



ORACLE

High Availability

Oracle Database HA Features– L200

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Oracle Cloud Infrastructure

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Safe harbor statement

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Database High Availability - Objectives

After completing this lesson, you should be able to:

- Describe the options of database high availability available with Oracle Cloud Infrastructure
- Features of Active Data Guard
- Network Preparation for DataGuard Setup
- Launch a Data Guard for Database Cloud Service Virtual Machines
- Launch a Data Guard for Database Cloud Service Bare Metal
- Switch Over/Failover/Reinstate in Data Guard setup
- Delete Standby Database
- Autonomous Database(ATP/ADW) Cloning
- Demo

Part 1. High Availability- Using A/DataGuard

Data Guard & Active DataGuard on VMDB, BMDB

DataGuard on Database Cloud Service- VM/BM

- Data Guard and Active Data Guard provide disaster recovery (DR) for databases with recovery time objectives (RTO) that cannot be met by restoring from backup.
- Active Data Guard extends Data Guard capabilities by providing advanced features for data protection and availability as well as offloading read-only workload and fast incremental backups from a production database. Active Data Guard is included in the Extreme Performance Edition and Exadata Service.
- Once Data Guard is instantiated, it maintains synchronization between the primary database and the standby database.
- To configure a Data Guard system across regions or between on-premises and Oracle Cloud Infrastructure DB systems, you must access the database host directly and use the DGMGRL utility.
- Oracle recommends that the DB system of the standby database be in a different availability domain.
- The standby databases in Oracle Cloud Infrastructure Database are physical standbys.

Currently 3 major operations are supported on OCI DbaaS VM.

- SetupDataguard
- SwitchOvar/Failover/Reinstate
- DeleteStandbyDatabase

Note: You can't terminate a primary database that has a Data Guard association with a peer (standby) database. Delete the standby database first. Alternatively, you can perform a switchover to the standby database, and then terminate the primary database. You can't terminate a DB system that includes Data Guard enabled databases. To remove the Data Guard association: For a bare metal DB system database - terminate the standby database. For a virtual machine DB system database - terminate the standby DB system.

DataGuard on Database Cloud Service-Prerequisites

A Data Guard implementation requires two DB systems, one containing the primary database and one containing the standby database. When you enable Data Guard for a virtual machine DB system database, a new DB system with the standby database is created and associated with the primary database. For a bare metal DB system, the DB system with the database to be used as the standby must already exist before you enable Data Guard(**Create a database in the required AD and subnet before you attempt DG association**).

Note: A Data Guard configuration on the Oracle Cloud Infrastructure is limited to one standby database per primary database.

- Both DB systems must be in the same compartment, and they must be the same shape.
- The database versions and editions must be identical. Data Guard does not support Standard Edition. (Active Data Guard requires Enterprise Edition - Extreme Performance.)
- The database version determines whether Active Data Guard is enabled. If you are using the BYOL licensing model and if your license does not include Active Data Guard, you must either use Enterprise Edition - High Performance or set up Data Guard manually. See [Using Oracle Data Guard with the Database CLI](#).
- Both DB systems must use the same VCN, and port 1521 must be open.

Data Guard Networking Requirement

- Properly configure the security list ingress and egress rules for the subnets of both DB systems in the Data Guard association to allow TCP traffic to flow between the applicable ports. Ensure that the rules you create are stateful (the default).For example, if the subnet of the primary DB System uses the source CIDR 10.0.0.0/24 and the subnet of the standby DB system uses the source CIDR 10.0.1.0/24, create rules as shown in the following example.
- The egress rules in the example show how to enable TCP traffic only for port 1521, which is a minimum requirement for Data Guard to work. If TCP traffic is already enabled on all of your outgoing ports (0.0.0.0/0), then you need not explicitly add these specific egress rules. Service Gateway can provide NW connectivity.

Security List for Primary DB System's Subnet

Rules(Prod)	Stateless	Source	IP Protocol	Source Port	Dest Port
Ingress	No	10.0.01.0/24	TCP	All	1521
Egress	No	10.0.1.0/24	TCP	All	1521
Rules(Sby)	Stateless	Source	IP Protocol	Source Port	Dest Port
Ingress	No	10.0.0.0/24	TCP	All	1521
Egress	No	10.0.0.0/24	TCP	All	1521



Data Guard Configuration supported from Console

The Console allows you to enable a Data Guard association between databases, change the role of a database in a Data Guard association using either a *switchover* or a *failover* operation, and *reinststate* a failed database.

When you enable Data Guard, a separate Data Guard association is created for the primary and the standby database.

You can use console to perform following operations

- To enable Data Guard on a bare metal DB system
- To enable Data Guard on a virtual machine DB system
- To perform a database switchover
- To perform a database failover
- To reinstate a database
- To terminate a Data Guard association on a bare metal DB system
- To terminate a Data Guard association on a virtual machine DB system

Note: Data Guard Fast Start Failover as well across region DR is manual as of today-No cloud tooling.

Enabling Data Guard on a bare metal DB system

- Open the navigation menu. Under **Database**, click **Bare Metal, VM, and Exadata**.
- Choose the **Compartment** that contains the DB system with the database for which you want to enable Data Guard.
- Click the name of the DB system that contains the database you want to assume the primary role, and then click the name of that database.
- Under **Resources**, click **Data Guard Associations**.
- Click **Enable Data Guard**.
- In the **Enable Data Guard** dialog box, configure your Data Guard association.
 - **Peer Database Availability Domain:** Shows the availability domain of the selected peer DB system. Select the Availability Domain and Fault Domains based on requirement.
 - **Peer DB System:** Select the DB system that will contain the peer (standby) database.
 - **Protection Mode:** Console Supports Max Performance Mode at the moment.
 - **Transport Type:** The redo transport type used. The Console supports only **Async**.
 - **Database Admin Password:** Enter the primary database admin password.
 - The same password is used for the standby database.
- **Confirm Database Admin Password:** Re-enter the Database Admin Password you specified.
- Click **Enable**.

When the association is created, a shield icon appears next to the name of this database and its peer, and their respective roles (primary or standby) are displayed.

Note: Peer database should exist before you try creating DG association.



