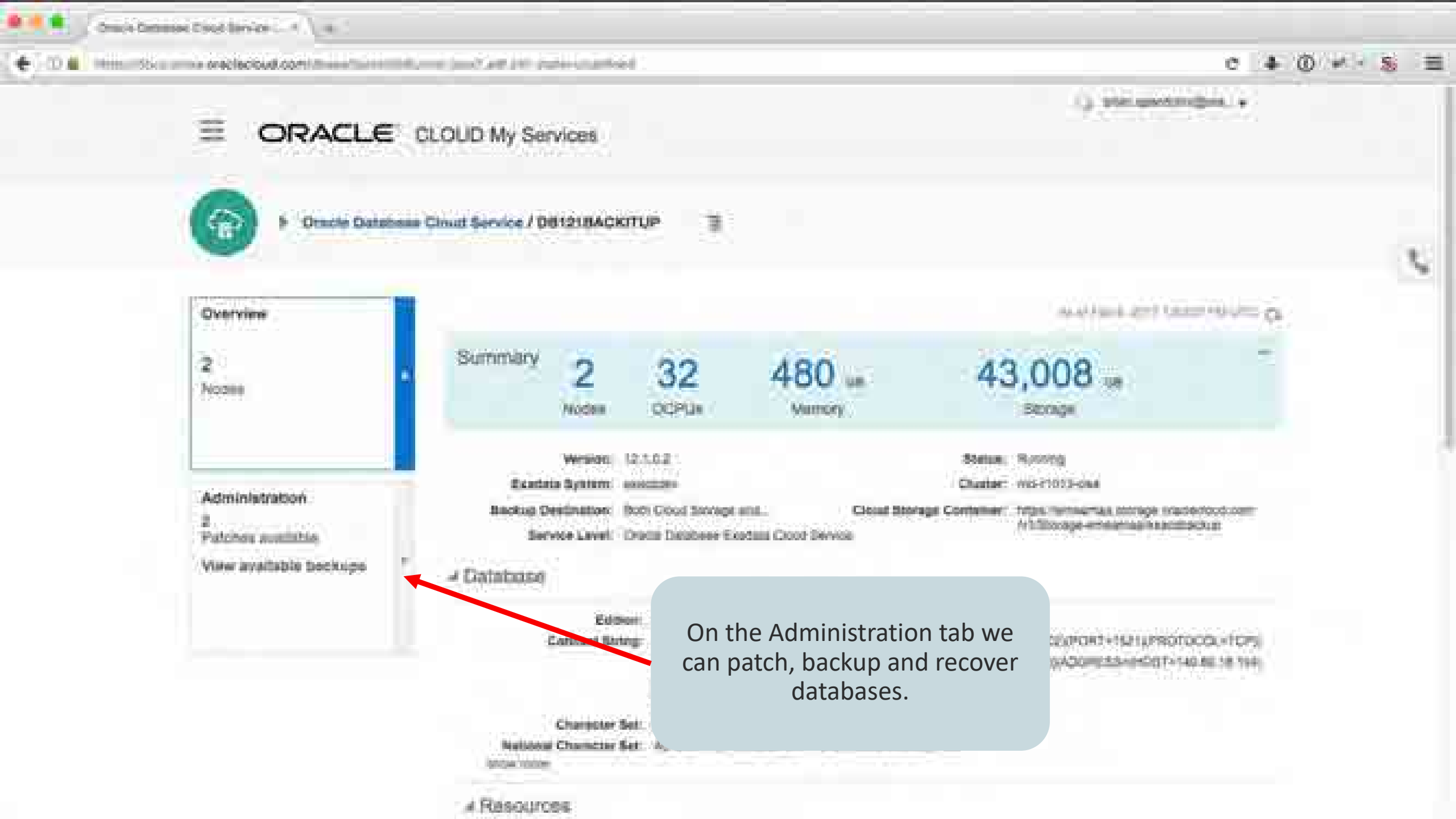
**exadatacloud02**

Service Type: Exadata  
Instance Id: 902309542  
Status: Active  
Size: Exadata Cloud Service - Custom  
Exadata System Name: exadata-sys  
Database backups on Exadata Storage: Y  
Rack size: Quarter Rack  
Additional number of Burst OCPUs (Cores) Hourly: 16

Done!

# 3. Automate Backup, Recovery, and Patching

- Web UI
  - Great for one-off and learning
- REST API
  - Give power to developers
  - Reduce load on DBAs
  - Simple database administration for the masses



**Overview**

2 Nodes

**Administration**

Patches available

[View available backups](#)

