EXPLORING **ALL OPTIONS** TO MOVE **YOUR ORACLE** DATABASES **TO THE ORACLE CL**



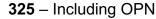


ALEX ZABALLA



CHRISTIAN, HUSBAND, FATHER, DBA, ACE DIRECTOR, WRITER AT OTN, SPEAKER AND BLOGGER.

Certified Master Oracle Database 12 <i>c</i> Administrator	Certified Professional Oracle Application Server 10g Administrator	Certified Expert Oracle Database 11g Performance Tuning	Certified Professional Oracle Database 11g Administrator	Certified Associate Oracle Database Cloud Service Operations	Certified Associate Oracle WebLogic Server 11g System Administrator	Certified Professional Database Cloud Administrator	Certified Professional Oracle Forms Developer	Certified Expert Certified Expert Oracle Database 12c: Oracle RAC and Oracle Grid Infrastructure Administrator
Certified Master Oracle Database 12 <i>c</i> Maximum Availability Architecture	ORACLE' Certified Specialist	Certified Professional Oracle Forms Developer 11g	Certified Expert Oracle Database SQL	Certified Associate Oracle Linux 5 and 6 System Administrator	Certified Professional Oracle Database 12c Administrator	Certified Expert Oracle Database 10g Managing Oracle on Linux	Certified Expert Oracle Database 11g Release 2 SQL Tuning	Certified Expert Oracle Database 12c Maximum Availability Architecture
Certified Master Oracle Database 11g Administrator	Certified Associate Oracle Database 10g Administrator	Certified Expert Oracle Application Express Developer	Certified Professional Oracle Database Cloud Administrator	ORACLE Certified Professional	Certified Professional Advanced PL/SQL Developer	Certified Associate Oracle Linux Administrator	Certified Expert Oracle Real Application Clusters 11g and Grid Infrastructure Administrator	Certified Expert Oracle Database 12c Data Guard Administrator
Certified Master Database Cloud Administrator	Certified Expert Oracle Exadata X3 and Oracle Exadata X4 Administrator	Certified Professional Oracle Database 10g Administrator	Certified Expert Oracle WebLogic Server 10g System Administrator	Certified Associate Oracle Application Server 10g Administrator	Certified Expert Oracle Real Application Clusters 10g Administrator	Certified Expert	PartnerNetwork Certified Specialist	Certified Expert Oracle Database 12c Performance Management and Tuning
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http://alexzaballa.blogspot.com/

@alexzaballa



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- Based in Dallas-TX (June, 2019 Now)
- Worked for 3 years in Brazil as a Clipper/Delphi Developer (15 years old) 1997-1999
- Worked for 7 years in Brazil as an Oracle Developer 2000 2007
- Worked for 8 years in Angola Africa as an Oracle DBA for the Ministry of Finance. 2007 – 2015
- Worked for 4 years in Brazil as an Oracle DBA for Accenture Enkitec Group. 2015 – 2019 (June, 2019)

ACCENTURE ENKITEC GROUP CAPABILITIES OVERVIEW



Global systems integrator focused on the Oracle platform

- Consultants average 15+ years of Oracle experience
- Worldwide specialist in Engineered Systems implementations
- 14 Oracle ACE members, specialist recognized by Oracle for their technical expertise



ORACLE SPECIALIZATIONS*

- Oracle Database Oracle Exadata
- Oracle GoldenGate Oracle Exalogic
- Oracle Data Integrator Oracle Database
- Oracle Data Warehouse
- Oracle Real Application Cluster
- Oracle Performance Tuning
- Oracle Database Security

EXPERTISE

ORACLE ENGINEERED SYSTEMS NUMBERS

- 700+ Oracle Engineered Systems which AEG have configured, patched or supported.
- 100+ AEG resources which have an average 15+ years of Oracle experience
- AEG Support across 9 countries
- 200 Oracle Engineered Systems (Exadata/Exalogic etc) currently under management directly by AEG
- 200+ customers in either the AEG Managed Services program or remote DBA program
- 50,000 Accenture Oracle IDC resources that can be leveraged for Level 1 & Level 2 support



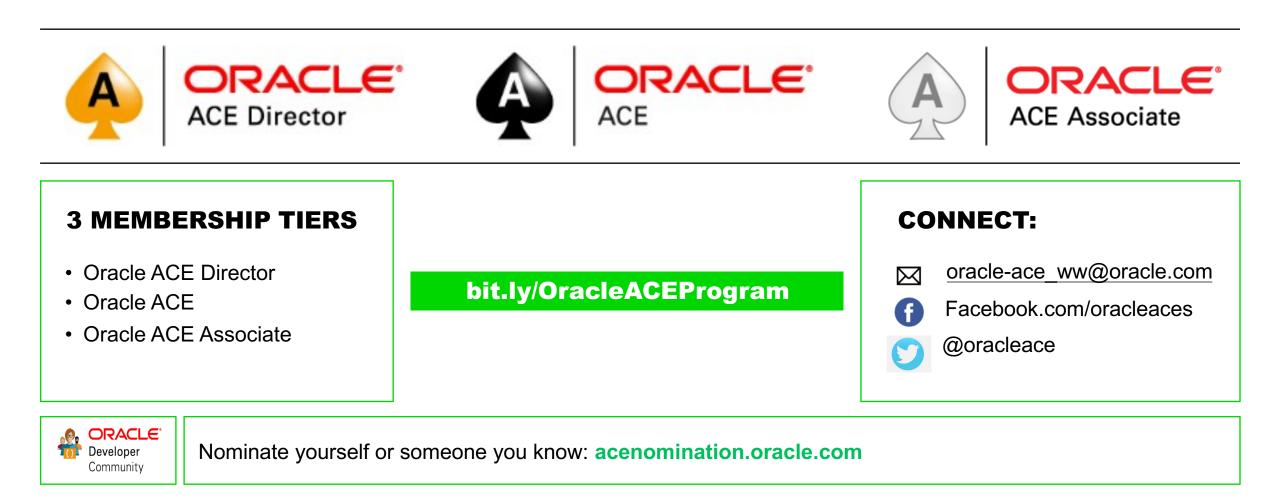


Our consultants have been published in multiple subject areas and additional online resources that demonstrate Accenture's experience and expertise with the OES platform

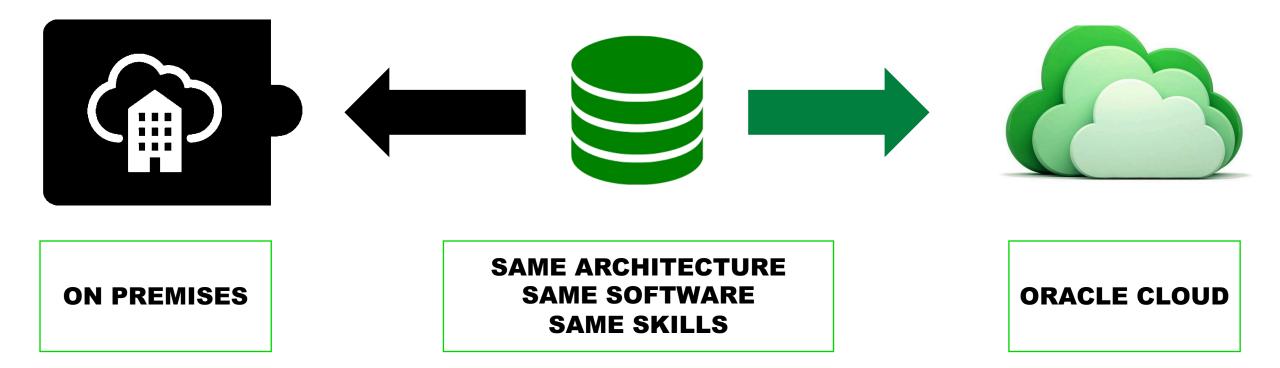


500+ TECHNICAL EXPERTS HELPING PEERS GLOBALLY





ORACLE DATABASE CLOUD CLOUD 101



ORACLE DATABASE 18C/19C/20C ARE NOT AUTONOMOUS DATABASE

Autonomous Database:

It's a **cloud service** that happens to use the Oracle 18c/19c database.