Enabling Data Guard on a VM DB system

- Open the navigation menu. Under **Database**, click **Bare Metal, VM, and Exadata**.
- Choose the **Compartment** that contains the DB system with the database for which you want to enable Data Guard.
- Click the name of the DB system that contains the database you want to assume the primary role, and select database.
- Under **Resources**, click **Data Guard Associations**.
- Click **Enable Data Guard**.
- In the **Enable Data Guard** dialog box, configure your Data Guard association.
- **Display Name:** A friendly, display name for the DB system. The name doesn't need to be unique.
- **Availability Domain:** The availability domain in which the DB system resides.
 - **Virtual Cloud Network:** Shows the VCN. The VCN of the standby database must be the same.
 - **Client Subnet:** The subnet to which the DB system should attach. Do not use a subnet that overlaps with 192.168.16.16/28, which is used by the Oracle Clusterware private interconnect on the database instance.
 - **Hostname Prefix:** Your choice of host name for the DB system. Must begin with an alphabetic character, and can contain only alphanumeric characters and hyphens (-). The maximum length should not exceed 16.

Note: The host name must be unique within the subnet.
 - **Host Domain Name:** The domain name for the DB system.
 - **Host and Domain URL:** FQDN of Host
 - **Protection Mode:** The protection mode used. The Console supports only **Maximum Performance**.
 - **Transport Type:** The redo transport type used for this Data Guard association. The Console supports only **Async**.
 - **Database Admin Password:** Enter the primary database admin password, same will be used for standby database.
- **Confirm Database Admin Password:** Re-enter the Database Admin Password you specified.
- Click **Enable**.

Upon completion a shield icon appears next to the name of this database and its peer, and their respective roles are displayed.



Switch Over Operation in Data Guard Configuration

You initiate a switchover operation by using the Data Guard association of the primary database.

- Open the navigation menu. Under **Database**, click **Bare Metal, VM, and Exadata**.
- Choose the **Compartment** that contains the DB system with the primary database you want to switch over.
- Click the DB system name, and then click the name of the primary database.
- Under **Resources**, click **Data Guard Associations**.
- For the Data Guard association on which you want to perform a switchover, click the Actions icon (three dots), and then click **Switchover**.
- In the **Switchover Database** dialog box, enter the database admin password, and then click **OK**.
- This database should now assume the role of the standby, and the standby should assume the role of the primary in the Data Guard association.

Failover of Database in Data Guard Configuration

You initiate a failover operation by using the Data Guard association of the standby database.

- Open the navigation menu. Under **Database**, click **Bare Metal, VM, and Exadata**.
- Choose the **Compartment** that contains the DB system with the primary database's peer standby you want to fail over to.
- Click the DB system name, and then click the name of the standby database.
- Under **Resources**, click **Data Guard Associations**.
- For the Data Guard association on which you want to perform a failover, click **Failover**.
- In the **Failover Database** dialog box, enter the database admin password, and then click **OK**.
- This database should now assume the role of the primary, and the old primary's role should display as **Disabled Standby**.

Reinstate of database in Data Guard Configuration

- After you fail over a primary database to its standby, the standby assumes the primary role and the old primary is identified as a disabled standby. After you correct the cause of failure, you can reinstate the failed database as a functioning standby for the current primary by using its Data Guard association.
- Before you can reinstate a version 12.2 database, you must perform some steps on the database host to stop the database or start it in MOUNT mode.
- Set your ORACLE_UNQNAME environment variable to the value of the Database Unique Name (as seen in the Console), and then run these commands:

```
srvctl stop database -d db-unique-name -o abort
srvctl start database -d db-unique-name -o mount
```
- Open the navigation menu. Under **Database**, click **Bare Metal, VM, and Exadata**.
- Choose the **Compartment** that contains the DB system with the failed database you want to reinstate.
- Click the DB system name, and then click the database name.
- Under **Resources**, click **Data Guard Associations**.
- For the Data Guard association on which you want to reinstate this database, click the Actions icon (three dots), and then click **Reinstate**.
- In the **Reinstate Database** dialog box, enter the database admin password, and then click **OK**.
- This database should now be reinstated as the standby in the Data Guard association.

Terminate Data Guard Association in VMDB/BM DB

On a **Bare metal DB system**, you remove a Data Guard association by terminating the standby database.

- Open the navigation menu. Under **Database**, click **Bare Metal, VM, and Exadata**.
- Choose the **Compartment** that contains the DB system that includes the standby database you want to terminate.
- Click the DB system name.
- For the standby database you want to terminate, click the Actions icon (three dots), and then click **Terminate**.
- In the **Terminate Database** dialog box, enter the name of the database, and then click **OK**.

On a **virtual machine DB system**, you remove a Data Guard association by terminating the standby DB system.

- Open the navigation menu. Under **Database**, click **Bare Metal, VM, and Exadata**.
- Choose the **Compartment** that contains the standby DB system that you want to terminate.
- Click the DB system name, click the Actions icon (three dots), and then click **Terminate**.
- Confirm when prompted.
- The DB system's icon indicates Terminating.

Supported Operation for Data Guard-”SwitchOver”

The following actions are supported for Data Guard configurations to support easier planned maintenance and also to recover from any type of failures or DR scenario.

Switchover - A switchover is a role reversal between the primary database and one of its standby databases. A switchover guarantees no data loss. This is typically done for planned maintenance of the primary system. During a switchover, the primary database transitions to a standby role, and the standby database transitions to the primary role. The transition occurs without having to reenable either database.


Switchover Database

[help](#) [cancel](#)

Are you sure you want to perform a database switchover? A switchover reverses the primary and standby database roles.

ENTER THE DATABASE ADMIN PASSWORD

.....



OK

Data Guard-FailOver

Failover - A **failover** is when the primary database (all instances of a RAC primary database) fails and one of the standby databases is transitioned to take over the primary role. Failover is performed only in the event of a catastrophic failure of the primary database, and there is no possibility of recovering the primary database in a timely manner. Failover may or may not result in data loss depending on the protection mode in effect at the time of the failover. This operation is supported from the Standby database.


Failover Database

[help](#) [cancel](#)

Are you sure you want to perform a manual failover of the database? Perform a failover only in the event of a catastrophic failure of the primary database, when there is no possibility of recovering the primary database efficiently. A failover might result in data loss depending on the protection mode in effect at the time of the primary database failure.

ENTER THE DATABASE ADMIN PASSWORD

.....



OK

Data Guard- Reinstat

Reinstat – In some situations, the primary database can go into a failed state, which becomes irrecoverable. The reinstat allows customers to reinstat a failed primary database as a standby database after repair.

Reinstat Database

[help](#) [cancel](#)

Are you sure you want to reinstat the original primary database to serve as a standby database in the new configuration?

