

Create Primary and Standby DBCS Instance for RCU Schemas of Oracle Analytics Server

Describes how to create primary and standby DBCS
using Data Guard and have same connection string for
RCU Schemas of Oracle Analytics Server.

March 2024, version 1.0
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Public

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Revision History

The following revisions have been made to this document since its initial publication.

DATE	REVISION
March 2024	Initial publication

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Overview

Create an OCI DBCS Pluggable Database to create RCU Schemas of OAS

On the OCI Home Region (Ashburn)

Create the primary DBCS pluggable database in the primary OCI region to be used for the OAS RCU schemas.

On the OCI DR Region (Phoenix)

Use the Data Guard and create the standby DBCS pluggable database for the primary DBCS in the DR OCI region to be used for the RCU schemas by the DR OAS.

You should ensure that the connection string or details between the primary and the standby DBCS instances remain the same.

For more details, you can refer to the [Disaster Recovery Configuration for Oracle Analytics Cloud](#) Technical Paper section *Oracle Database Cloud Service as a Data Source* from pages 27 to 34.

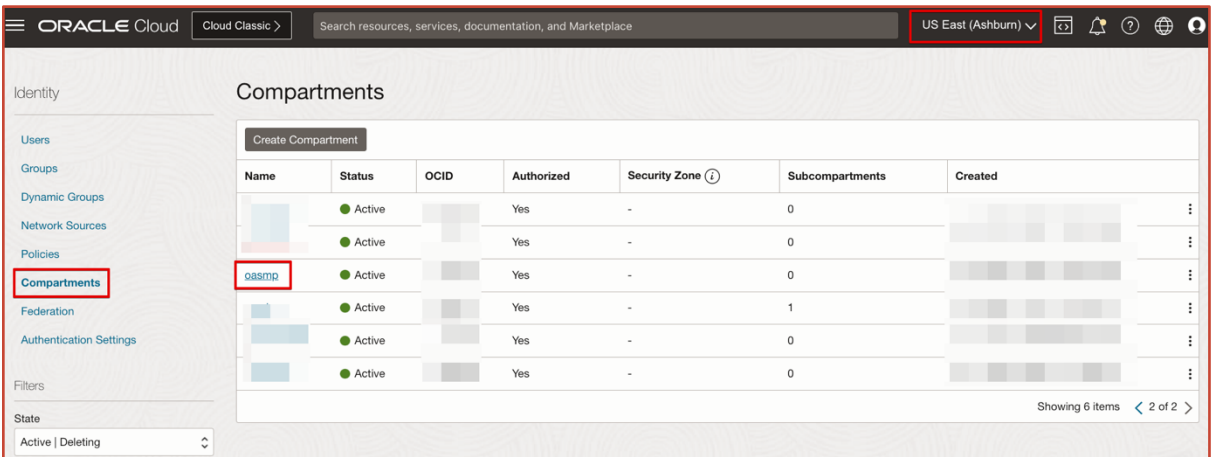
In the Oracle Cloud Infrastructure Home Region (Ashburn)

Sign-in to OCI Console

- Create a Compartment.
- Create a Virtual Cloud Network (VCN).
- Create a Private Subnet.
- Create a DBCS Instance in the Private Subnet.

Create a Compartment

Create a compartment under the root compartment.



Create a Virtual Cloud Network

Create a Virtual Cloud Network (VCN) in the compartment using the wizard.

Oracle Cloud Cloud Classic > Search resources, services, documentation, and Marketplace US East (Ashburn) [Icons]

Networking

Overview

Virtual cloud networks

Web Application Acceleration

Load balancers

Content Delivery Network

DNS management

Customer connectivity

IP management

Network Command Center

List scope

Compartment

oasmp

Virtual Cloud Networks in oasmp Compartment

Virtual Cloud Networks (VCNs) are private virtual networks you set up in Oracle Cloud Infrastructure. You can attach gateways, route tables, and security lists to specify routing and security rules.