Oracle Database 18c/19c:

It's not autonomous!

https://oracle-base.com/blog/2018/01/03/oracle-database-18c-is-not-an-autonomous-database/





Will I lose my job?

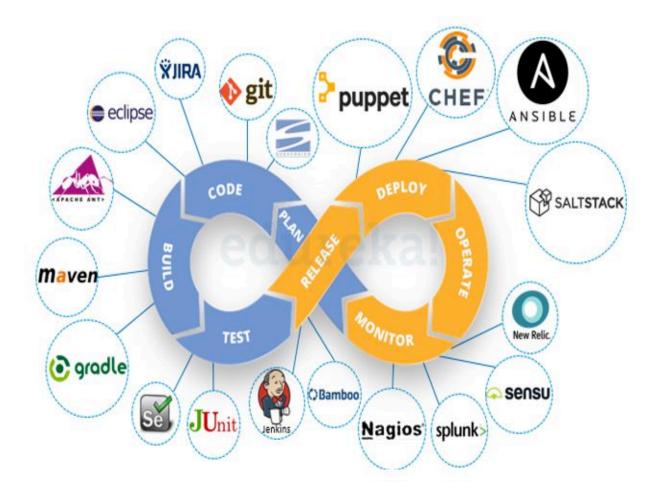




But you have to learn new capabilities:

- Application (Design and Development)
- Architecture
- Infrastructure (Network, Security and IaC)

SOME TOOLS FOR INFRASTRUCTURE AUTOMATION INFRASTRUCTURE AS CODE



- OCI CLI
- Terraform
- Ansible

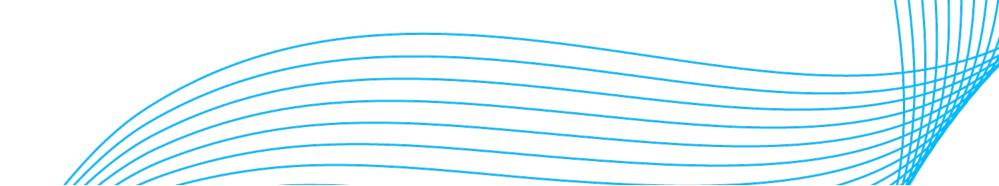
ORACLE DATABASE CLOUD

- Oracle Database Cloud Service Virtual Machines / Bare Metal
- Oracle Database Exadata Cloud Service
- Oracle Database Exadata Cloud at Customer
- Autonomous Transaction Processing
- Autonomous Data Warehouse
- Oracle Database Exadata Express Cloud Service Managed
- Oracle Database Schema Cloud Service Managed



https://cloud.oracle.com/database

ORACLE DATABASE CLOUD SERVICE DETERMINE THE COMPUTE SHAPE TO MOVE TO CLOUD



I'm THE **DBA**



I will use the same amount of CPUs and memory that I have on-premises!



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Use Database Consolidation Workbench



ORACLE I	Enterprise Mana	ger Cloud Control 13c			SYSMAN V	
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**Database Consolidation Workbench requires the Database Diagnostics pack license.

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https://github.com/alexzaballa/migration360

Ok!

Now we have the definition of CPUs, Memory and Storage equivalent in the Oracle Cloud.

rd.

ORACLE DATABASE CLOUD SERVICE CLOUD DATABASE

In this presentation, I'm assuming you already have the Database created in the Oracle Cloud.

ORACLE DATABASE CLOUD SERVICE CLOUD DATABASE

https://www.oracle.com/goto/move

Select your source



Select your target Oracle Database Cloud Service



ORACLE DATABASE CLOUD SOME MIGRATION METHODS

Migration Methods

Many methods exist to migrate Oracle databases to the Oracle Cloud Infrastructure Database service. Which of these methods apply to a given migration scenario depends on several factors, including the version, character set, and platform endian format of the source and target databases.

- Data Pump Conventional Export/Import
- Data Pump Full Transportable
- Data Pump Transportable Tablespace
- Remote Cloning a PDB
- Remote Cloning Non-CDB
- RMAN Cross-Platform Transportable PDB
- RMAN Cross-Platform Transportable Tablespace Backup Sets
- RMAN Transportable Tablespace with Data Pump
- RMAN DUPLICATE from an Active Database
- RMAN CONVERT Transportable Tablespace with Data Pump
- SQL Developer and INSERT Statements to Migrate Selected Objects
- SQL Developer and SQL*Loader to Migrate Selected Objects
- Unplugging/Plugging a PDB
- Unplugging/Plugging Non-CDB

https://docs.cloud.oracle.com/iaas/Content/Database/Tasks/migrating.htm

ORACLE DATABASE CLOUD MIGRATING FROM NON-CDB TO CDB

- <u>https://mikedietrichde.com/2019/07/22/database-migration-from-non-cdb-to-pdb-overview/</u>
- <u>https://mikedietrichde.com/2019/07/23/database-migration-from-non-cdb-to-pdb-upgrade-plug-in-convert/</u>
- <u>https://mikedietrichde.com/2019/07/24/database-migration-from-non-cdb-to-pdb-plug-in-upgrade-convert/</u>
- <u>https://mikedietrichde.com/2019/07/25/database-migration-from-non-cdb-to-pdb-clone-via-noncdb-upgrade-convert/</u>
- <u>https://mikedietrichde.com/2019/07/29/database-migration-from-non-cdb-to-pdb-typical-plugin-issues-and-workarounds/</u>
- <u>https://mikedietrichde.com/2019/07/29/database-migration-from-non-cdb-to-pdb-the-compatible-pitfall/</u>
- <u>https://mikedietrichde.com/2019/07/30/database-migration-from-non-cdb-to-pdb-the-time-zone-pitfall/</u>
- <u>https://mikedietrichde.com/2019/07/31/database-migration-from-non-cdb-to-pdb-the-component-pitfall/</u>
- <u>https://mikedietrichde.com/2019/08/01/database-migration-from-non-cdb-to-pdb-the-patch-level-pitfall/</u>
- <u>https://mikedietrichde.com/2019/08/02/database-migration-from-non-cdb-to-pdb-various-pitfalls/</u>
- <u>https://mikedietrichde.com/2019/08/05/database-migration-from-non-cdb-to-pdb-the-fallback-challenge/</u>
- <u>https://mikedietrichde.com/2019/08/13/database-migration-from-non-cdb-to-pdb-the-minimal-downtime-challenge/</u>
- <u>https://mikedietrichde.com/2019/08/14/database-migration-from-non-cdb-to-pdb-migration-with-data-pump/</u>

ORACLE DATABASE CLOUD CHOOSING A MIGRATION METHOD

- On-premises Database Version \rightarrow Cloud Database Version
- On-premises Host Operating System
- Database Size
- Network Bandwidth
- Downtime

https://docs.oracle.com/en/cloud/paas/database-dbaas-cloud/csdbi/considerations-migrating-premises-database-dbcs.htm