ENTER THE DATABASE ADMIN PASSWORD

.....|



OK

Terminating Databases/Db System in Data Guard Configuration

You need to to explicitly remove Data Guard associations by deleting the Standby Database before the Primary Database or the DB System can be terminated.

Terminate Database

[Close](#)

You can't terminate the primary database if it has a Data Guard association with a peer database. Please delete the Peer database first. Alternatively, you can perform a switchover to the Peer database, and then terminate the primary database.

Close

Terminate DB System

[Close](#)

You can't terminate the DB System because it includes Data Guard enabled databases. To remove the Data Guard associations, terminate the standby databases.

Close

Part2. High Availability-Demo

Creation of Standby & Data Guard operation

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Demo: Creating Data Guard for VM DB

Step1: Login to Console and locate the database for which you want to enable Data Guard

Database » DB Systems » DB System Details » Database

DB

AVAILABLE

suncore

DB Connection

Restore

Apply Tag(s)

Database Information

Tags

Database Home: dbhome20190314133711

OCID: ...slo6pq Show Copy

Launched: Thu, 14 Mar 2019 13:37:11 GMT

Database Version: 18.3.0.0.180717

Database Workload: OLTP

Database Unique Name: suncore_iad15x

Character Set: AL32UTF8

Automatic Backup: Enabled

National Character Set: AL16UTF16

Resources

Backups (31)

Patches (4)

Patch History (0)

Data Guard Associations (0)

Backups

Displaying 31 Backups

Create Backup

Disable Automatic Backup

B

ACTIVE

Automatic Backup

OCID: ...box2la Show Copy

Type: Incremental

Started: Sun, 05 May 2019 09:10:38 GMT

Ended: Sun, 05 May 2019 09:31:29 GMT

...

Creating Data Guard for VM DB continued

Step2. Go to Data Guard Association Page-Click on Enable Data Guard

Database » DB Systems » DB System Details » Database » Data Guard Associations

DB

AVAILABLE

suncore

DB Connection

Restore

Apply Tag(s)

Database Information

Tags

Database Home: dbhome20190314133711

Launched: Thu, 14 Mar 2019 13:37:11 GMT

Database Workload: OLTP

Character Set: AL32UTF8

National Character Set: AL16UTF16

OCID: ...slo6pq Show Copy

Database Version: 18.3.0.0.180717

Database Unique Name: suncore_iad15x

Automatic Backup: Enabled

Resources

Backups (31)

Patches (4)

Patch History (0)

Data Guard Associations (0)

Data Guard Associations

No Data Guard Association

Enable Data Guard

Data Guard is not enabled for this database.

Creating Data Guard for VM DB continued

Step3. Input Enable Data Guard Association page

Enable Data Guard

helpcancel

If the Virtual Cloud Network or Subnet is in a different Compartment than the DB System, enable Compartment selection for those resources: [Click here.](#)

DB System Information

A new virtual machine DB system must be created for the standby database when the primary database belongs to a virtual machine DB system. The DB system created will have the same properties (edition, shape, etc.) as the DB system of the primary database.

DISPLAY NAME

stdbydg

AVAILABILITY DOMAIN

GrCh:US-ASHBURN-AD-3

VIRTUAL CLOUD NETWORK

vcn_bal

CLIENT SUBNET

sub_vmdb_reg (regional)

HOSTNAME PREFIX

stdby

HOST DOMAIN NAME

subvmdbreg.vcnbal.oraclevcn.com

HOST AND DOMAIN URL

stdby.subvmdbreg.vcnbal.oraclevcn.com

PROTECTION MODE

Maximum Performance

TRANSPORT TYPE

Async

DATABASE ADMIN PASSWORD

The password must be the same as the admin password for the primary database.

CONFIRM DATABASE ADMIN PASSWORD

Enable

- Input Availability Domain you want DG to be created as well Subnet associated
- Provide password for Admin user same as that of Actual Production database
- Make sure port 1521 port is enabled between subnets and security list is modified as per steps before.
- Make sure Security List having security rules are associated to subnet containing prod and Standby(DG) databases you are creating.

Creating Data Guard for VM DB continued

Step4: Data Guard Association VM DB-Status

Database » DB Systems » DB System Details » Database » Data Guard Associations

Database » DB Systems » DB System Details

DB

UPDATING..

DBS

AVAILABLE

Resources

Backups (31)

Patches (4)

Patch History (0)

Data Guard Associati

suncore

Scale Storage UpAdd SSH KeysApply Tag(s)Terminate

DB System Information

Tags

Availability Domain: GrCh:US-ASHBURN-AD-1

Shape: VM.Standard2.1

Compartment: ociobenablement (root)/balsharma

Oracle Database Software Edition: Enterprise Edition

Available Data Storage: 256 GB

Total Storage Size: 712 GB

Hostname Prefix: suncore

Scan DNS Name: suncore-scan... Show Copy

OCID: ...lvmk7a Show Copy

Created: Thu, 14 Mar 2019 13:37:11 GMT

DB System Version: 18.3.0.0.180717

Virtual Cloud Network: vcn_bal

Client Subnet: sub_priv_data_bal

Port: 1521

Host Domain Name: subprivdatabal.vcnbal.oraclevcn.com

License Type: License Included

Resources

Nodes (1)

Databases (1)

Patches (1)

Patch History (1)

Databases

Displaying 1 Databases

DB

AVAILABLE

suncore

Database Home: dbhome20190314133711

Launched: Thu, 14 Mar 2019 13:37:11 GMT

Database Version: 18.3.0.0.180717

Database Workload: OLTP

Database Unique Name: suncore_iad15x


Database Role: Primary

Connection String (Admin Service): ...cn.com Show Copy

Automatic Backup: Enabled

Data Guard Switch Over operation VM DB

[Database](#) » [DB Systems](#) » [DB System Details](#) » [Database](#) » [Data Guard Associations](#)




suncore

DB Connection Restore **Apply Tag(s)**

AVAILABLE

[Database](#) » [DB Systems](#) » [DB System Details](#) » [Database](#) » [Data Guard Associations](#)



suncore

DB Connection Restore **Apply Tag(s)**

AVAILABLE

Database Information **Tags**

Availability Domain: GrCh:US-ASHBURN-AD-3
Database Home: dbhome20190314133711
Launched: Sun, 05 May 2019 19:58:14 GMT
Database Workload: OLTP
Character Set: AL32UTF8
Automatic Backup: Disabled