**Summary**

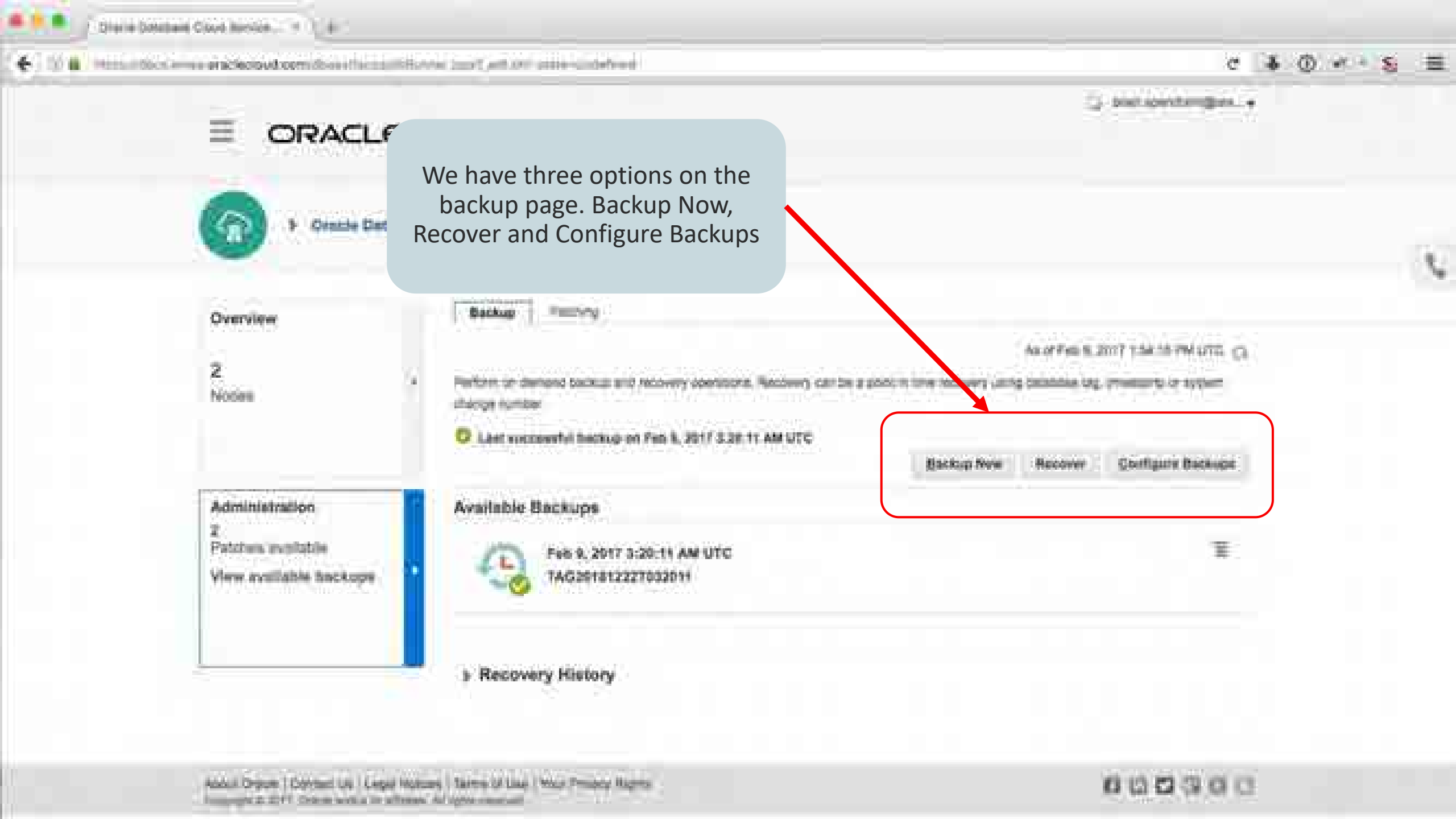
2	32	480 GB	43,008 GB
Nodes	OCPUs	Memory	Storage

Version: 12.1.0.2      Status: Running  
 Exadata System: exadcs01      Cluster: wd-r1053-001  
 Backup Destination: Both Cloud Storage and...      Cloud Storage Container: https://emastmas.storage.oraclecloud.com/HLStorage-emastmas-backup  
 Service Level: Oracle Database Exadata Cloud Service

**Database**

Edition:      CPU: 32  
 Connect String:      CPU: 32  
 Character Set:      CPU: 32  
 Network Character Set:      CPU: 32

On the Administration tab we can patch, backup and recover databases.



We have three options on the backup page. Backup Now, Recover and Configure Backups



Perform on-demand backup and recovery using database tag, timestamp or change number.

Backup Now lets us take a point in time backup immediately of our database

in time recovery using database tag, timestamp or

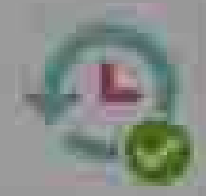
● Last successful backup on Feb

Backup Now

Recover

Configure

### Available Backups



#### Backup Now

Do you want to submit an on demand backup request for Oracle Database Cloud Service DB121BACKITUP?

**Backup** **Cancel**

### Recovery History



Database Recovery will allow us to choose the latest or a particular backup we have to recovery from

As of Feb 9, 2017 1:54:15

Perform on demand backup and n  
change number

oint in time recovery using database lag, timestamp o

Last suc

### Database Recovery



Recover Oracle Database Cloud Service using one of the following options:

#### Select Recovery Option:

Latest

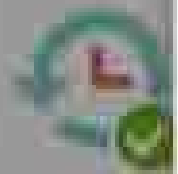
Date and Time

System Change Number

Recover

Cancel

Available



Recov



Configure Backups lets us change the username and password of our cloud backup service.

**Configure Backups** [X]

Storage Container:

User Name:

Password:



The Patching tab lets us update our Grid Infrastructure or database

Overview

2 Nodes

Administration

2 Patches available  
View available backups

Backup Patching

All of Patch 2015 1:45:00 PM UTC

Available Patches



PSU Update (2.1.0.3.161016) Release Date: Oct 16, 2015 1:45:00 AM UTC  
Affected Component: Exadata Grid  
Required Restart: Yes



PSU Update (2.1.0.3.161016) Release Date: Oct 16, 2015 1:45:00 AM UTC  
Affected Component: Exadata Database  
Required Restart: Yes

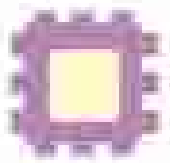


Backup

Patching

54:16 PM UTC

## Available Patches



PSU Update 12.1.0.2.161018

[Readme](#)

Release Date: Oct 18, 2016 1:40:00 AM UTC

Affected Component: Exadata Grid

Requires Restart: Yes



PSU Update 12.1.0.2.161018

[Readme](#)

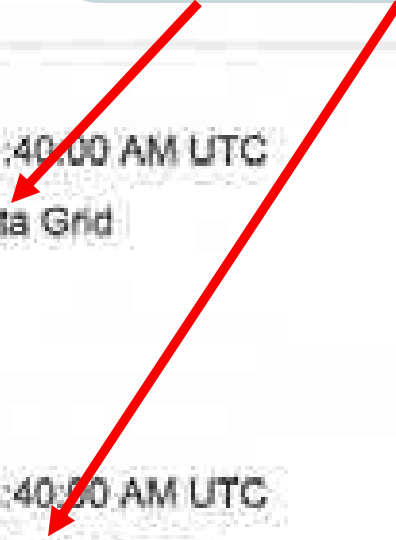
Release Date: Oct 18, 2016 1:40:50 AM UTC