Create VCN Start VCN Wizard

Name	State	IPv4 CIDR Block	IPv6 Prefix	Default Route Table	DNS Domain Name	Created
oasvcn	Available	10.0.0.0/16	-	Default Route Table for oasvcn	oasvcn.oraclevcn.com	

Showing 1 item < 1 of 1 >

Create public and private subnets while creating the VCN using the wizard.

Oracle Cloud Cloud Classic > Search resources, services, documentation, and Marketplace US East (Ashburn) [Icons]

Navigation menu

VCN

AVAILABLE

Move resource Add tags Delete

oasvcn

VCN Information Tags

Compartment: oasmp

Created: 19:10:06 UTC

IPv4 CIDR Block: 10.0.0.0/16

IPv6 Prefix: -

OCID: .. Show Copy

DNS Resolver: oasvcn

Default Route Table: Default Route Table for oasvcn

DNS Domain Name: oasvcn.oraclevcn.com

Resources

Subnets (3)

CIDR Blocks/Prefixes (1)

Route Tables (2)

Internet Gateways (1)

Dynamic Routing Gateways

Attachments (1)

Network Security Groups (0)

Subnets in oasmp Compartment

Create Subnet

Name	State	IPv4 CIDR Block	IPv6 Prefixes	Subnet Access	Created
Private Subnet-oasvcn2	Available	10.0.2.0/24	-	Private (Regional)	
Public Subnet-oasvcn	Available	10.0.0.0/24	-	Public (Regional)	
Private Subnet-oasvcn	Available	10.0.1.0/24	-	Private (Regional)	

Create a Private Subnet

Create another private subnet without the wizard to customize the subnet.

oasvcn

Move resource Add tags Delete

VCN Information Tags

Compartment: oasmp
Created: 19:10:06 UTC
IPv4 CIDR Block: 10.0.0.0/16
IPv6 Prefix: -

OCID: .. Show Copy
DNS Resolver: oasvcn
Default Route Table: Default Route Table for oasvcn
DNS Domain Name: oasvcn.oraclevcn.com

Resources

Subnets (3)

CIDR Blocks/Prefixes (1)
Route Tables (2)
Internet Gateways (1)
Dynamic Routing Gateways Attachments (1)
Network Security Groups (0)

Subnets in oasmp Compartment

Create Subnet

Name	State	IPv4 CIDR Block	IPv6 Prefixes	Subnet Access	Created
Private Subnet-oasvcn2	Available	10.0.2.0/24	-	Private (Regional)	
Public Subnet-oasvcn	Available	10.0.0.0/24	-	Public (Regional)	
Private Subnet-oasvcn	Available	10.0.1.0/24	-	Private (Regional)	

Private Subnet-oasvcn2

Edit Move resource Add tags Create path analysis Terminate

Subnet Information Tags

OCID: ...citydq Show Copy
IPv4 CIDR Block: 10.0.2.0/24
IPv6 Prefix: -
Virtual Router MAC Address: ..
Subnet Type: Regional

Compartment: oasmp
DNS Domain Name: ceal.oasvcn.oraclevcn.com Hide Copy
Subnet Access: Private Subnet
DHCP Options: Default DHCP Options for oasvcn
Route Table: Route Table for Private Subnet-oasvcn

Resources

Security Lists (1)

Logs
IPv6 Prefixes (-)

Security Lists

Add Security List

Name	State	Compartment	Created
Security List for Private Subnet-oasvcn	Available	oasmp	19:10:09 UTC

Created a DNS label “ceal” so that the DNS Domain Name for this subnet is “ceal.oasvcn.oraclevcn.com”.

In this private subnet create the DBCS primary instance in the OCI home region, for example, Ashburn.

Create an Oracle Database Cloud Service as RCU Schemas DB for OAS

Create a primary Oracle Database on the Oracle Cloud home region while configuring Data Guard to the database.

Create a Peer DB System as a standby database in the DR region.