ORACLE DATABASE CLOUD MIGRATING FROM ORACLE DATABASE 11G TO ORACLE DATABASE 11G IN THE CLOUD

- Data Pump Conventional Export/Import
- Data Pump Transportable Tablespace
- RMAN Transportable Tablespace with Data Pump
- RMAN CONVERT Transportable Tablespace with Data Pump

ORACLE DATABASE CLOUD MIGRATING FROM ORACLE DATABASE 11G TO ORACLE DATABASE 12C/18C/19C IN THE CLOUD

- Data Pump Conventional Export/Import
- Data Pump Transportable Tablespace
- RMAN Transportable Tablespace with Data Pump
- RMAN CONVERT Transportable Tablespace with Data Pump
- Data Pump Full Transportable

ORACLE DATABASE CLOUD MIGRATING FROM ORACLE DATABASE 12C/18C/19C CDB TO ORACLE DATABASE 12C/18C/19C IN THE CLOUD

- Data Pump Conventional Export/Import
- Data Pump Transportable Tablespace
- RMAN Transportable Tablespace with Data Pump
- RMAN CONVERT Transportable Tablespace with Data Pump
- RMAN Cross-Platform Transportable Tablespace Backup Sets
- Data Pump Full Transportable
- Unplugging/Plugging (CDB)
- Remote Cloning (CDB)
- RMAN Cross-Platform Transportable PDB
- SQL Developer and SQL*Loader to Migrate Selected Objects
- SQL Developer and INSERT Statements to Migrate Selected Objects

ORACLE DATABASE CLOUD MIGRATING FROM ORACLE DATABASE 12C/18C/19C NON-CDB TO ORACLE DATABASE 12C/18C/19C IN THE CLOUD

- Data Pump Conventional Export/Import
- Data Pump Transportable Tablespace
- RMAN Transportable Tablespace with Data Pump
- RMAN CONVERT Transportable Tablespace with Data Pump
- RMAN Cross-Platform Transportable Tablespace Backup Sets
- Data Pump Full Transportable
- Unplugging/Plugging (CDB)
- Remote Cloning (non-CDB)
- SQL Developer and SQL*Loader to Migrate Selected Objects
- SQL Developer and INSERT Statements to Migrate Selected Objects

ORACLE DATABASE CLOUD CHOOSING A MIGRATION METHOD

Downtime?

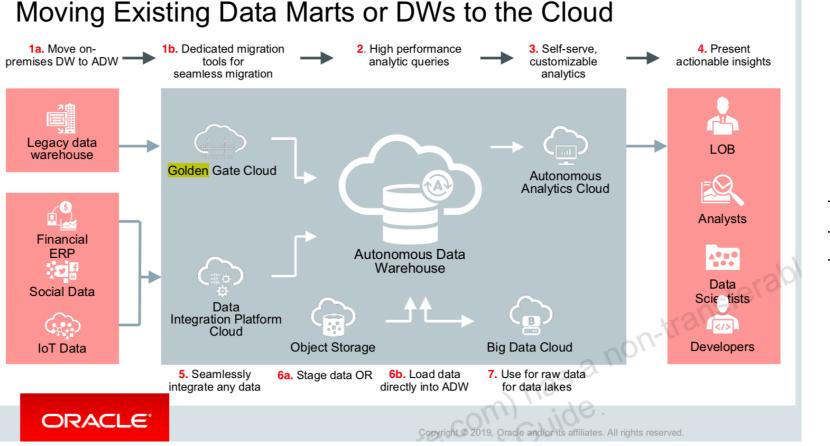
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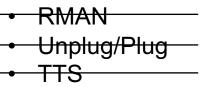
Uploading data to the cloud, even using fast public internet connections, migrating **100 TB** of data can take up to **8 months**.



LOAD DATA **AUTONOMOUS DATABASE**



- SQLDeveloper
- Data Pump ٠
- Golden Gate ٠



LOAD DATA DATA TRANSFER SERVICE

- Fast Data Migration → Move 100s of TB of data to Oracle Cloud Infrastructure in days, instead of weeks or months.
- Simple → Use the UI or the Data Transfer Utility to initiate the data migration process, copy data to hard drives, and ship them to Oracle, where we import it.
- Scalable → Whether you want to migrate a few terabytes or a petabyte, Data Transfer Service can help.
- Affordable \rightarrow There is no cost to transfer data with Data Transfer Service.

https://cloud.oracle.com/storage/data-transfer/features

LOAD DATA DATA TRANSFER APPLIANCE



https://blogs.oracle.com/cloud-infrastructure/introducing-oracle-cloud-infrastructure-data-transfer-appliance

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LOAD DATA / MIGRATION – BACKUP / RESTORE ORACLE DATABASE CLOUD BACKUP MODULE

www.oracle.com/technetwork/databa	se/availability/oracle-cloud-backup-2162729.html		
ORACLE	Menu Q	Account 🗸	Count
Oracle Technology Network / D	Database / High Availability		
Database Downloads			
Database In-Memory			
Multitenant	Oracle Database Cloud Backup Module		
More Key Features			
Application Development			
Big Data Appliance	Thank you for accepting the OTN License Agreement; you n	nay now download this software.	
Cloud Database Services	Oracle Database Cloud Backup Module is to be used only to	back up to the Oracle Database	
Private Database Cloud	Backup Cloud Service or the trial subscription of Oracle Stor	age Cloud Service.	
Data Warehousing & Big Data	Supported Oracle Database Versions (EE,SE,SE1,SE2): 10g	gR2 and above. (Refer to the	
Database Appliance	documentation for more details) Supported Platforms (64-bit) : Linux, Solaris, SPARC, Windo		
Exadata Database Machine		ws, Th -0X, AIX, Zehlux	
High Availability	All Supported Platforms (2,676,404 bytes) Note: Requ	ires JDK version 1.7 or higher).	
Manageability	For installation instructions and patch requirements, see the	Oracle Database Backup Cloud	
Migrations	Service documentation. See the white paper for more details	•	er to
Security	the MOS Note 1640149.1.		

LOAD DATA / MIGRATION – BACKUP / RESTORE ORACLE DATABASE CLOUD BACKUP MODULE

- <u>Download</u> the Oracle Database Cloud Backup Module, and upload it to the source and target database instances.
- Log in as the oracle user, go to the directory, unzip opc_installer.zip, and run java -jar oci_install.jar to install the backup module.

https://www.oracle.com/technetwork/pt/articles/cloudcomp /migra%C3%A7ao-dbs-a-oci-p1-5462577-ptb.html

LOAD DATA / MIGRATION – BACKUP / RESTORE ORACLE DATABASE CLOUD BACKUP MODULE

Database Server in the Oracle Cloud

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LOAD DATA / MIGRATION – BACKUP / RESTORE

java -jar oci_install.jar **-host** https://objectstorage.us-phoenix-1.oraclecloud.com **-pvtKeyFile** oci_private_key **-pubFingerPrint** oci_public_fingerprint **-uOCID** user_ocid **-tOCID** tenancy_ocid **-walletDir** /wallet_directory **-libDir** /library_directory