Affected Component: Exadata Database

Requires Restart: Yes



The affected component highlights what is to be updated



Backup

Patching

Once we are ready to update that particular component, we simply click precheck or patch to start the process in a rolling manner; one node at a time

9, 2017 1:54:16 PM UTC

## Available Patches



PSU Update 12.1.0.2.161018

Release Date: Oct 18, 2016 1:40:00 AM UTC

[Readme](#)

Affected Component: Exadata Grid

Requires Restart: Yes



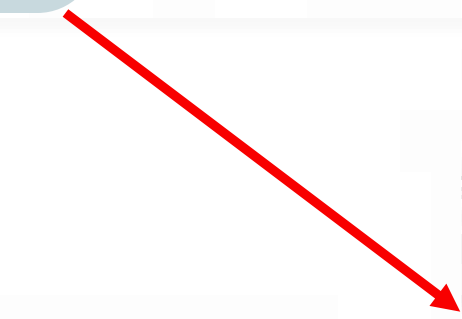
PSU Update 12.1.0.2.161018

Release Date: Oct 18, 2016 1:40:00 AM UTC

[Readme](#)

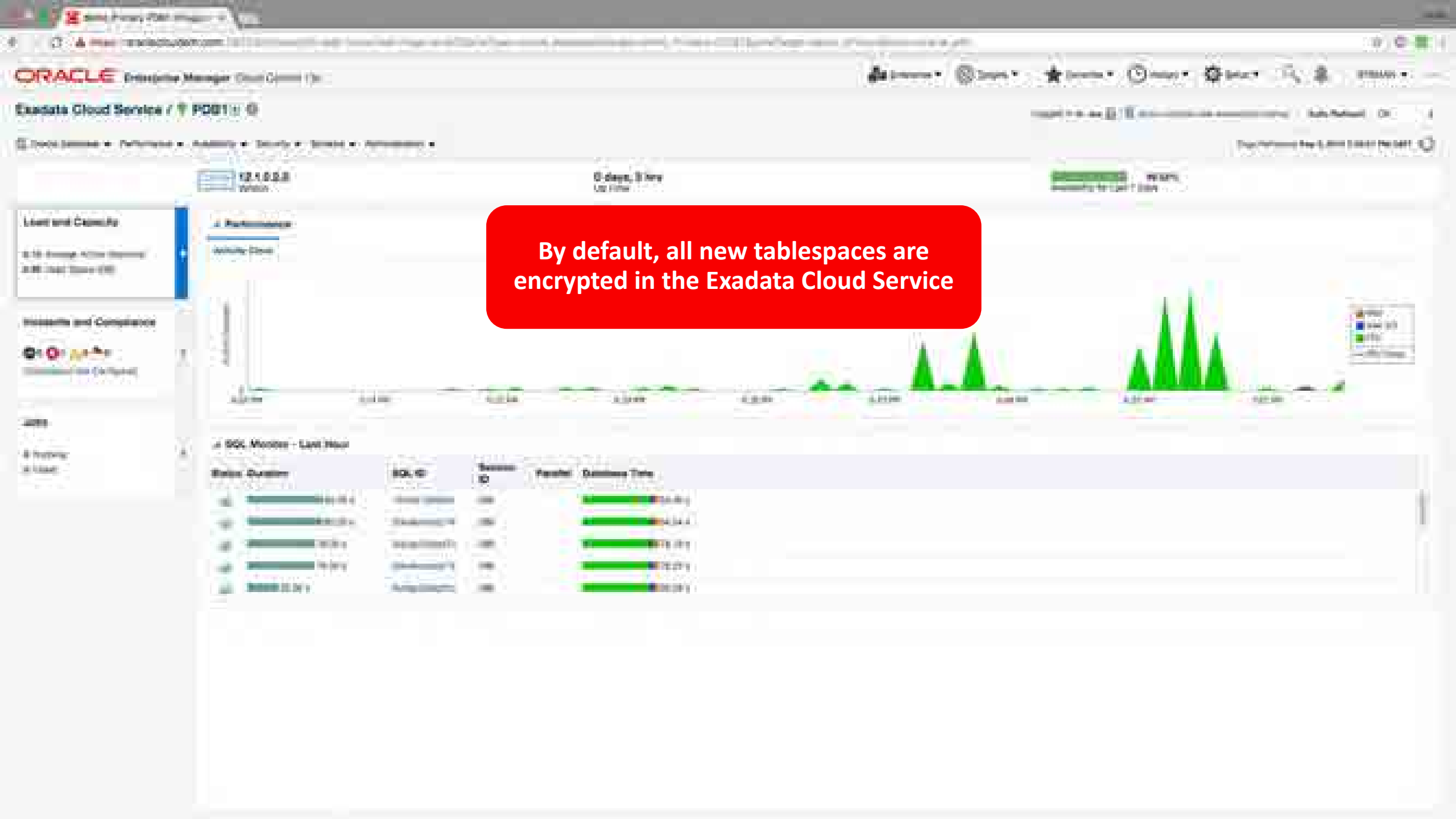