Using the Data Guard, replicate the primary database to the standby database and manage the failover too.

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US East (Ashburn)

Overview > Oracle Base Database > DB Systems

Oracle Base Database

DB Systems

Oracle Exadata Database Service on Dedicated Infrastructure

Exadata VM clusters

Exadata infrastructure

Resources

Database software images

Standalone backups

Manual software updates

List scope

Compartment

oasmp

DB Systems in oasmp Compartment

The DB system includes the hardware, storage software, and networking configuration required to run Oracle Databases in the Oracle cloud. [Learn more.](#)

Create DB system

Display name	State	Availability domain	Shape	CPU core count	Created
publicdb19	Available	yBdo:US-ASHBURN-AD-1	VM.Standard.E4.Flex	4	
db19rac	Available	yBdo:US-ASHBURN-AD-1	VM.Standard.E4.Flex	8	
db19	Available	yBdo:US-ASHBURN-AD-3	VM.Standard.E4.Flex	4	
oadb19	Available	yBdo:US-ASHBURN-AD-1	VM.Standard.E4.Flex	4	

Showing 4 items < 1 of 1 >

On the OCI DR region, for example, Phoenix create the same name VCN in the same compartment.

NOTE: Ensure the VCN CIDR block doesn't overlap the on-premises and the OCI primary region VCN CIDR block.

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US West (Phoenix)

Networking

Virtual Cloud Networks in oasmp Compartment

Virtual Cloud Networks (VCNs) are private virtual networks you set up in Oracle Cloud Infrastructure. You can attach gateways, route tables, and security lists to specify routing and security rules.

Create VCN Start VCN Wizard

Name	State	IPv4 CIDR Block	IPv6 Prefix	Default Route Table	DNS Domain Name	Created
oasvcn	Available	172.0.0.0/16	-	Default Route Table for oasvcn	oasvcn.oraclevcn.com	19:56:59 UTC

Showing 1 item < 1 of 1 >

Compartment

oasmp

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US West (Phoenix)

Networking > Virtual cloud networks > Virtual Cloud Network Details

oasvcn

Move resource Add tag Delete

VCN Information Tags

Compartment: oasmp

Created: 19:56:59 UTC

IPv4 CIDR Block: 172.0.0.0/16

IPv6 Prefix: -

OCID: - Show Copy

DNS Resolver: oasvcn

Default Route Table: Default Route Table for oasvcn

DNS Domain Name: oasvcn.oraclevcn.com

Subnets in oasmp Compartment

Create Subnet

Name	State	IPv4 CIDR Block	IPv6 Prefixes	Subnet Access	Created
Private Subnet-oasvcn2	Available	172.0.2.0/24	-	Private (Regional)	
Private Subnet-oasvcn	Available	172.0.1.0/24	-	Private (Regional)	
Public Subnet-oasvcn	Available	172.0.0.0/24	-	Public (Regional)	

Showing 3 items < 1 of 1 >

Resources

Subnets (3)

CIDR Blocks/Prefixes (1)