DB System: [vmsby](#)
OCID: ...uw3jeq [Show](#) [Copy](#)
Database Version: 18.0.0.0
Database Unique Name: suncore_iad3p5
Database Role: Primary
National Character Set: AL16UTF16

Resources

[Backups \(31\)](#)
[Patches \(4\)](#)
[Patch History \(0\)](#)
[Data Guard Association](#)


Switchover Database
Are you sure you want
ENTER THE DATABASE ADMIN PASSWORD
.....
OK

Resources

[Backups \(0\)](#)
[Patches \(4\)](#)
[Patch History \(0\)](#)
[Data Guard Associations \(1\)](#)

Data Guard Associations

Enable Data Guard



Peer Database: [suncore](#)
Peer Role: Standby
Peer DB System: [suncore](#)

AVAILABLE

Launched: Sun, 05 May 2019 21:25:22 GMT
Protection Mode: Maximum Performance
Availability Domain: GrCh:US-ASHBURN-AD-3

Apply Lag: 0 seconds
Apply Rate: 7.00 KByte/s
Transport Type: Async

Displaying 1 Data Guard Association



Data Guard Backup Configuration on VM DB

Database » DB Systems » DB System Details » Database » Data Guard Associations

DB

suncore

DB Connection

Restore

Apply Tag(s)

Database Information

Tags

Database » DB Systems » DB System Details » Database » Backups

DB

DB Connection

Restore

Database Information

Tags

Availability Domain: GrCh:US-ASHBURN-AD-3

Database Home: dbhome20190314133711

Launched: Sun, 05 May 2019 19:58:14 GMT

Database Workload: OLTP

Character Set: AL32UTF8

Automatic Backup: Disabled

DB System: vmsby

OCID: ...uw3jeq Show Copy

Database Version: 18.0.0.0

Database Unique Name: suncore_iad3p5

Database Role: Primary

National Character Set: AL16UTF16

Confirm

Are you sure you want to enable Automatic Backup?

Important: All prerequisites for backing up to Oracle Cloud Infrastructure Object Storage must be met for automatic backups to work.

If you previously used RMAN or dbcli to configure backups and then you switch to using the Console or the API for backups, a new backup configuration is created and associated with your database. This means that you can no longer rely on your previously configured unmanaged backups to work.

OK

Cancel

Resources

Backups (0)

Patches (4)

Patch History (0)

Data Guard Associations (1)

Backups

Create Backup

Enable Automatic Backup

No items found.

No Backups

Data Guard Failover operation VM DB

Database » DB Systems » DB System Details » Database » Data Guard Associations

DB

AVAILABLE

suncore

DB Connection

Apply Tag(s)

Database Information

Tags

Availability Domain: GrCh:US-ASHBURN-AD-1

Database Home: dbhome20190314133711

Launched: Thu, 14 Mar 2019 13:37:11 GMT

Database Workload: OLTP

Character Set: AL32UTF8

Automatic Backup: Enabled

DB System: [suncore](#)

OCID: ...slo6pq [Show](#) [Copy](#)

Database Version: 18.3.0.0.180717

Database Unique Name: suncore_iad15x

Database Role: Standby

National Character Set: AL16UTF16

Resources

Backups (31)

Patches (4)

Patch History (0)

Data Guard Associations (1)

Data Guard Associations

Displaying 1 Data Guard Association

Enable Data Guard

DB

AVAILABLE

Primary Database: [suncore](#)

Peer Role: Primary

Peer DB System: [vmsby](#)

Launched: Sun, 05 May 2019 19:56:17 GMT

Protection Mode: Maximum Performance

Availability Domain: GrCh:US-ASHBURN-AD-1

Apply Lag: 0 seconds

Apply Rate: 7.00 KByte/s

Transport Type: Async

Failover

Appendix: Data Guard Association- Ingress and egress rules-VM DB

Source Database Ingress and egress rules in Security List

Add Ingress Rules

Ingress Rule 1

Allows TCP traffic 1521

☐ STATELESS ⓘ

SOURCE TYPE

CIDR

SOURCE CIDR

10.0.0.0/19

Specified IP addresses: 10.0.0.0-10.0.31.255 (8,192 IP addresses)

IP PROTOCOL ⓘ

TCP

SOURCE PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL

1521

Examples: 80, 20-22 or All

+ Additional Ingress Rule

Add Ingress RulesCancel

Add Egress Rules

Egress Rule 1

Allows TCP traffic 1521

☐ STATELESS ⓘ

DESTINATION TYPE

CIDR

DESTINATION CIDR

10.0.0.0/19

Specified IP addresses: 10.0.0.0-10.0.31.255 (8,192 IP addresses)

IP PROTOCOL ⓘ

TCP

SOURCE PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL

1521

Examples: 80, 20-22 or All

+ Additional Egress Rule

Add Egress RulesCancel

Target(Stdby) Database Ingress and egress rules in security List

Add Ingress Rules

Ingress Rule 1

Allows TCP traffic 1521

☐ STATELESS ⓘ

SOURCE TYPE

CIDR

SOURCE CIDR

10.0.128.0/24

Specified IP addresses: 10.0.128.0-10.0.128.255 (256 IP addresses)

IP PROTOCOL ⓘ

TCP

SOURCE PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL

1521

Examples: 80, 20-22 or All

+ Additional Ingress Rule

Add Ingress RulesCancel

Add Egress Rules

Egress Rule 1

Allows TCP traffic 1521

☐ STATELESS ⓘ

DESTINATION TYPE

CIDR

DESTINATION CIDR

10.0.128.0/24

Specified IP addresses: 10.0.128.0-10.0.128.255 (256 IP addresses)

IP PROTOCOL ⓘ

TCP

SOURCE PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL

1521

Examples: 80, 20-22 or All

+ Additional Egress Rule

Add Egress RulesCancel



Appendix: Modifying egress ingress rules for Service Gateway.