Affected Component: Exadata Database

Requires Restart: Yes



## 2. Security with Databases Encrypted by Default

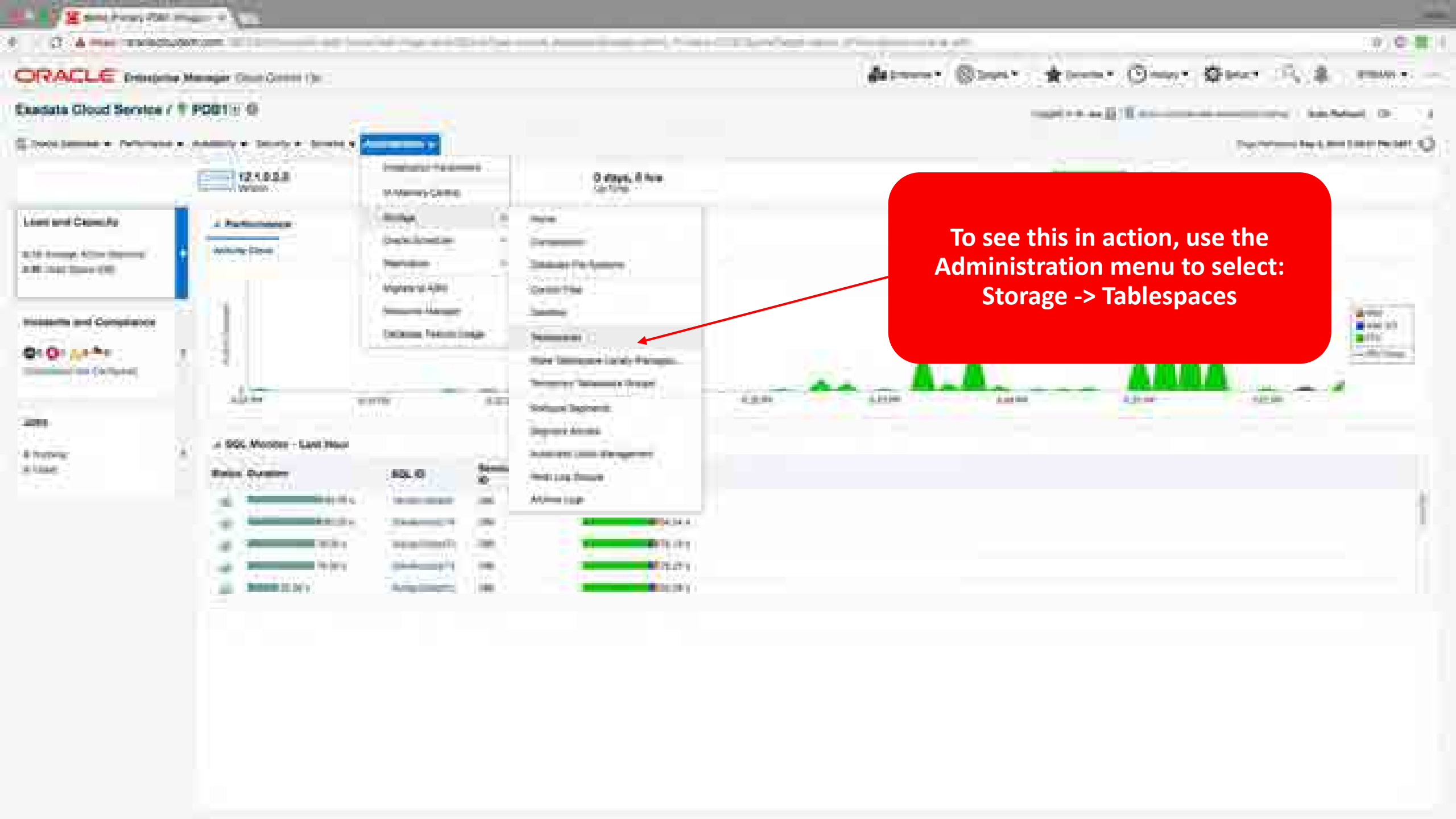
- Oracle Transparent Data Encryption (TDE) included and enabled by default
- Eliminate accidental holes due to developer oversight
- Prevent access to files from providing access to data
- Couple with Oracle Database Vault to prevent DBA access from seeing data



By default, all new tablespaces are encrypted in the Exadata Cloud Service

SQL Monitor - Last Hour

Session - Duration	SQL ID	Session ID	Parallel	Database Time
...	...	...	...	...
...	...	...	...	...
...	...	...	...	...
...	...	...	...	...
...	...	...	...	...