1. oracle@instance-20190220-1206:/u01/midias/bkp_cloud_module/oci_installer (ssh)
\times module/config (ssh) #1 \times le/oci_installer (ssh) #2 \times bash #3
[oracle@instance-20190220-1206 oci installer]\$ pwd
/u01/midias/bkp cloud module/oci installer
[oracle@instance-20190220-1206 oci installer]\$ ll
total 940
-rw-rr 1 oracle oinstall 944255 Nov 9 11:15 oci_install.jar
-rw-rr 1 oracle oinstall 12717 Nov 8 14:58 oci_readme.txt
[oracle@instance-20190220-1206 oci_installer]\$ java -jar oci_install.jar -host ht
<pre>tps://objectstorage.us-ashburn-1.oraclecloud.com \</pre>
<pre>> -pvtKeyFile /home/oracle/.oci/oci_api_key.pem \</pre>
> -pubFingerPrint a3:06:d3:23:aa:63:c4:13:2a:ff:5e:b7:0b:b9:d7:7e \
> -uOCID ocid1.user.oc1aaaaaaaa6gthvopq5x6cycotlnwqdoyczijzchkci2t2jg2j5pzuvl
t6v7da \
> -tOCID ocid1.tenancy.oc1aaaaaaaankelxhovriwq476ckpvqmocxekebe43x3ahfbf7ti2;
zyfs2kqsq \
<pre>> -walletDir /u01/app/oracle/bkp_cloud_module/oci_wallet \</pre>
<pre>> -libDir /u01/app/oracle/bkp_cloud_module/lib \</pre>
> -bucket db_backups \
<pre>> -configFile /u01/app/oracle/bkp_cloud_module/config/opc2CDB2.ora</pre>
Oracle Database Cloud Backup Module Install Tool, build 12.2.0.1.0DBBKPCSBP_2018-
11-09
Oracle Database Cloud Backup Module credentials are valid.
Backups would be sent to bucket db_backups.
Oracle Database Cloud Backup Module wallet created in directory /u01/app/oracle/k
kp_cloud_module/oci_wallet.
Oracle Database Cloud Backup Module initialization file /u01/app/oracle/bkp_cloud module/config/opc2CDB2.ora created.
Downloading Oracle Database Cloud Backup Module Software Library from Oracle Clou
d Infrastructure.
Download complete.
[oracle@instance-20190220-1206 oci installer]\$

```
1. oracle@instance-20190220-1206:/u01/app/oracle/bkp_cloud_module/config (ssh)
\times ..._module/config (ssh) #1 \times ...le/oci_installer (ssh) #2 \times
                                                 Ж3
                                          bash
[oracle@instance-20190220-1206 config]$ pwd
/u01/app/oracle/bkp cloud module/config
[oracle@instance-20190220-1206 config]$ 11
total 4
-rw-r--r-. 1 oracle oinstall 324 Feb 20 19:12 opc2CDB2.ora
[oracle@instance-20190220-1206 config]$ cat opc2CDB2.ora
OPC HOST=https://objectstorage.us-ashburn-1.oraclecloud.com/n/alexzaballa2019
OPC WALLET='LOCATION=file:/u01/app/oracle/bkp cloud module/oci wallet CREDENTIAL
ALIAS=alias oci'
OPC CONTAINER=db backups
OPC COMPARTMENT ID=ocid1.compartment.oc1..aaaaaaaaa7yrgh5lm6cy33mbde3jzhl3clfm3snt
4sj44geok3faxgwuapmvg
OPC AUTH SCHEME=BMC
[oracle@instance-20190220-1206 config]$
```

Database Server on-premises

java -jar oci_install.jar **-host** https://objectstorage.us-phoenix-1.oraclecloud.com **-pvtKeyFile** oci_private_key **-pubFingerPrint** oci_public_fingerprint **-uOCID** user_ocid **-tOCID** tenancy_ocid **-walletDir** /wallet_directory **-libDir** /library_directory

 2. oracle@localhost:/u01/midias/bkp_cloud_module/oci_installer (ssh)
× oracle@localhost:/u0 #1 × bash 🖡 #2
[oracle@localhost oci_installer]\$ pwd
/u01/midias/bkp_cloud_module/oci_installer
[oracle@localhost oci_installer]\$ ls
oci_install.jar oci_readme.txt
[oracle@localhost oci_installer]\$ java -jar oci_install.jar -host https://obje
ctstorage.us-ashburn-1.oraclecloud.com $\$
<pre>> -pvtKeyFile /home/oracle/.oci/oci_api_key.pem \</pre>
<pre>> -pubFingerPrint a3:06:d3:23:aa:63:c4:13:2a:ff:5e:b7:0b:b9:d7:7e \</pre>
-uOCID ocid1.user.oc1aaaaaaaa6gthvopq5x6cycotlnwqdoyczijzchkci2t2jg2j5pz
uvkt6v7da \
> -tOCID ocid1.tenancy.oc1aaaaaaaankelxhovriwq476ckpvqmocxekebe43x3ahfbf7t
i2zzyfs2kqsq \
<pre>> -walletDir /u01/app/oracle/bkp_cloud_module/oci_wallet \</pre>
<pre>> -libDir /u01/app/oracle/bkp_cloud_module/lib \</pre>
> -bucket db_backups \
<pre>> -configFile /u01/app/oracle/bkp_cloud_module/config/opc2CDB2.ora</pre>
Oracle Database Cloud Backup Module Install Tool, build 12.2.0.1.0DBBKPCSBP_20
18-11-09
Oracle Database Cloud Backup Module credentials are valid. Backups would be sent to bucket db backups.
Oracle Database Cloud Backup Module wallet created in directory /u01/app/oracl
e/bkp cloud module/oci wallet.
Oracle Database Cloud Backup Module initialization file /u01/app/oracle/bkp cl
oud module/config/opc2CDB2.ora created.
Downloading Oracle Database Cloud Backup Module Software Library from Oracle C
loud Infrastructure.
Download complete.
[oracle@localhost oci installer]\$

```
2. oracle@localhost:/u01/app/oracle/bkp_cloud_module/config (ssh)
× oracle@localhost:/u0... ₩1 ×
                             #2
                      bash
[oracle@localhost bkp cloud module]$ ls
config lib oci wallet
[oracle@localhost bkp cloud module]$ cd config/
[oracle@localhost config]$ ls
opc2CDB2.ora
[oracle@localhost config]$ cat opc2CDB2.ora
OPC HOST=https://objectstorage.us-ashburn-1.oraclecloud.com/n/alexzaballa2019
OPC WALLET='LOCATION=file:/u01/app/oracle/bkp cloud module/oci wallet CREDENTI
AL ALIAS=alias oci'
OPC CONTAINER=db backups
OPC COMPARTMENT ID=ocid1.compartment.oc1..aaaaaaaaa7yrgh5lm6cy33mbde3jzhl3clfm3
snt4sj44geok3faxgwuapmvg
OPC AUTH SCHEME=BMC
[oracle@localhost config]$
```

40

CONFIGURE CHANNEL DEVICE TYPE sbt

PARMS='SBT_LIBRARY=location-of-the-SBT-library-OCI-Backup-Module-for-OCI,

SBT_PARMS=(**OPC_PFILE**=location-of-the-configuration file)';

• • • 2. oracle@localhost:/ (ssh)
×cle@localhost:/ (ssh) 第1 ×module/config (ssh) 第2
[oracle@localhost /]\$ rman target /
Recovery Manager: Release 18.0.0.0.0 - Production on Wed Feb 20 20:41:32 2019 Version 18.3.0.0.0
Copyright (c) 1982, 2018, Oracle and/or its affiliates. All rights reserved.
connected to target database: CDB2 (DBID=680230459)
RMAN> CONFIGURE CHANNEL DEVICE TYPE sbt
PARMS='SBT_LIBRARY=/u01/app/oracle/bkp_cloud_module/lib/libopc.so,
<pre>SBT_PARMS=(OPC_PFILE=/u01/app/oracle/bkp_cloud_module/config/opc2CDB2.ora)'; 2> 3></pre>
using target database control file instead of recovery catalog
old RMAN configuration parameters:
CONFIGURE CHANNEL DEVICE TYPE 'SBT_TAPE' PARMS 'SBT_LIBRARY=/u01/app/oracle/bkp_c loud_module/lib/libopc2.so, SBT_PARMS=(OPC_PFILE=/u01/app/oracle/bkp_cloud_mo dule/config/opc2CDB2.ora)';
new RMAN configuration parameters:
CONFIGURE CHANNEL DEVICE TYPE 'SBT_TAPE' PARMS 'SBT_LIBRARY=/u01/app/oracle/bkp_c
<pre>loud_module/lib/libopc.so, SBT_PARMS=(OPC_PFILE=/u01/app/oracle/bkp_cloud_module/c onfig/opc2CDB2.ora)';</pre>
new RMAN configuration parameters are successfully stored
new white bonning and bucket b