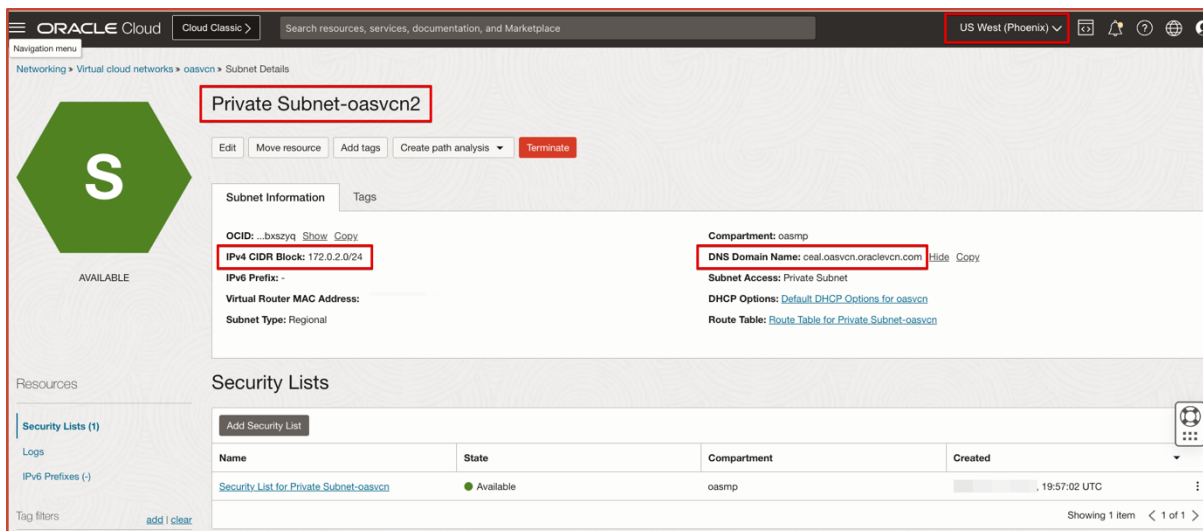
Route Tables (2)

Internet Gateways (1)

Dynamic Routing Gateways Attachments (1)

Network Security Groups (0)

Security Lists (2)



Follow the Data Guard enabling documentation and create a Dynamic Routing Gateway (DRG) between the Ashburn VCN and the Phoenix VCN.

In the Oracle Cloud Infrastructure DR Region (Phoenix)

Sign-in to OCI Console

- Use the existing Compartment.
- Create a Virtual Cloud Network (VCN) with same name.
- Create a Private Subnet with same name.
- Using the Data Guard create a Standby DBCS Instance in the DR OCI Region.

Create a Standby DBCS Instance

Refer to the following documentation and blogs for more information.

[Use Oracle Data Guard on a DB System](#)

[Enable Oracle Data Guard on a DB System](#)

[Configuring Oracle Data Guard across regions](#)

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US West (Phoenix)

Networking > Virtual cloud networks > Virtual Cloud Network Details > Dynamic Routing Gateways

oasvcn

Move resource Add tags Delete

VCN Information Tags

Compartment: oasmp OCID: ... Show Copy
 Created: 19:56:59 UTC DNS Resolver: oasvcn
 IPv4 CIDR Block: 172.0.0/16 Default Route Table: Default Route Table for oasvcn
 IPv6 Prefix: - DNS Domain Name: oasvcn.oraclevcn.com

Dynamic Routing Gateways Attachments

VCNs are connected to a DRG by an attachment with a VCN type. You can configure all VCNs attached to the DRG to use the same route table.

The VCN has reached the maximum number of DRG attachments. You must remove an existing attachment to create a new attachment.

Create DRG Attachment

Attachment Name	Lifecycle State	Dynamic Routing Gateway	VCN Route Table	Cross-Tenancy	Created
DRG2OASVCN	Attached	DRGPHX4DB	-	No	13:16:20 UTC

Showing 1 item < 1 of 1 >

Using the Data Guard, create a standby instance for the DBCS in OCI DR region, for example Phoenix.

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US East (Ashburn)

General information

Lifecycle state: Available
 OCID: ... Show Copy
 Created: 17:33:16 UTC
 Database Role: Primary
 Database unique name: db19rac_cel_ash
 Oracle SID Prefix: db19rac
 Database Architecture: Container Database
 Character Set: AL32UTF8
 National Character Set: AL16UTF16

Backup

Automatic backup: Disabled

Data Guard

Status: Enabled

Encryption

Encryption Key: Oracle-managed key

Associated services

Database Management: Not enabled Enable
 Operations Insights: Not enabled Enable

Data Guard Associations

Enable Data Guard

Peer database	Peer DB system	Peer role	Protection Mode	Transport type	Apply lag	Data Guard Type	Launched
db19rac	db19rac-dr	Standby	Maximum Performance	Async	0 seconds	Mounted (Data Guard)	20:23:43 UTC

Showing 1 item < 1 of 1 >

Change the OCI region from Ashburn to Phoenix in OCI console and check the peer database.