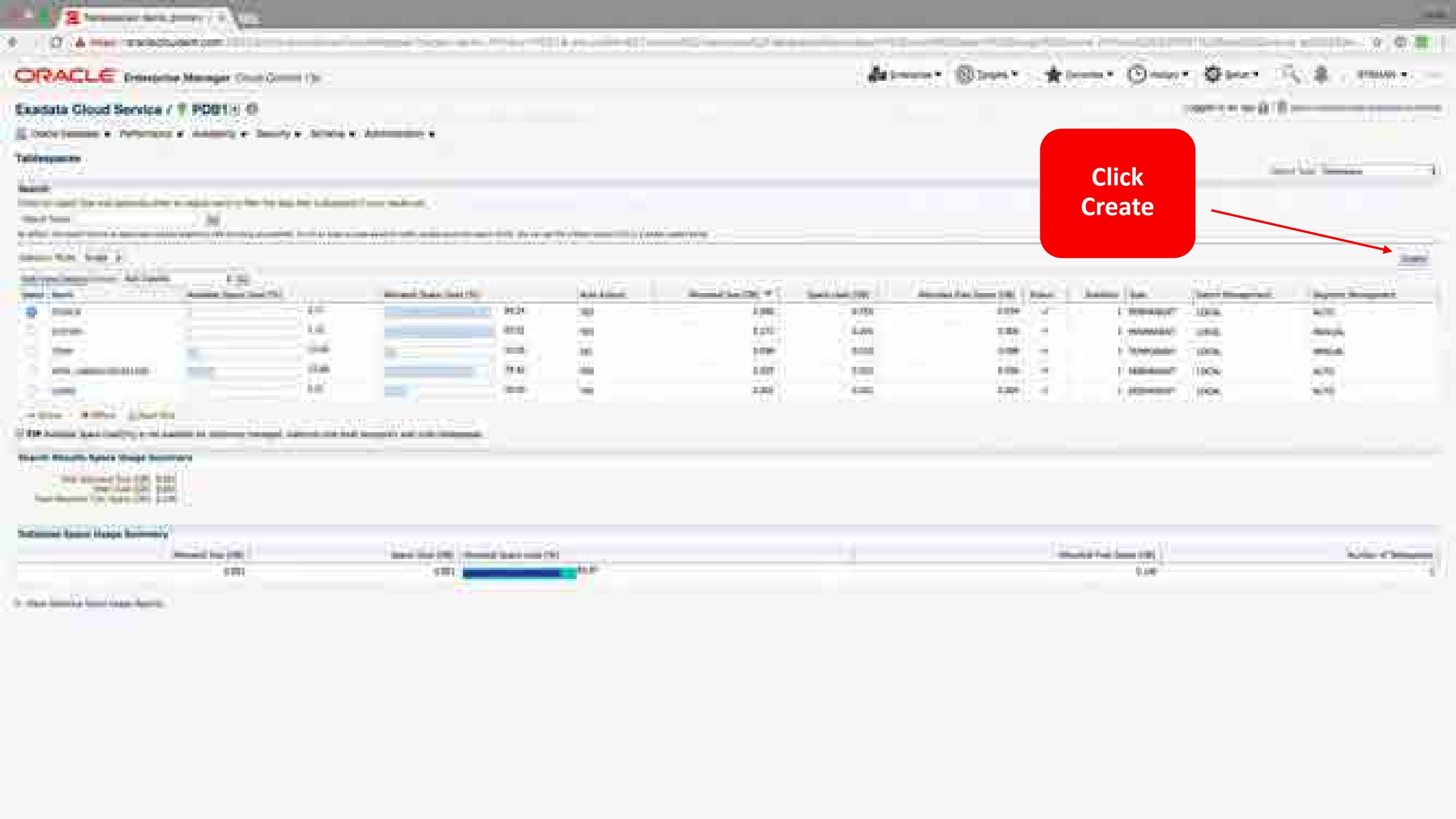


To see this in action, use the Administration menu to select: Storage -> Tablespaces

Tablespace	Size	Used	Free
SYSTEM	100M	100M	0M
SYSAUX	100M	100M	0M
UNDOTBS1	100M	100M	0M
TEMP	100M	100M	0M
USERS	100M	100M	0M

SQL ID	Text	Execs	Elapsed
SQL_00001	SELECT * FROM ...	100	0.01s
SQL_00002	SELECT * FROM ...	100	0.01s
SQL_00003	SELECT * FROM ...	100	0.01s
SQL_00004	SELECT * FROM ...	100	0.01s



Click Create



Exadata Cloud Service / PDB1

Home » Dashboard » Performance » Alerts » Security » Alerts » Administration

Tablespace

Summary: The tablespace is a logical storage structure for the database. It is used to store data and indexes. The tablespace is created in the database and is used to store data and indexes.

Tablespace Name	Tablespace Size (MB)	Tablespace Used (MB)	Tablespace Free (MB)	Tablespace % Free	Tablespace % Used	Tablespace % Full	Tablespace % Error	Tablespace % Warning	Tablespace % Critical	Tablespace % Alert	Tablespace % Error	Tablespace % Warning	Tablespace % Critical	Tablespace % Alert
TABLESPACE01	100	50	50	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TABLESPACE02	200	100	100	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TABLESPACE03	300	150	150	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TABLESPACE04	400	200	200	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TABLESPACE05	500	250	250	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Summary: The tablespace is a logical storage structure for the database. It is used to store data and indexes. The tablespace is created in the database and is used to store data and indexes.