2. oracle@localhost:/ (ssh)

imes ...cle@localhost:/ (ssh) #1 $\ imes$..._module/config (ssh) #2

[oracle@localhost /]\$ rman target /

Recovery Manager: Release 18.0.0.0.0 - Production on Wed Feb 20 20:45:35 2019 Version 18.3.0.0.0

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connected to target database: CDB2 (DBID=680230459)

RMAN> SET ENCRYPTION ON IDENTIFIED BY 'my_strong_passwd' ONLY;

executing command: SET encryption using target database control file instead of recovery catalog

RMAN> BACKUP DEVICE TYPE sbt DATABASE;

Starting backup at 20-FEB-19 allocated channel: ORA SBT TAPE 1 channel ORA SBT TAPE 1: SID=38 device type=SBT TAPE channel ORA SBT TAPE 1: Oracle Database Backup Service Library VER=12.2.0.2 channel ORA SBT TAPE 1: starting compressed full datafile backup set channel ORA SBT TAPE 1: specifying datafile(s) in backup set input datafile file number=00001 name=/u02/oradata/CDB2/system01.dbf input datafile file number=00003 name=/u02/oradata/CDB2/sysaux01.dbf input datafile file number=00005 name=/u02/oradata/CDB2/undotbs01.dbf input datafile file number=00007 name=/u02/oradata/CDB2/users01.dbf channel ORA SBT TAPE 1: starting piece 1 at 20-FEB-19 channel ORA SBT TAPE 1: finished piece 1 at 20-FEB-19 piece handle=35tqco7o 1 1 tag=TAG20190220T204544 comment=API Version 2.0,MMS Vers on 12.2.0.2 channel ORA SBT TAPE 1: backup set complete, elapsed time: 00:03:45 channel ORA SBT TAPE 1: starting compressed full datafile backup set channel ORA SBT TAPE 1: specifying datafile(s) in backup set input datafile file number=00009 name=/u02/oradata/CDB2/82596C33CD6732BBE05500000 000001/datafile/o1 mf sysaux g6vbv01s .dbf

SET ENCRYPTION ON IDENTIFIED BY 'my_passwd';

BACKUP DEVICE TYPE SBT DATABASE;

backup as compressed backupset DEVICE TYPE sbt incremental level 0 database plus archivelog;

backup as compressed backupset DEVICE TYPE sbt incremental level 1 database plus archivelog;

\rightarrow C $$ https://co	nsole.us-ashburn-1.oraclecloud.com/a/storage/objects/alexzaballa2019/db_backups							
ORACLE Cloud			Q	us-as	hburn-1	~	Δ (
j <mark>ect Storage</mark> » Bucket Details								
	db_backups							
	Change Compartment Update Visibility Delete Apply Tag(s)							
	Bucket Information Tags							
	Namespace: alexzaballa2019	Created: Wed, 20 Feb 2019 18:46:30 GMT						
	Storage Tier: Standard	Compartment:uapmvq Show Copy						
	ETag: a3cc9810-21ca-4500-8d6c-46a3d956b0e0	Visibility: Private						
	Approximate Count: 20 objects (i)	Approximate Size: 808.5141 MiB (i)						
	Encryption Key: None Assign							
	Developer tools are available for advanced object operations.							
sources	Developer tools are available for advanced object operations. Objects		 					
			 		Search (bjects	by prefi	<
bjects re-Authenticated Requests	Objects				Gearch (Dbjects		<
bjects re-Authenticated Requests fork Requests	Objects Upload Object Restore Object				Gearch (Dbjects		
bjects bre-Authenticated Requests /ork Requests fecycle Policy Rules	Upload Object Restore Object file_chunk/680230459/CDB2/backuppiece/2019-02-20/35tqco7o_1_1/KTVs8w9V0wwD/000000001				Search (Dbjects		•••
bjects re-Authenticated Requests /ork Requests	Upload Object Restore Object file_chunk/680230459/CDB2/backuppiece/2019-02-20/35tqco7o_1_1/KTVs8w9V0wwD/0000000001 file_chunk/680230459/CDB2/backuppiece/2019-02-20/35tqco7o_1_1/KTVs8w9V0wwD/0000000002				Search (Dbjects		•••

Database Server in the Oracle Cloud

1. oracle@instance-20190220-1206:~ (ssh)

imes oracle@instance-201... #1 imes

• #2 × oracle@instance-... • #3

Recovery Manager: Release 18.0.0.0.0 - Production on Wed Feb 20 20:11:47 2019 Version 18.3.0.0.0

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connected to target database (not started)

bash

RMAN> STARTUP NOMOUNT;

startup failed: ORA-01078: failure in processing system parameters
LRM-00109: could not open parameter file '/u01/app/oracle/product/18.0.0/dbhome_1/
dbs/initCDB2.ora'

starting Oracle instance without parameter file for retrieval of spfile Oracle instance started

Total System Global Area 1073740616 bytes

Fixed Size8665928 bytesVariable Size281018368 bytesDatabase Buffers775946240 bytesRedo Buffers8110080 bytes

RMAN> SET DECRYPTION IDENTIFIED BY 'my_strong_passwd';

executing command: SET decryption using target database control file instead of recovery catalog

RMAN> SET DBID=680230459;

RMAN>

executing command: SET DBID

STARTUP NOMOUNT;

SET DECRYPTION ON IDENTIFIED BY 'my_passwd';

SET DBID = your_source_db_id;

Restore the Server Parameter File:

		1. oracle@instance-20190220)-1206:~ (ssh)
imes oracle@instance-201 #1	imes bash	₩2 × oracle@instance-20 ₩	\$3
	RARY=/u01/app	/oracle/bkp_cloud_	_module/lib/libopc.so, ud_module/config/opc2CDB2.ora)';
FROM AUTOBACKUP } 2> 3> 4> 5> 6> 7 allocated channe channel t1: SID=	?; el: t1 =4 device typ	e=SBT_TAPE	uct/18.0.0/dbhome_1/dbs/initCDB2.ora' brary VER=12.2.0.2
Starting restore	e at 20-FEB-1	9	
channel t1: AUTC channel t1: rest	DBACKUP found coring spfile LE restore f e at 20-FEB-1	rom AUTOBACKUP cor	90220-00 c-680230459-20190220-00
RMAN>			

RESTORE SPFILE TO PFILE '\$ORACLE_HOME/dbs/initCDB2.ora' FROM AUTOBACKUP;

Restore the Database Control Files:

RMAN> RUN {

ALLOCATE CHANNEL t1 DEVICE TYPE sbt PARMS='SBT_LIBRARY=/u01/app/oracle/bkp_cloud_module/lib/libopc.so, SBT_PARMS=(OPC_PFILE=/u01/app/oracle/bkp_cloud_module/config/opc2CDB2.ora)';