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US West (Phoenix)

Overview > Oracle Base Database > DB Systems

DB Systems in oasmp Compartment

The DB system includes the hardware, storage software, and networking configuration required to run Oracle Databases in the Oracle cloud. Learn more.

Create DB system

Display name	State	Availability domain	Shape	CPU core count	Created
db19rac-dr	Available	yBdo:PHX-AD-1	VM.Standard.E4.Flex	8	20:29:43 UTC
db19phx	Available	yBdo:PHX-AD-1	VM.Standard.E4.Flex	4	19:20:12 UTC

Showing 2 items < 1 of 1 >

Compartment: oasmp

General information

Lifecycle state: Available
 OCID: ...44yh8a Show Copy
 Created: ..., 20:29:43 UTC
 Database Role: Standby
 Database unique name: db19rac_phx1hs
 Oracle SID Prefix: None
 Database Architecture: Container Database
 Character Set: AL32UTF8
 National Character Set: AL16UTF16

Version

Database version: 19.17.0.0.0 View
 Database software image: db19_phx

Backup

Automatic backup: Disabled

Data Guard

Status: Enabled

Encryption

Encryption Key: Oracle-managed key

Associated services

Database Management: Not enabled Enable
 Operations Insights: Not enabled Enable

Data Guard Associations

Peer database	Peer DB system	Peer role	Protection Mode	Transport type	Apply lag	Data Guard Type	Launched
db19rac	db19rac	Primary	Maximum Performance	Async	0 seconds	Mounted (Data Guard)	..., 21:38:22 UTC

Check the pluggable database connection strings of the DBCS instances.

Primary DBCS:

db19rac-scan.ceal.oasvcn.oraclevcn.com:1521/pdb19rac.ceal.oasvcn.oraclevcn.com

Standby DBCS:

db19rac-dr-scan.ceal.oasvcn.oraclevcn.com:1521/PDB19RAC.ceal.oasvcn.oraclevcn.com

Configure an alias hostname and a DNS mapping to the active DBCS scan address using the zone to manage both the connection strings to be the same.

db19rac

Scale storage up Change shape Clone Add SSH keys More actions

DB system information Tags

General information

Lifecycle state: Available
 Availability domain: ...
 OCID: ... Show Copy
 Shape: VM.Standard.E4.Flex
 CPU core count: 8
 Created: ..., 17:33:16 UTC
 Time zone: UTC
 Compartment: oaseceal (root)/oasmp
 Oracle Database software edition: Enterprise Edition Extreme Performance
 Storage management software: Oracle Grid Infrastructure

Network

VCN: oasvcn
 Client subnet: Private Subnet-oasvcn2
 Cluster Name: db19rac
 Port: 1521
 Hostname prefix: db19rac
 Host domain name: ceal.oasvcn.oraclevcn.com
 SCAN DNS name: db19rac-scan.ceal.oasvcn.oraclevcn.com
 SCAN IP address: 10.0.2.182, 10.0.2.3, 10.0.2.191
 Network security groups: None

Create a private zone in the same compartment in OCI's home region, for example, Ashburn.

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US East (Ashburn)

Networking > DNS management > Zones

DNS management

Overview

Zones

Traffic management steering policies

Private views

HTTP redirects

TSIG keys

List scope

Compartment

oasmp

Filters

Protected

Show all

Zones in oasmp Compartment

A DNS zone holds the trusted DNS records that will reside on Oracle Cloud Infrastructure's nameservers.

Public zones **Private zones**

Private zones contain DNS data only accessible from within a VCN, such as private IP addresses.

Create zone

Search...