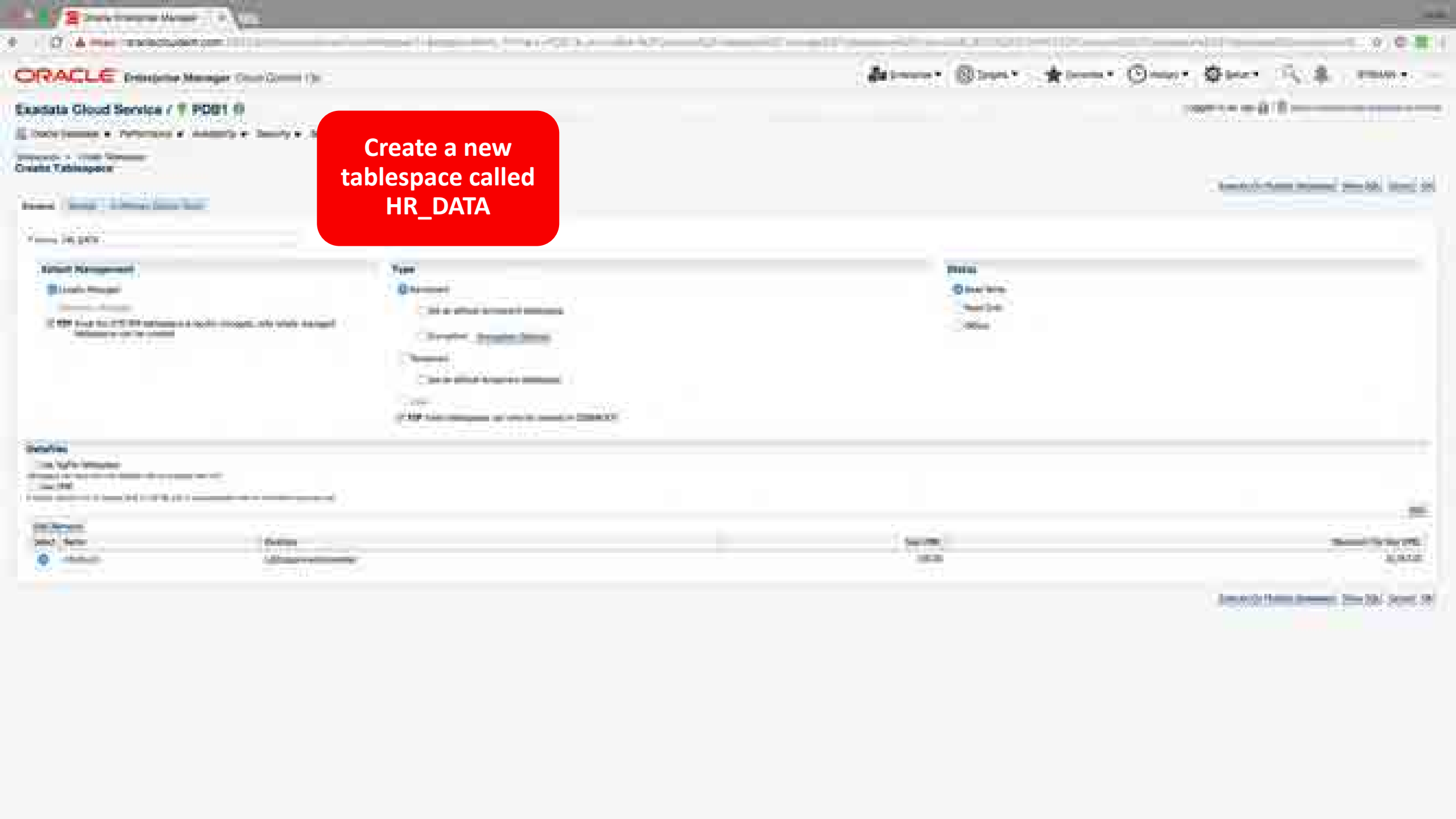
Tablespace Alerts

Alert Name	Alert Type	Alert Severity	Alert Status
Tablespace Full	Warning	Warning	Active
Tablespace Error	Error	Error	Active
Tablespace Critical	Critical	Critical	Active

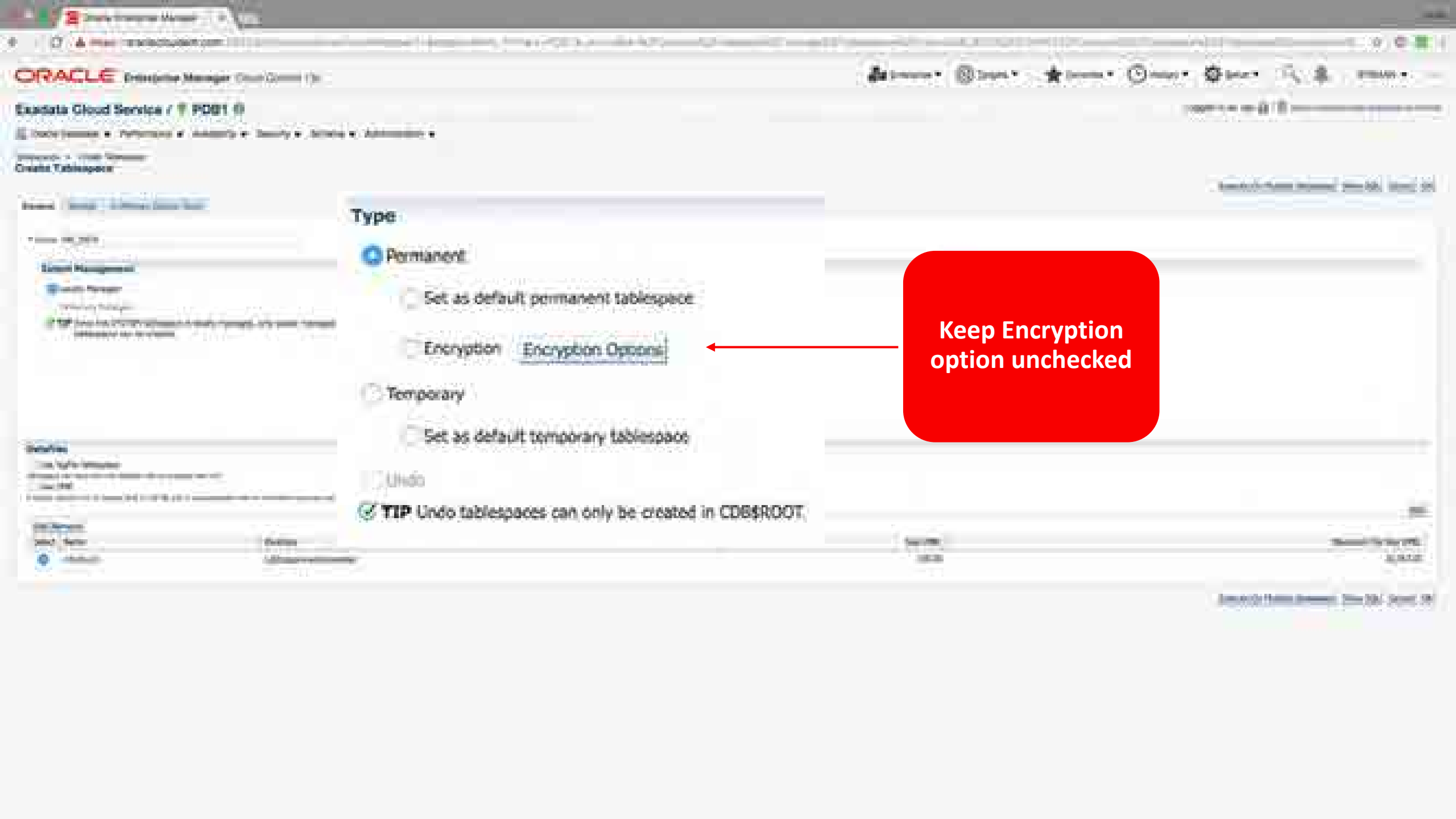
Tablespace Alerts Summary



Summary: The tablespace is a logical storage structure for the database. It is used to store data and indexes. The tablespace is created in the database and is used to store data and indexes.



Create a new  
tablespace called  
HR\_DATA



Type

Permanent

Set as default permanent tablespace

Encryption [Encryption Options](#)