RESTORE CONTROLFILE FROM AUTOBACKUP; }2> 3> 4> 5> 6> 7>

allocated channel: t1 channel t1: SID=20 device type=SBT_TAPE channel t1: Oracle Database Backup Service Library VER=12.2.0.2

Starting restore at 20-FEB-19

channel t1: looking for AUTOBACKUP on day: 20190220 channel t1: AUTOBACKUP found: c-680230459-20190220-00 channel t1: restoring control file from AUTOBACKUP c-680230459-20190220-00 channel t1: control file restore from AUTOBACKUP complete output file name=/u02/oradata/CDB2/control01.ctl output file name=/u02/oradata/CDB2/control02.ctl Finished restore at 20-FEB-19 released channel: t1

RMAN> ALTER DATABASE MOUNT;

Statement processed

RMAN>

RESTORE CONTROLFILE FROM AUTOBACKUP;

ALTER DATABASE MOUNT;

Restore/Recover the Database Files:

RMAN> RESTORE DATABASE;

Starting restore at 20-FEB-19 Starting implicit crosscheck backup at 20-FEB-19 allocated channel: ORA_DISK_1 channel ORA_DISK_1: SID=23 device type=DISK Finished implicit crosscheck backup at 20-FEB-19

Starting implicit crosscheck copy at 20-FEB-19 using channel ORA_DISK_1 Finished implicit crosscheck copy at 20-FEB-19

searching for all files in the recovery area
cataloging files...
no files cataloged

allocated channel: ORA_SBT_TAPE_1 channel ORA_SBT_TAPE_1: SID=24 device type=SBT_TAPE channel ORA_SBT_TAPE_1: Oracle Database Backup Service Library VER=12.2.0.2 using channel ORA_DISK_1

channel ORA_SBT_TAPE_1: starting datafile backup set restore channel ORA_SBT_TAPE_1: specifying datafile(s) to restore from backup set channel ORA_SBT_TAPE_1: restoring datafile 00001 to /u02/oradata/CDB2/system01.dbf channel ORA_SBT_TAPE_1: restoring datafile 00003 to /u02/oradata/CDB2/sysaux01.dbf channel ORA_SBT_TAPE_1: restoring datafile 00005 to /u02/oradata/CDB2/undotbs01.db f channel ORA_SBT_TAPE_1: restoring datafile 00007 to /u02/oradata/CDB2/users01.dbf channel ORA_SBT_TAPE_1: restoring datafile 00007 to /u02/oradata/CDB2/users01.dbf

RESTORE DATABASE;

Restore/Recover the Database Files:

RMAN> RECOVER DATABASE UNTIL SCN 3325612;

Starting recover at 20-FEB-19 using channel ORA_SBT_TAPE_1 allocated channel: ORA_DISK_1 channel ORA_DISK_1: SID=24 device type=DISK

starting media recovery
media recovery complete, elapsed time: 00:00:00

Finished recover at 20-FEB-19

RMAN>

RMAN> ALTER DATABASE OPEN RESETLOGS;

Statement processed

RECOVER DATABASE options;

UNTIL SCN UNTIL CANCEL UNTIL AVAILABLE REDO

ALTER DATABASE OPEN NORESETLOGS;

- No upgrade to new version
- Source version 11.2.0.4, 12.1.0.2, 12.2.0.1, 18 e 19

MIGRATING AN ON-PREMISES DATABASE TO ORACLE CLOUD INFRASTRUCTURE CREATE A BACKUP IN THE CLOUD

https://blogs.oracle.com/dbcs/create-a-backup-in-the-cloud

"In this blog, we are going to go over just that, a method to move your database into the Oracle's cloud with a single command."

"We can use the Database Backup Cloud Service to take a full backup of a selected database then create a database in OCI from that backup."

LOAD DATA / MIGRATION USING DATA PUMP



LOAD DATA / MIGRATION USING DATA PUMP

- Cross-endian possible
- Source version 10g and later
- Migrate from non-CDB to PDB
- Changes to database structure possible
- Upgrade to new version possible

ORACLE DATABASE CLOUD DATA PUMP

On-premises host:

mkdir /u01/app/oracle/admin/orcl/dpdump/for_cloud

sqlplus user/password

CREATE DIRECTORY dp_for_cloud AS '/u01/app/oracle/admin/orcl/dpdump/for_cloud';

expdp user/password SCHEMAS=fsowner DIRECTORY=dp_for_cloud

ORACLE DATABASE CLOUD DATA PUMP

Database Cloud Service compute node:

mkdir /u01/app/oracle/admin/ORCL/dpdump/from_onprem

On-premises host: scp –i private_key_file \ /u01/app/oracle/admin/orcl/dpdump/for_cloud/expdat.dmp\ oracle@IP_address_DBaaS_VM:/u01/app/oracle/admin/ORCL/dpdump/from_onprem

Database Cloud Service compute node:

sqlplus user/password

CREATE DIRECTORY dp_from_onprem AS '/u01/app/oracle/admin/ORCL/dpdump/from_onprem';

impdp user/password SCHEMAS=fsowner DIRECTORY=dp_from_onprem

ORACLE DATABASE CLOUD DATA PUMP

Options to consider:

- Database Link
- Object Storage

impdp admin/password@ADWC1_high \
directory=data_pump_dir \
credential=def_cred_name \
dumpfile= https://swiftobjectstorage.us-phoenix-1.oraclecloud.com/v1/adwc/adwc_user/export%u.dmp

https://docs.oracle.com/en/cloud/paas/autonomous-data-warehouse-cloud/user/load-data.html#GUID-297FE3E6-A823-4F98-AD50-959ED96E6969

LOAD DATA / MIGRATION TRANSPORTABLE TABLESPACES



LOAD DATA / MIGRATION USING TRANSPORTABLE TABLESPACES

- Cross-endian possible
- Source version 8i and later (sameOS) or 10g and later cross-endian
- Migrate from non-CDB to PDB
- Upgrade to new version possible

ORACLE DATABASE CLOUD TRANSPORTABLE TABLESPACE

On-premises host:

mkdir /u01/app/oracle/admin/orcl/dpdump/for_cloud

sqlplus user/password

CREATE DIRECTORY dp_for_cloud AS '/u01/app/oracle/admin/orcl/dpdump/for_cloud';

ALTER TABLESPACE fsindex READ ONLY; ALTER TABLESPACE fsdata READ ONLY;

expdp user/password TRANSPORT_TABLESPACES=fsdata,fsindex TRANSPORT_FULL_CHECK=YES DIRECTORY=dp_for_cloud

ORACLE DATABASE CLOUD TRANSPORTABLE TABLESPACE

Database Cloud Service compute node:

mkdir /u01/app/oracle/admin/ORCL/dpdump/from_onprem

On-premises host:

\$ scp -i *private_key_file* \ /u01/app/oracle/admin/orcl/dpdump/for_cloud/expdat.dmp \ oracle@*IP_address_DBaaS_VM*:/u01/app/oracle/admin/ORCL/dpdump/from_onprem

\$ scp -i *private_key_file* \ /u01/app/oracle/oradata/orcl/fsdata01.dbf \ oracle@IP_address_DBaaS_VM:/u02/app/oracle/oradata/ORCL

\$ scp -i *private_key_file* \ /u01/app/oracle/oradata/orcl/fsindex01.dbf \ oracle@IP_address_DBaaS_VM:/u02/app/oracle/oradata/ORCL

ALTER TABLESPACE fsdata READ WRITE; ALTER TABLESPACE fsindexREAD WRITE;