Incase you use Service Gateway and no NAT/IGW, configure rules for Service GW- Make sure your SGW is created using “All IAD Services in Oracle Service Network”

Add Egress Rules [cancel](#)

Egress Rule 1

Allows TCP traffic 1521

☐ STATELESS ⓘ

DESTINATION TYPE: Service

DESTINATION SERVICE: All IAD Services In Oracle Services Network

IP PROTOCOL ⓘ: TCP

SOURCE PORT RANGE ⓘ OPTIONAL: All
Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL: 1521
Examples: 80, 20-22 or All

+ Additional Egress Rule

Add Egress Rules Cancel

Edit Ingress Rule [cancel](#)

TCP traffic for ports: 1521

☐ STATELESS ⓘ

SOURCE TYPE: Service

SOURCE SERVICE: All IAD Services In Oracle Services Network

IP PROTOCOL ⓘ: TCP

SOURCE PORT RANGE ⓘ OPTIONAL: All
Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL: 1521
Examples: 80, 20-22 or All

Save Changes Cancel

Add Ingress Rules [cancel](#)

Ingress Rule 1

Allows TCP traffic 1521

☐ STATELESS ⓘ

SOURCE TYPE: Service

SOURCE SERVICE: All IAD Services In Oracle Services Network

IP PROTOCOL ⓘ: TCP

SOURCE PORT RANGE ⓘ OPTIONAL: All
Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL: 1521
Examples: 80, 20-22 or All

+ Additional Ingress Rule

Add Ingress Rules Cancel

Add Egress Rules [cancel](#)

Egress Rule 1

Allows TCP traffic 1521

☐ STATELESS ⓘ

DESTINATION TYPE: Service

DESTINATION SERVICE: All IAD Services In Oracle Services Network

IP PROTOCOL ⓘ: TCP

SOURCE PORT RANGE ⓘ OPTIONAL: All
Examples: 80, 20-22 or All

Edit Route Rule [help](#) [cancel](#)

Important: For a route rule that targets a Private IP, you must first enable "Skip Source/Destination Check" on the VNIC that the Private IP is assigned to.

TARGET TYPE: Service Gateway

COMPARTMENT: balsharma
ociobenablement (root)/balsharma

DESTINATION SERVICE: All IAD Services In Oracle Services Network

TARGET SERVICE GATEWAY: sg_bal

Save Changes Cancel

Demo: Data Guard BM-Prepare Peer Database

Launch DB System

[help](#) [cancel](#)

If the Virtual Cloud Network or Subnet is in a different Compartment than the DB System, enable Compartment selection for those resources: [Click here](#).

DB System Information

DISPLAY NAME

bmstdbydb

AVAILABILITY DOMAIN

GrCh:US-ASHBURN-AD-3

SHAPE TYPE

VIRTUAL MACHINE

BARE METAL

EXADATA

BARE METAL

SHAPE

BM.DenseIO2.52

TOTAL NODE COUNT

1

ORACLE DATABASE SOFTWARE EDITION

Enterprise Edition Extreme Performance

CPU CORE COUNT

2

The number of CPU cores to enable on the DB System. Specify a multiple of 2, up to 52.

LICENSE TYPE

LICENSE INCLUDED

BRING YOUR OWN LICENSE (BYOL)

LICENSE INCLUDED

Includes the cost of Oracle Cloud Infrastructure and Oracle Database licenses.

Includes the cost of Oracle Cloud Infrastructure but excludes Oracle Database licenses. You purchased your Database licenses directly from Oracle.

SSH PUBLIC KEY

CHOOSE SSH KEY FILES

PASTE SSH KEYS

CHOOSE SSH KEY FILES

Choose SSH Key files (.pub) from your computer:

xdkey.pub

Browse

DATA STORAGE PERCENTAGE

80%

Show Advanced Options

Network Information

VIRTUAL CLOUD NETWORK

vcn_bal

CLIENT SUBNET

sub_vmdb_reg (regional)

HOSTNAME PREFIX

bmstdby

HOST DOMAIN NAME

subvmdbreg.vcnbal.oraclecloud.com

Each part must contain only letters and numbers, starting with a letter. 63 characters max.

HOST AND DOMAIN URL

bmstdby.subvmdbreg.vcnbal.oraclecloud.com

Database Information

DATABASE NAME

bmsprod

DATABASE VERSION

DISPLAY ALL AVAILABLE VERSIONS

18.0.0.0

PDB NAME

bmspdb

DATABASE ADMIN PASSWORD

Password must be 9 to 30 characters and contain at least 2 uppercase, 2 lowercase, 2 special, and 2 numeric characters. The special characters must be _, #, or -.

CONFIRM DATABASE ADMIN PASSWORD

Confirmation must match password above.

ENABLE AUTOMATIC BACKUP

Important: All prerequisites for backing up to Oracle Cloud Infrastructure Object Storage must be met for automatic backups to work.

DATABASE WORKLOAD

ON-LINE TRANSACTION PROCESSING (OLTP)

DECISION SUPPORT SYSTEM (DSS)

ON-LINE TRANSACTION PROCESSING (OLTP)

Configure the database for a transactional workload, with bias towards high volumes of random data access.

Configure the database for a decision support or data warehouse workload, with bias towards large data scanning operations.

Show Advanced Options

TAGS

Tagging is a metadata system that allows you to organize and track resources within your tenancy. Tags are composed of keys and values that can be attached to resources.

[Learn more about tagging](#)

TAG NAMESPACE

None (apply a free-form tag)

TAG KEY

VALUE

+ Additional Tag

Launch DB System

Bare Metal DB -Enabling DG after peer database created

Database » DB Systems » DB System Details

DBS

AVAILABLE

vmdbprod

Scale Up/Down

Add SSH Keys

Apply Tag(s)

Terminate

DB System Information

Tags

Availability Domain: GrCh:US-ASHBURN-AD-1

Shape: BM.DenseIO2.52

Compartment: ociobenablement (root)/balsharma

Oracle Database Software Edition: Enterprise Edition Extreme Performance

Virtual Cloud Network: [vcn_bal](#)

Client Subnet: sub_vmdb_reg

Hostname Prefix: bmdb

License Type: Bring Your Own License (BYOL)

OCID: ...d6sc7a [Show](#) [Copy](#)

Created: Fri, 03 May 2019 22:03:25 GMT

DB System Version: 18.5.0.0.190115

CPU Core Count: 2

Disk Redundancy: High

Port: 1521

Host Domain Name: subvmdbreg.vcnbal.oraclevcn.com

Resources

Nodes (1)

Databases (1)

Patches (1)

Patch History (0)

Databases

Displaying 1 Databases

Create Database

DB

AVAILABLE

[bmdbprod](#)

Database Home: dbhome20190503220325

Launched: Fri, 03 May 2019 22:03:25 GMT

Database Version: 18.5.0.0.190115

Database Workload: OLTP

Database Unique Name: bmdbprod_iad1hj

Connection String (Admin Service): ⓘ

...cn.com [Show](#) [Copy](#)

Automatic Backup: Enabled

View

Create Backup

Restore

Enable Data Guard

Apply Tag(s)

Terminate

Bare Metal DB -Enabling DG

Enable Data Guard

helpcancel

PROTECTION MODE

Maximum Performance

AVAILABILITY DOMAIN

GrCh:US-ASHBURN-AD-3

Primary database is in availability domain GrCh:US-ASHBURN-AD-1

PEER DB SYSTEM

bmstdbydb

TRANSPORT TYPE

Async

DATABASE ADMIN PASSWORD

.....