Zone name	Zone type	Protected	Private view	Created
oacashprivate-idseylbm0mm-ia-analytics.ocp.oraclecloud.com	Primary	Yes	oasvcn	
cealinfra.com	Primary	No	dnsvw20230319065610	
ceal.oracle.com	Primary	No	oasvcn	
ceal.oasvcn.oraclevcn.com	Primary	Yes	oasvcn	
cealinfra.oracle.com	Primary	No	oasvcn	
sub03021908390.oasvcn.oraclevcn.com	Primary	Yes	oasvcn	
sub03021908391.oasvcn.oraclevcn.com	Primary	Yes	oasvcn	
0.10.in-addr.arpa	Primary	Yes	oasvcn	

Create CNAME for the primary DBCS scan address.

Primary DBCS SCAN Address: `db19rac-scan.ceal.oasvcn.oraclevcn.com`

ORACLE Cloud Cloud Classic Search resources, services, documentation, and Marketplace US East (Ashburn)

Manage records

Zone: **[ceal.oracle.com](#)**

Modify your DNS records here. Click **Publish changes** to review and publish all updated records.

Filters

State

☒ Added

☒ Modified

☒ Deleted

☒ Unmodified

Record type

Filter on rtype(s)...

Add record

Domain

[ceal.oracle.com](#)

[ceal.oracle.com](#)

[db19-scan.ceal.oracle.com](#)

[db19.ceal.oracle.com](#)

[oas19.ceal.oracle.com](#)

Add record

There is one answer (RDATA) for each record. Records of the same type that have the same name must also have the same TTL. For easier management, answers shown in this page are grouped by record type. Records that have the same name, type, and TTL are displayed as a single RRSets in the Zone Records list.

Record information

Name Optional

[db19rac-scan](#).ceal.oracle.com

Type

CNAME - CNAME

A canonical name (CNAME) is a special type of DNS record used to create an alias from one domain to another. It's used to identify the CNAME of the domain. For example, a CNAME record at [www.example.com](#) with data "example.com" means that someone accessing [www.example.com](#) will be pointed to the same IP address that [example.com](#) points to. In the event your IP address changes, you only have to update [example.com](#)'s entry, and [www.example.com](#) automatically points to the right place.

TTL in seconds

3600

RDATA/Answers

RDATA mode

☐ Basic

Target

[db19rac-scan.ceal.oasvcn.oraclevcn.com](#)

Add record Cancel

Publish changes **Discard changes**

Now we have the alias name as “`db19rac-scan.ceal.oracle.com`” as the scan hostname in Ashburn.

Zone information

- Zone scope: Private
- Zone type: Primary
- Private view: [oasvcn](#)
- Nameservers: vcn-dns.oraclelevcn.com.
- Created: 09-12-17 UTC
- OCID: ...cncaug [Show](#) [Copy](#)
- Compartment: oasceal (root)/oasmp
- Protected: No

Records

Domain	Type	TTL	RDATA
ceal.oracle.com	NS	86400	vcn-dns.oraclelevcn.com.
ceal.oracle.com	SOA	86400	vcn-dns.oraclelevcn.com. hostmaster.oracle.com. 5 3600 3600 3600 10
db19-scan.ceal.oracle.com	CNAME	300	db19-scan.ceal.oasvcn.oraclelevcn.com.
db19.ceal.oracle.com	A	300	10.0.2.91
db19rac-scan.ceal.oracle.com	CNAME	3600	db19rac-scan.ceal.oasvcn.oraclelevcn.com.

Similarly, create a private zone with the same name “ceal.oracle.com” in the same compartment “oasvcn” in OCI’s DR region, for example, Phoenix.