Temporary

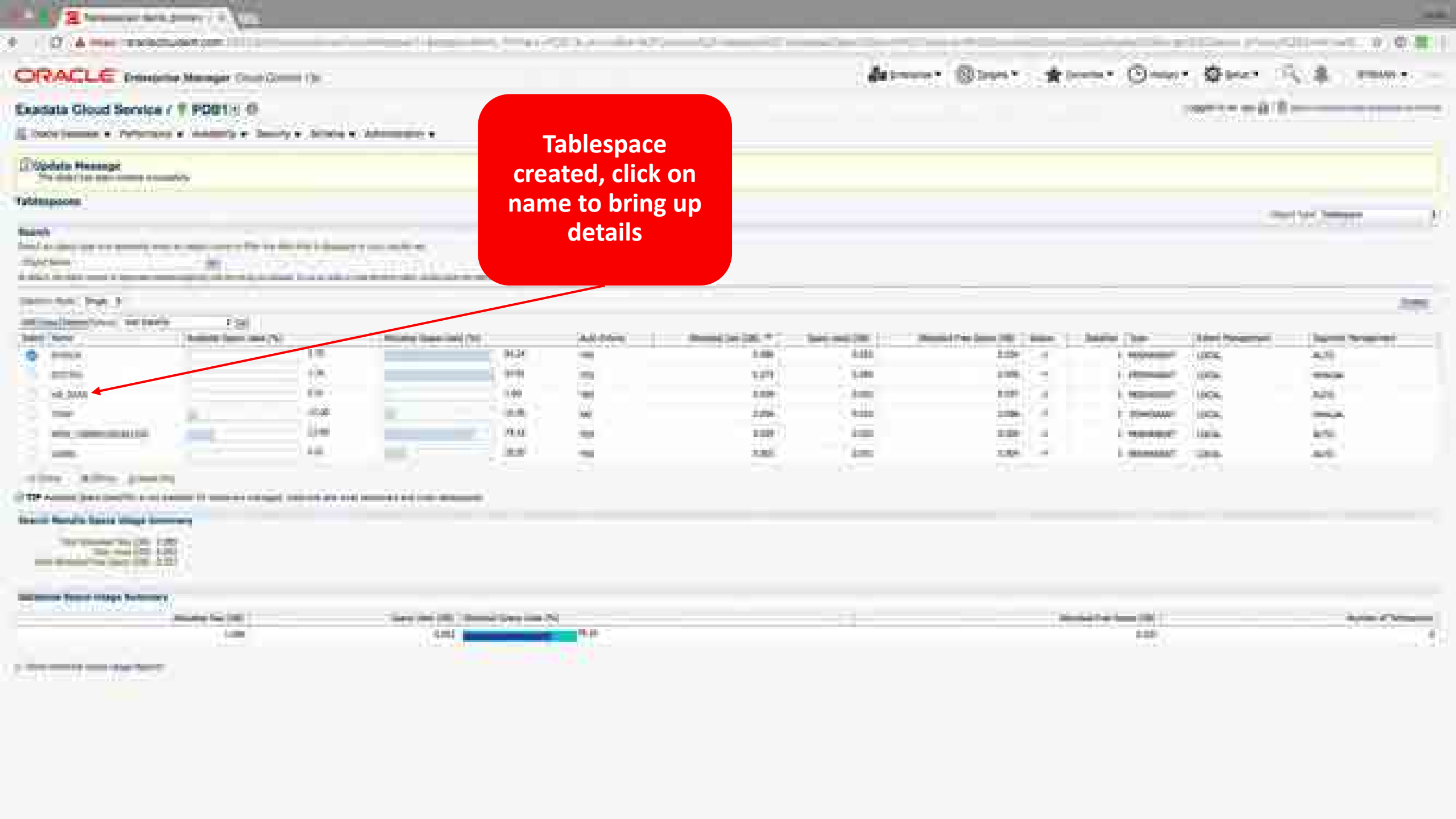
Set as default temporary tablespace

Undo

**TIP** Undo tablespaces can only be created in CDB\$ROOT.

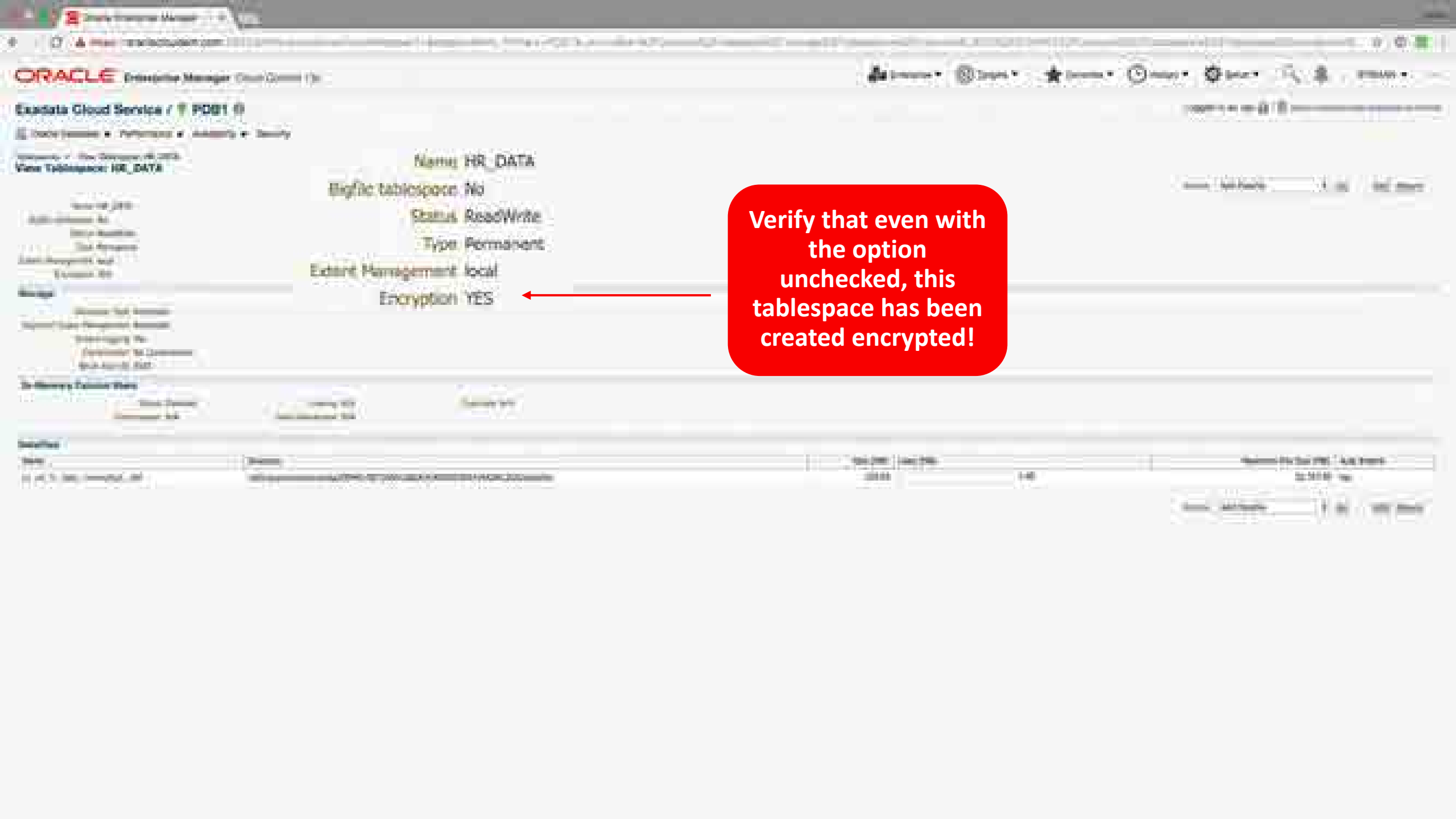
Keep Encryption option unchecked





Tablespace created, click on name to bring up details

tbl\_0000



Verify that even with the option unchecked, this tablespace has been created encrypted!

Name: HR\_DATA  
Bigfile tablespace: No  
Status: ReadWrite  
Type: Permanent  
Extent Management: local  
Encryption: YES

Name	Status	Encryption	Tablespace Size	Log Group
HR_DATA	READWRITE	YES	100 MB	

# 1. Enterprise Manager for Hybrid Cloud

- Single pane of glass for all databases administration
- Uses standard agents on Exadata Cloud at Customer compute nodes
  - Just like any other RAC database
- Augment platform tooling with standard technology you are used to

# Installing EM on Exadata Cloud at Customer

- Complete deployment pre-installation tasks
- Create named credentials
  - Use the SSH keys for the OPC and Oracle users you defined when you created the Exadata Cloud at Customer Service Service
- Deploy agents
  - Use the standard host agent, not the Exadata Database Machine agent
- Discover Cluster
- Discover ASM, Database, and Listener

# How to use EM with Cloud Tooling

- EM

- ASM storage space monitoring and management
- Management of In-Memory processing
- Scheduling of database jobs
- Database resource management
- Database feature usage
- Schema management
- Database security management beyond SSH access
- Database performance monitoring

- Cloud Tooling

- ASM disk group creation
- Stopping, starting, or restarting a database node
- Managing SSH access
- Database creation and deletion
- Control and monitor Exadata IORM
- Database backup and restore
- Database patching
- Creating, deleting, and viewing database snapshots

**Summary**

Target ID: orcl

Cluster Name: orcl

Home State: UP

Database ID: orcl

Cluster Mode: Full Cluster

Configuration: Normal

---

**Configured Changes**

Configuration Changes: 0

---