Password must be 9 to 30 characters and contain at least 2 uppercase, 2 lowercase, 2 special, and 2 numeric characters. The special characters must be _, #, or ~.

Enable

- Select Availability Domain and Peer database Created.
- Specify password for Admin(SYS)- Same as that of Production
- Click Enable-Database will show as “Updating”.

Databases

Displaying 1 Databases

<div>Create Database</div>			
<div><div>DB</div><div>UPDATING...</div></div>	<div><div>bmdbprod</div><div>Database Home: dbhome20190503220325</div><div>Launched: Fri, 03 May 2019 22:03:25 GMT</div></div>	<div><div>Database Version: 18.5.0.0.190115</div><div>Database Workload: OLTP</div><div>Database Unique Name: bmdbprod_iad1hj</div></div>	<div><div>Database Role: Primary</div><div>Connection String (Admin Service): ...cn.com</div><div>Automatic Backup: Enabled</div></div>



Demo: Bare Metal DB -Enabling DG tracking in console

Database » DB Systems » DB System Details » Database » Data Guard Associations

DB

UPDATING...

bmdbprod

DB Connection

Restore

Apply Tag(s)

Terminate

Database Information

Tags

Availability Domain: GrCh:US-ASHBURN-AD-1

Database Home: dbhome20190503220325

Launched: Fri, 03 May 2019 22:03:25 GMT

Database Workload: OLTP

Character Set: AL32UTF8

Automatic Backup: Enabled

DB System: [ymdbprod](#)

OCID: ...3jp5wq [Show](#) [Copy](#)

Database Version: 18.5.0.0.190115

Database Unique Name: bmdbprod_iad1hj

Database Role: Primary

National Character Set: AL16UTF16

Resources

Backups (4)

Patches (2)

Patch History (0)

Data Guard Associations (1)

Data Guard Associations

Displaying 1 Data Guard Association

Enable Data Guard

DB

PROVISIONING...

Peer Database: [bmdbprod](#)

Peer Role: Standby

Peer DB System: [bmstdbydb](#)

Launched: Mon, 06 May 2019 13:54:48 GMT

Protection Mode: Maximum Performance

Availability Domain: GrCh:US-ASHBURN-AD-1

Apply Lag: –

Apply Rate: –

Transport Type: Async

DG Association-BM DB.. Continued

Database » DB Systems » DB System Details » Database » Data Guard Associations



AVAILABLE

bmdbprod

DB Connection Restore **Apply Tag(s)** **Terminate**

Database Information **Tags**

Availability Domain: GrCh:US-ASHBURN-AD-1	DB System: vmdbprod
Database Home: dbhome20190503220325	OCID: ...3jp5wq Show Copy
Launched: Fri, 03 May 2019 22:03:25 GMT	Database Version: 18.5.0.0.190115
Database Workload: OLTP	Database Unique Name: bmdbprod_iad1hj
Character Set: AL32UTF8	Database Role: Primary
Automatic Backup: Enabled	National Character Set: AL16UTF16

Resources

- [Backups \(4\)](#)
- [Patches \(2\)](#)
- [Patch History \(0\)](#)
- [Data Guard Associations \(1\)](#)**

Data Guard Associations

Displaying 1 Data Guard Association

Enable Data Guard				
	Peer Database: bmdbprod Peer Role: Standby Peer DB System: bmstdbydb	Launched: Mon, 06 May 2019 13:54:48 GMT Protection Mode: Maximum Performance Availability Domain: GrCh:US-ASHBURN-AD-1	Apply Lag: 0 seconds Apply Rate: 0 Byte/s Transport Type: Async	<div>Switchover</div> <div>Reinstate</div> <div>...</div>

AVAILABLE



Demo: DG Switchover-BM DB

Database » DB Systems » DB System Details » Database » Data Guard Associations

DB

AVAILABLE

bmdbprod

DB Connection

Restore

Apply Tag(s)

Terminate

Database Information

Tags

Availability Domain: GrCh:US-ASHBURN-AD-1

Database Home: dbhome20190503220325

Launched: Fri, 03 May 2019 22:03:25 GMT

Database Workload: OLTP

Character Set: AL32UTF8

Automatic Backup: Enabled

DB System: [vmdbprod](#)

OCID:3jp5wq [Show](#) [Copy](#)

Database Version: 18.5.0.0.190115

Database Unique Name: bmdbprod_iad1hj

Database Role: Primary

National Character Set: AL16UTF16

Resources

Backups (4)

Patches (2)

Patch History (0)

Data Guard Associations (1)

Data Guard Associations

Displaying 1 Data Guard Association

Enable Data Guard

DB

AVAILABLE

Peer Database: [bmdbprod](#)

Peer Role: Standby

Peer DB System: [bmstdbydb](#)

Launched: Mon, 06 May 2019 13:54:48 GMT

Protection Mode: Maximum Performance

Availability Domain: GrCh:US-ASHBURN-AD-1

Apply Lag: 0 seconds

Apply Rate: 1.00 KByte/s

Transport Type: Async

Switchover

Reinstate

...

Switchover Database

[help](#)[cancel](#)

Are you sure you want to perform a database switchover? A switchover reverses the primary and standby database roles.

ENTER THE DATABASE ADMIN PASSWORD

.....

🔑

OK

Data Guard Associations

Displaying 1 Data Guard Association

Enable Data Guard

DB

UPDATING...

Peer Database: [bmdbprod](#)

Peer Role: Standby

Peer DB System: [bmstdbydb](#)

Launched: Mon, 06 May 2019 13:54:48 GMT

Protection Mode: Maximum Performance

Availability Domain: GrCh:US-ASHBURN-AD-1

Apply Lag: 0 seconds

Apply Rate: 1.00 KByte/s

Transport Type: Async

...