Zone information

- Zone scope: Private
- Zone type: Primary
- Private view: [oasvcn](#)
- Nameservers: vcn-dns.oraclelevcn.com.
- Created: 06-53-52 UTC
- OCID: ...7777777777 [Show](#) [Copy](#)
- Compartment: oasceal (root)/oasmp
- Protected: No

Records

Domain	Type	TTL	RDATA
ceal.oracle.com	NS	86400	vcn-dns.oraclelevcn.com.
ceal.oracle.com	SOA	86400	vcn-dns.oraclelevcn.com. hostmaster.oracle.com. 3 3600 3600 3600 10
db19-scan.ceal.oracle.com	CNAME	60	db19dr-scan.ceal.oasvcn.oraclelevcn.com.
db19.ceal.oracle.com	A	60	172.0.2.188
db19rac-scan.ceal.oracle.com	CNAME	3600	db19rac-dr-scan.ceal.oasvcn.oraclelevcn.com.

After this configuration, the connection strings of both the primary and standby DBCS instances on both the OCI regions will be the same.

Primary DBCS:

db19rac-scan.ceal.oracle.com:1521/pdb19rac.ceal.oasvcn.oraclelevcn.com

Standby DBCS:

db19rac-scan.ceal.oracle.com:1521/PDB19RAC.ceal.oasvcn.oraclelevcn.com

Switchover the DBCS instance from the Primary region to the DR region

After the switchover, the DBCS in the DR region should be running in the primary state.

In the OCI console, change the region to the DR region.

Navigate to the DBCS instance → Data Guard Associations

In the Actions menu, click on “Failover”.

General information

Lifecycle state: Available

OCID: ...44yhsa Show Copy

Created: ... 20:29:43 UTC

Database Role: Standby

Database unique name: db19rac_phx1hs

Oracle SID Prefix: None

Database Architecture: Container Database

Character Set: AL32UTF8

National Character Set: AL16UTF16

Version

Database version: 19.17.0.0.0 View

Database software image: db19_phx

Backup

Automatic backup: Disabled ⓘ

Data Guard

Status: Enabled

Encryption

Encryption Key: Oracle-managed key

Associated services

Database Management: Not enabled Enable ⓘ ⓘ

Operations Insights: Not enabled Enable ⓘ

Data Guard Associations

Peer database	Peer DB system	Peer role	Protection Mode	Transport type	Apply lag	Data Guard Type	Launch
db19rac	db19rac	Primary	Maximum Performance	Async	0 seconds	Mounted (Data Guard)	Failover

Enter the DB admin user password.

Database information

General information

Lifecycle state: Available

OCID: ...44yhsa Show Copy

Created: ... 20:29:43 UTC

Database Role: Primary

Database unique name: db19rac_phx1hs

Oracle SID Prefix: None

Database Architecture: Container Database

Character Set: AL32UTF8

National Character Set: AL16UTF16

Version

Database version: 19.17.0.0.0 View

Database software image: db19_phx

Backup

Automatic backup: Disabled ⓘ

Data Guard

Status: Enabled

Encryption

Encryption Key: Oracle-managed key

Associated services

Database Management: Not enabled Enable ⓘ ⓘ

Operations Insights: Not enabled Enable ⓘ

Data Guard Associations

Peer database	Peer DB system	Peer role	Protection Mode	Transport type	Apply lag	Data Guard Type	Launched
db19rac	db19rac	Standby	Maximum Performance	Async	0 seconds	Mounted (Data Guard)	21:38:22 UTC

The Peer DBCS role changed from Primary to Standby.

Known Bug

NOTE: There is a known bug during the switchover from primary to standby using Data Guard for DBCS 19c initially for the first time.

The OAS RCU schema temporary_tablespace will be empty as the data file is not created in the standby DBCS instance during the switchover.

Solution: Add a data file to the temp tablespace OAS RCU Schema <prefix>_IAS_TEMP

```
desc dba_users
select distinct temporary_tablespace from dba_users;
select * from v$tempfile;
select * from v$tablespace;
alter tablespace <prefix>_IAS_TEMP add tempfile size 500M;
select * from v$database;
```

Start OAS Services in the DR Region

Start OAS Services on the DR instance after the Standby DBCS role is changed to Primary.

Summary

Here you have understood how to create primary and standby DBCS instances in OCI using Data Guard.

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