ORACLE DATABASE CLOUD TRANSPORTABLE TABLESPACE

Database Cloud Service compute node:

CREATE DIRECTORY dp_from_onprem AS '/u01/app/oracle/admin/ORCL/dpdump/from_onprem';

SQL> CREATE USER fsowner PROFILE default IDENTIFIED BY fspass TEMPORARY TABLESPACE temp ACCOUNT UNLOCK;

impdp user/password DIRECTORY=dp_from_onprem \
TRANSPORT_DATAFILES='/u02/app/oracle/oradata/ORCL/fsdata01.dbf', \
'/u02/app/oracle/oradata/ORCL/fsindex01.dbf'

ALTER TABLESPACE fsdata READ WRITE; ALTER TABLESPACE fsindex READ WRITE;

LOAD DATA / MIGRATION USING DATA GUARD



LOAD DATA / MIGRATION USING DATA GUARD

- No cross-endian
- No upgrade to new version
- Minimal downtime migration
- Source version 11.2.0.4, 12.1.0.2, 12.2.0.1, 18, 19

LOAD DATA / MIGRATION USING DATA GUARD

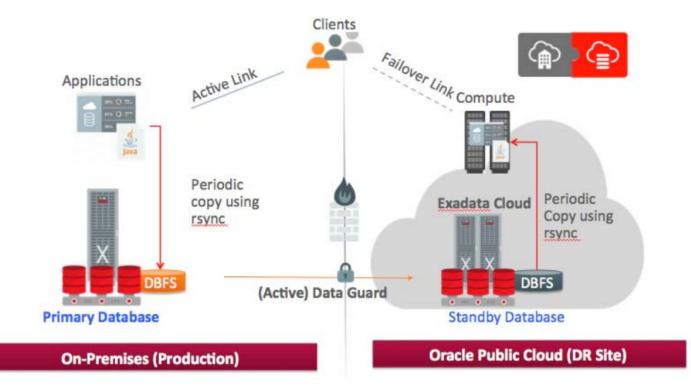
This migration can be done in two different ways:

- Using Oracle Database Cloud Services (DBaaS)
- Using Oracle Compute (laaS).

- 1. Create Physical Standby
- 2. Prepare Client Connections (Ex: tnsnames.ora)
- 3. Switchover to Physical Standby

Disaster Recovery to the Oracle Cloud

http://www.oracle.com/technetwork/database/availability/dr-to-oracle-cloud-2615770.pdf



On-premises host: SELECT log_mode FROM v\$database; LOG_MODE

NOARCHIVELOG

SHUTDOWN IMMEDIATE; STARTUP MOUNT; **ALTER DATABASE ARCHIVELOG;** ALTER DATABASE OPEN;

ALTER DATABASE FORCE LOGGING;

On-premises host:

- Create standby redo logs on the primary database initially (recommended).
- Create standby redo logs using the same file size as the primary database online redo logs.
- Create one additional group more than the number of online redo log groups.

ALTER DATABASE ADD STANDBY LOGFILE ('+REDO') SIZE XXM; ALTER DATABASE ADD STANDBY LOGFILE ('+REDO') SIZE XXM; ALTER DATABASE ADD STANDBY LOGFILE ('+REDO') SIZE XXM; ALTER DATABASE ADD STANDBY LOGFILE ('+REDO') SIZE XXM;

Database Cloud Service compute node:

Init.ora:

*.db_name='cdb1'

mkdir -p /u01/app/oracle/admin/cdb1/adump

orapwd file=/u01/app/oracle/product/12.1.0.2/db_1/dbs/orapwcdb1 password=mypass entries=10

Database Cloud Service compute node:

export ORACLE_SID=cdb1 sqlplus / as sysdba

STARTUP NOMOUNT PFILE='/tmp/init.ora'; rman TARGET sys/password@cdb1 AUXILIARY sys/password@cdb1_stby

DUPLICATE TARGET DATABASE FOR STANDBY FROM ACTIVE DATABASE DORECOVER NOFILENAMECHECK;

Prepare Client Connections (Ex: tnsnames.ora) + Firewall ports Database Cloud Service compute node:

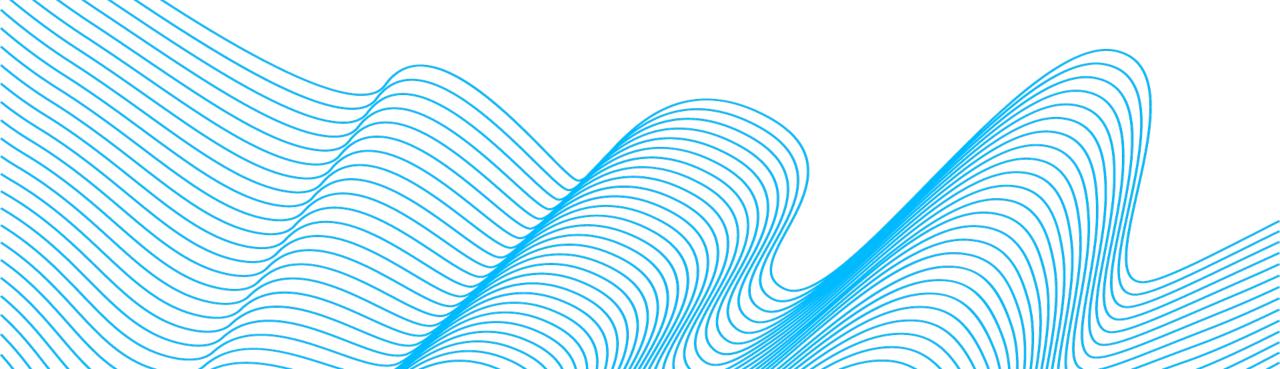
ALTER SYSTEM SET dg_broker_start=true;

dgmgrl sys/password@cdb1

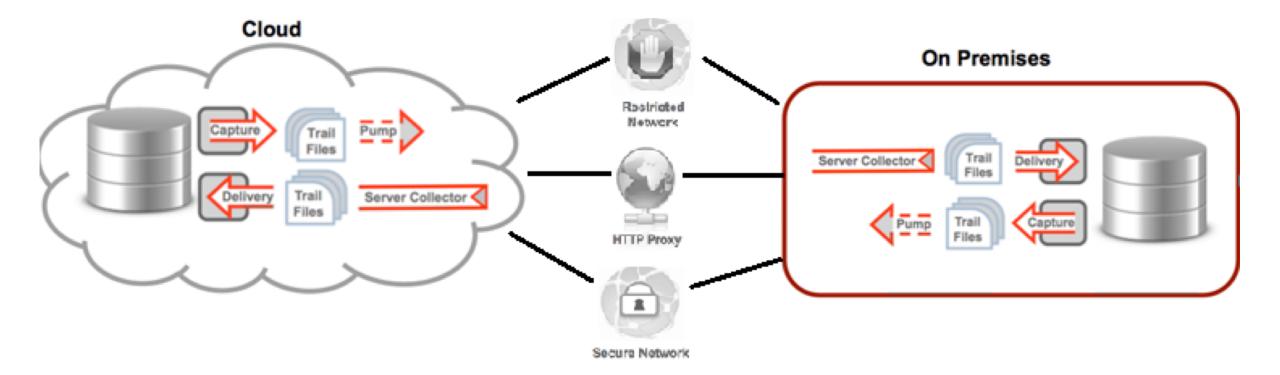
CREATE CONFIGURATION my_config AS PRIMARY DATABASE IS cdb1 CONNECT IDENTIFIER IS cdb1; ADD DATABASE cdb1_stby AS CONNECT IDENTIFIER IS cdb1_stby MAINTAINED AS PHYSICAL; ENABLE CONFIGURATION;