DG Switchover-BM DB Role transition

Database » DB Systems » DB System Details

DBS

AVAILABLE

vmdbprod

Scale Up/Down

Add SSH Keys

Apply Tag(s)

Terminate

DB System Information

Tags

Availability Domain: GrCh:US-ASHBURN-AD-1

Shape: BM.DenseIO2.52

Compartment: ociobenablement (root)/balsharma

Oracle Database Software Edition: Enterprise Edition Extreme Performance

Virtual Cloud Network: [vcn_bal](#)

Client Subnet: sub_vmdb_reg

Hostname Prefix: bmdb

License Type: Bring Your Own License (BYOL)

OCID: ...d6sc7a [Show](#) [Copy](#)

Created: Fri, 03 May 2019 22:03:25 GMT

DB System Version: 18.5.0.0.190115

CPU Core Count: 2

Disk Redundancy: High

Port: 1521

Host Domain Name: subvmdbreg.vcnbal.oraclevcn.com

Resources

Nodes (1)

Databases (1)

Patches (1)

Patch History (0)

Databases

Displaying 1 Databases

Create Database

DB

AVAILABLE

[bmdbprod](#)

Database Home: dbhome20190503220325

Launched: Fri, 03 May 2019 22:03:25 GMT

Database Version: 18.5.0.0.190115

Database Workload: OLTP

Database Unique Name: bmdbprod_jad1hj

Database Role: Standby

Connection String (Admin Service): [...cn.com](#) [Show](#) [Copy](#)

Automatic Backup: Enabled

Appendix: Create Peer database for BM DB

Database » DB Systems » DB System Details » Database » Data Guard Associations

DB

AVAILABLE

bmdbprod

DB Connection

Restore

Apply Tag(s)

Terminate

Database Information

Tags

Database Home: dbhome20190503220325

Launched: Fri, 03 May 2019 22:03:25 GMT

Database Workload: OLTP

Character Set: AL32UTF8

National Character Set: AL16UTF16

OCID: ...3jp5wq Show Copy

Database Version: 18.5.0.0.190115

Database Unique Name: bmdbprod_iad1hj

Automatic Backup: Enabled

Resources

Backups (3)

Patches (2)

Patch History (0)

Data Guard Associations (0)

Data Guard Associations

No Data Guard Association

Enable Data Guard

Data Guard is not enabled for this database.

Enable Data Guard

help cancel

PROTECTION MODE

Maximum Performance

AVAILABILITY DOMAIN

GrCh:US-ASHBURN-AD-3

Primary database is in availability domain GrCh:US-ASHBURN-AD-1

PEER DB SYSTEM

bmstdbydb

TRANSPORT TYPE

Async

DATABASE ADMIN PASSWORD

Password must be 9 to 30 characters and contain at least 2 uppercase, 2 lowercase, 2 special, and 2 numeric characters. The special characters must be _ , # , or - .

Enable

Note: Before attempting Data Guard association make sure you have created the peer Db system in advance in required AD



Appendix: Not supported across VCN

Networking » Virtual Cloud Networks » Virtual Cloud Network Details » Local Peering Gateways

VCN

AVAILABLE

vcn_bal

Add Tag(s)

Terminate

VCN Information

Tags

CIDR Block: 10.0.0.0/16

Compartment: balsharma

Created: Tue, Jan 8, 2019, 9:28:56 PM UTC

OCID: ...jefqya

Show

Copy

Default Route Table: [Default Route Table for vcn_bal](#)

DNS Domain Name: vcnbal.oraclevcn.com

Resources

Subnets (5)

Route Tables (3)

Internet Gateways (1)

Dynamic Routing Gateways (0)

Security Lists (4)

DHCP Options (1)

Local Peering Gateways (0)

NAT Gateways (1)

Service Gateways (1)

Create Local Peering Gateway

Name	State	Peering Status	Route Table ⓘ	Peer Advertised CIDR	Cross-Tenancy	Created
No items found.						

Showing 0 Item(s) < Page 1 >



Appendix: Modifying Security List, Routing for BM DB DataGuard

Edit Subnet

helpcancel

NAME

sub_vmdb_reg

DHCP Options

DHCP OPTIONS COMPARTMENT

balsharma

ociobenablement (root)/balsharma

DHCP OPTIONS

Default DHCP Options for vcn_bal

Route Table

ROUTE TABLE COMPARTMENT

balsharma

ociobenablement (root)/balsharma

ROUTE TABLE

rt_vmdb

Security Lists

SECURITY LIST COMPARTMENT

balsharma

ociobenablement (root)/balsharma

SECURITY LIST

priv_vmdb_sg

SECURITY LIST COMPARTMENT

balsharma

ociobenablement (root)/balsharma

SECURITY LIST

Default Security List for vcn_bal

+ Add Security List

Update

Add Ingress Rules

cancel

Ingress Rule 1

Allows TCP traffic for ports: all

☐ STATELESS ⓘ

SOURCE TYPE

CIDR

SOURCE CIDR

10.0.128.0/24

Specified IP addresses: 10.0.128.0-10.0.128.255 (256 IP addresses)

IP PROTOCOL ⓘ

TCP

SOURCE PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

+ Additional Ingress Rule

Add Ingress RulesCancel

Add Ingress Rules

cancel

Ingress Rule 1

Allows TCP traffic for ports: all

☐ STATELESS ⓘ

SOURCE TYPE

CIDR

SOURCE CIDR

10.0.128.0/24

Specified IP addresses: 10.0.128.0-10.0.128.255 (256 IP addresses)

IP PROTOCOL ⓘ

TCP

SOURCE PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

DESTINATION PORT RANGE ⓘ OPTIONAL

All

Examples: 80, 20-22 or All

+ Additional Ingress Rule

Add Ingress RulesCancel

Data Guard- CLI Options

```
[opc@bmdb ~]$ sudo /opt/oracle/dcs/bin/dbcli list-dgconfigs
```

ID	Name	Database Name	Role	Protection Mode	Apply
Lag	Transport Lag	Apply Rate	Status		

3dc0ff71-66d2-41e4-94b5-9f8552fa0e7a	bmdbprod_iad1hj_bmdbprod_iad2zn	bmdbprod	Standby	MaxPerformance	0
seconds	0 seconds	3.00 KByte/s	Configured		



ORACLE

High Availability

Autonomous Database Cloning

Autonomous Database(ATP/ADW) Cloning

- Cloned databases can be used for multiple purposes such as Testing/development, experimentation, analytics, and others.
- Customers have an ability to quickly create point-in-time copy of a particular autonomous database using OCI Console, API, CLI, SDK, and Terraform.
- Creating clone of an existing ATP/ADW is easy. To clone a database using OCI console, go to OCI Console -> Autonomous Transaction Processing OR OCI Console -> Autonomous Data Warehouse -> List of Autonomous Database -> View Details of Selected Autonomous Database -> Actions -> Create Clone

The screenshot displays the Oracle Cloud console interface for two Autonomous Databases. The left panel shows the details for RS2ADWC (ADW), and the right panel shows the details for mritdb (ATP). Both databases are in an 'AVAILABLE' state.