**Patch Recommendations**

View by: All Recommendations | Target ID: orcl

Recommendations: 0

---

**Job Activity**

Summary of jobs since started is shown in the Job List.

View: Job List | Search: (Job ID)

0 Jobs

**Database**

View: Summary | View: All

View: All | Details

Database Name	Instance	Compliance Score (%)	Alert
orcl	orcl	100	OK
orcl	orcl	100	OK

**Violations**

View: Target | Violation and Policy Target | Category: All | Severity: All | Status: All

Summary	Target	Severity	Status	Exception Level	Type	Time Since Last Update
100% compliance for 1 database in Oracle Cloud Control	1	OK	OK	None	Violations	07:00:00
Compliance score of 100% for 1 database in Oracle Cloud Control	1	OK	OK	None	Violations	07:00:00
Compliance score of 100% for 1 database in Oracle Cloud Control	1	OK	OK	None	Violations	07:00:00

Database ID: orcl

**Cluster Managed Resources**

View: Cluster Overview

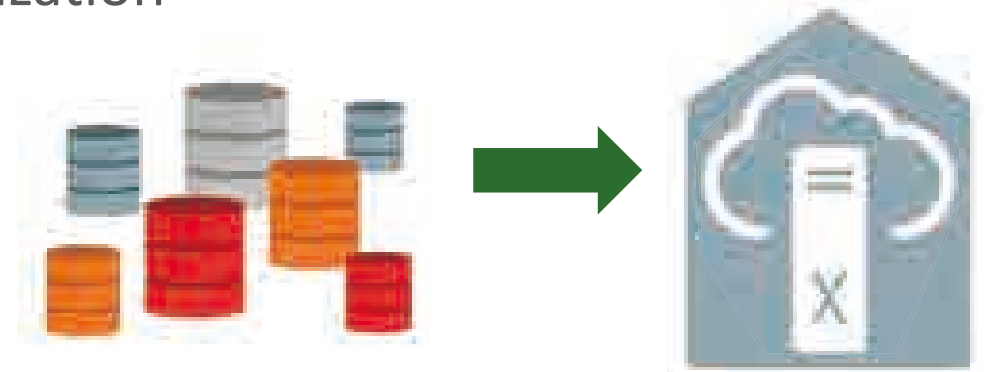
View: All | Details

Database Name	Instance	Compliance Score (%)	Version
orcl	orcl	100	11.2.0.4.0
orcl	orcl	100	11.2.0.4.0
orcl	orcl	100	11.2.0.4.0
orcl	orcl	100	11.2.0.4.0
orcl	orcl	100	11.2.0.4.0



# Migrating Databases to Cloud

- 100% Oracle Database compatibility makes migration easy and low risk
- Local network connectivity to Exadata Cloud at Customer provides fast migration
- Logical Migration: allows reorganization and optimization
  - Data Pump, GoldenGate Replication
- Physical Migration: simplest, byte-to-byte copy
  - RMAN backup, Transportable technologies, Data Guard
  - Restore from backup
- MAA Migration Best Practices [“Best Practices for Migrating to Exadata Database Machine”](#)



# Summary

- Same great Oracle technology, new way to consume it as a service
- New places to log in, new ways to secure data
- Web UI for one-off, REST API for lights out automation
- Codify and automate routine database processes with Oracle Cloud Tooling
- Free developers and database administrators to focus on high value strategic work



# Integrated Cloud

## Applications & Platform Services

ORACLE®