RS2ADWC (ADW) Details:

- General Information:** Database Name: RS2ADWC, Workload Type: Data Warehouse, Compartment: ociobenablement (root)/balsharma, OCID: ...y7ocva, Created: Wed, Jul 17, 2019, 5:15:21 PM UTC, CPU Core Count: 1, Storage (TB): 1, License Type: Bring Your Own Licence (BYOL), Database Version: 18c, Auto Scaling: Enabled, Lifecycle State: Available.
- Infrastructure:** Dedicated Infrastructure: No.
- Backup:** Last Automatic Backup: Fri, Aug 30, 2019, 2:18:45 PM UTC.
- Backups:** Backups are automatically created daily. A table lists backups with columns: Name, State, Type, Started, and Ended. The first backup is 'Aug 30, 2019 14:18:45 PM UTC', 'Active', 'Incremental, initiated by Auto Backup', 'Fri, Aug 30, 2019, 1:05:51 PM UTC', and 'Fri, Aug 30, 2019, 2:18:45 PM UTC'.

mritdb (ATP) Details:

- General Information:** Database Name: proddb, Workload Type: Transaction Processing, Compartment: ociobenablement (root)/balsharma, OCID: ...2rjafq, Created: Tue, Jun 25, 2019, 3:41:11 PM UTC, CPU Core Count: 1, Storage (TB): 1, License Type: Bring Your Own Licence (BYOL), Database Version: 18c, Auto Scaling: Disabled, Lifecycle State: Available.
- Infrastructure:** Dedicated Infrastructure: No.
- Backup:** Last Automatic Backup: Thu, Aug 29, 2019, 6:51:30 PM UTC.



Autonomous Database(ATP/ADW) Cloning Demo

Create Autonomous Database Clone

Choose Clone Type

Full clone

Creates a new database with source database's data and metadata.

✓

Metadata clone

Creates a new database that includes all source database schema metadata, but not the source database data.

Provide basic information for the Autonomous Database

Create In Compartment

balsharma

oclobenabement (root)/balsharma

Origin Database Name READ-ONLY

RS2ADWC

Display Name

Clone of RS2ADWC

Database Name

DB20190830095

The name must contain only letters and numbers, starting with a letter. 14 characters max.

Configure the database

CPU core count

1

The number of CPU cores to enable. Available cores are subject to your tenancy's service limits.

Storage (TB)

1

The amount of storage to allocate.

☐ Auto scaling

Allows system to use up to three times the provisioned number of cores as the workload increases. [Learn more.](#)

Create administrator credentials i

Username READ-ONLY

ADMIN

Password

Confirm password

Choose a license type

Bring Your Own Licence (BYOL)

Bring my organization's Oracle Database software licenses to the Database service. [Learn more](#)

✓

License Included

Subscribe to new Oracle Database software licenses and the Database service.

[Show Advanced Options](#)

Create Autonomous Database Clone



Autonomous Database(ATP/ADW) Cloning Demo Cont.

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Autonomous Database • Autonomous Database Details

ADW

PROVISIONING...

Clone of RS2ADWC

Performance Hub Service Console Scale Up/Down Stop Actions

Autonomous Database Information Tags

General Information

Database Name: DB201908300958
Workload Type: Data Warehouse
Compartment: ociobenablement (root)/balsharma
OCID: ...qdt7ia Show Copy
Created: Fri, Aug 30, 2019, 3:01:21 PM UTC
CPU Core Count: 1
Storage (TB): 1
License Type: Bring Your Own Licence (BYOL)
Auto Scaling: Disabled ⓘ
Lifecycle State: Provisioning...

Infrastructure

Dedicated Infrastructure: No

Backup

Last Automatic Backup: No active backups exist for this database.

ORACLE Cloud

us-ashburn-1

Autonomous Database

Autonomous Databases in balsharma Compartment

Create Autonomous Database

Name	Database Name	State	Dedicated Infrastructure	CPU Core Count	Storage (TB)	Workload Type	Created
Clone of RS2ADWC	DB201908300958	Provisioning...	No	1	1	Data Warehouse	Fri, Aug 30, 2019, 3:01:21 PM UTC
RS2ADWC	RS2ADWC	Available	No	1	1	Data Warehouse	Wed, Jul 17, 2019, 5:15:21 PM UTC
mrtdb	proddb	Available	No	1	1	Transaction Processing	Tue, Jun 25, 2019, 3:41:11 PM UTC
dwhprod	dwh	Available	No	1	1	Transaction Processing	Wed, Jan 23, 2019, 7:13:41 PM UTC

Displaying 4 Autonomous Databases < Page 1 >

ORACLE Cloud

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Autonomous Database

Autonomous Databases in balsharma Compartment

Create Autonomous Database

Name	Database Name	State	Dedicated Infrastructure	CPU Core Count	Storage (TB)	Workload Type	Created
Clone of RS2ADWC	DB201908300958	Available	No	1	1	Data Warehouse	Fri, Aug 30, 2019, 3:01:21 PM UTC
RS2ADWC	RS2ADWC	Available	No	1	1	Data Warehouse	Wed, Jul 17, 2019, 5:15:21 PM UTC
mrtdb	proddb	Available	No	1	1	Transaction Processing	Tue, Jun 25, 2019, 3:41:11 PM UTC
dwhprod	dwh	Available	No	1	1	Transaction Processing	Wed, Jan 23, 2019, 7:13:41 PM UTC

Displaying 4 Autonomous Databases < Page 1 >



Summary

After completing this training you should have learnt :

- Database service offers High availability options such as Data Guard, Active Data Guard
- Offers complete lifecycle automation – Data Guard creation, Switch Over, Failover, Reinststate
- Manual Data Guard can be created using API/CLI
- Autonomous Database Cloning.



Oracle Cloud always free tier:

oracle.com/cloud/free/

OCI training and certification:

oracle.com/cloud/iaas/training

oracle.com/cloud/iaas/training/certification

education.oracle.com/oracle-certification-path

OCI hands-on labs:

ocitraining.qcloudable.com/provider/oracle

Oracle learning library videos on YouTube:

youtube.com/user/OracleLearning