SWITCHOVER TO cdb1_stby;

LOAD DATA / MIGRATION GOLDENGATE CLOUD SERVICE



ORACLE DATABASE CLOUD GOLDENGATE AND GOLDENGATE CLOUD SERVICE



LOAD DATA / MIGRATION USING GOLDENGATE CLOUD SERVICE

- Cross-endian possible
- Source version 8i and later
- Migrate from non-CDB to PDB
- Changes to database structure possible
- Minimal downtime migration
- Upgrade to new version possible

LOAD DATA / MIGRATION – BACKUP / RESTORE ORACLE DATABASE CLOUD BACKUP MODULE

Other options:

Live on MIG360

8a. Migration Options

- 295. Data Pump Conventional Export/Import text (57)
- 296. Data Pump Conventional Export/Import NON-CDB to CDB text (68)
- 297. Data Pump Transportable Tablespace text (95)
- 298. Data Pump Transportable Tablespace NON-CDB to CDB text (108)
- 299. Data Pump Full Transportable text (95)
- 300. Data Pump Full Transportable NON-CDB to CDB text (106)
- 301. RMAN Transportable Tablespace with Data Pump text (70)
- 302. RMAN Transportable Tablespace with Data Pump NON-CDB to CDB text (83)
- 303. RMAN Transportable Tablespace with Data Pump Incremental text (143)
- 304. RMAN Transportable Tablespace with Data Pump Incremental NON-CDB to CDB text (162)
- 305. RMAN CONVERT Transportable Tablespace with Data Pump text (90)
- 306. RMAN CONVERT Transportable Tablespace with Data Pump NON-CDB to CDB text (104)
- 307. RMAN Cross-Platform Transportable Tablespace Backup Sets text (80)
- 308. RMAN Cross-Platform Transportable Tablespace Backup Sets NON-CDB to CDB text (93)
- 309. RMAN Cross-Platform Transportable Tablespace Backup Sets Incremental XTTS text (9)
- 310. RMAN Incremental Backup text (127)
- 311. Unplugging/Plugging (NON-CDB) text (81)
- 312. Remote Cloning (NON-CDB) text (49)
- 313. Cloud Backup Module text (168)
- 314. Data Guard text (133)
- 315. Golden Gate (To be Implemented) text (1)



ORACLE DATABASE CLOUD ORACLE SQL*LOADER



ORACLE DATABASE CLOUD ORACLE SQL*LOADER

sqlplus scott/tiger

CREATE TABLE emp (empno number(5), name varchar2(50), sal number(10,2), jdate date);

ORACLE DATABASE CLOUD ORACLE SQL*LOADER

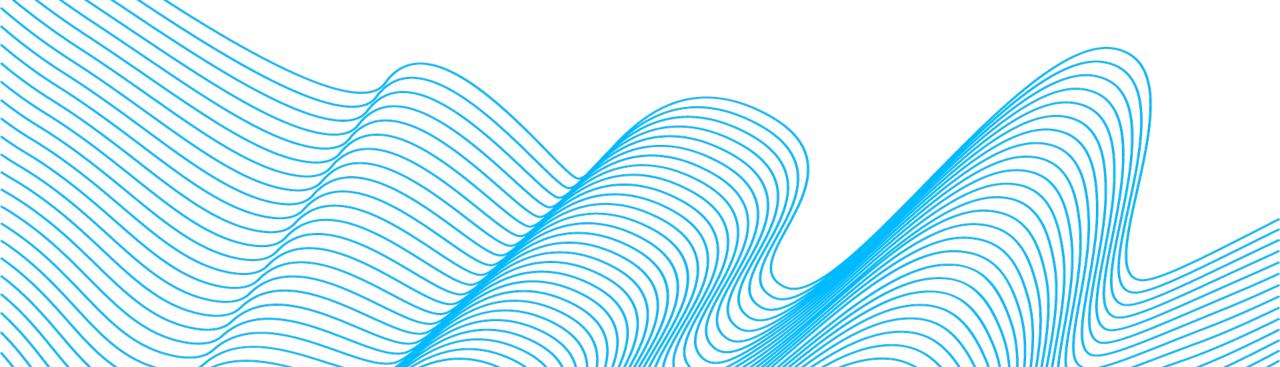
emp.ctl

LOAD DATA INFILE '/u01/oracle/emp.csv' BADFILE '/u01/oracle/emp.bad' DISCARDFILE '/u01/oracle/emp.dsc'

INSERT INTO TABLE emp FIELDS TERMINATED BY "," OPTIONALLY ENCLOSED BY "" TRAILING NULLCOLS (empno,name,sal,jdate date 'mm/dd/yyyy')

sqlldr userid=scott/tiger control=emp.ctl log=emp.log

ORACLE DATABASE CLOUD EXTERNAL TABLES



ORACLE DATABASE CLOUD EXTERNAL TABLES

```
CREATE TABLE countries ext (
  country_code VARCHAR2(5),
  country_name VARCHAR2(50),
  country_language VARCHAR2(50)
ORGANIZATION EXTERNAL
  TYPE ORACLE LOADER
  DEFAULT DIRECTORY ext_tab_data
  ACCESS PARAMETERS (
    RECORDS DELIMITED BY NEWLINE
    FIELDS TERMINATED BY ','
   MISSING FIELD VALUES ARE NULL
     country code
                  CHAR(5),
     country_name
                       CHAR(50),
     country_language CHAR(50)
  LOCATION ('Countries1.txt','Countries2.txt')
PARALLEL 5
REJECT LIMIT UNLIMITED;
```

ORACLE DATABASE CLOUD DATABASE LINKS



ORACLE DATABASE CLOUD DATABASE LINKS

On-premises host:

CREATE DATABASE LINK my_db_link CONNECT TO remote_user IDENTIFIED BY remote_password USING 'MyCloudDB';

CREATE TABLE tb_test@my_db_link as SELECT* FROM my_Table;

ORACLE DATABASE CLOUD DATABASE LINKS - CLONE A REMOTE PDB OR NON-CDB



ORACLE DATABASE CLOUD DATABASE LINKS - CLONE A REMOTE PDB OR NON-CDB

CREATE DATABASE LINK clone_link CONNECT TO remote_clone_user IDENTIFIED BY remote_clone_user USING 'MyOnPremDB';

CREATE PLUGGABLE DATABASE pdb1 FROM pdb1@clone_link;

CREATE PLUGGABLE DATABASE pdb2b FROM NON\$CDB@clone_link;



SQL>

SQL> ALTER PLUGGABLE DATABASE pdb_cdb2 2 UNPLUG INTO '/tmp/pdb_cdb2.xml';

Pluggable database altered.

SQL>

http://www.oracle.com/webfolder/technetwork/tutorials/obe/cloud/dbaas/OU/MigratingToDBaaS/Unplug Plug Migration/Unplug Plug Migration.html

[oracle@NFDBA ~]\$ cd \$HOME/.ssh				
[oracle@NFDBA .ssh]\$ scp -i DJkey.openssh o				02/app/oracle
<pre>/oradata/CDB2/pdb_cdb2/* /u02/app/oracle/or</pre>	adata/OR	CL/PDB	CDB2	
Enter passphrase for key 'DJkey.openssh':				
pdb_cdb2_users01.dbf	100%	5128KB	5.0MB/s	00:00
sysaux01.dbf	100%	580MB	10.0MB/s	00:58
system01.dbf	100%	260MB	9.3MB/s	00:28
temp012015-02-17_12-55-34-PM.dbf	100%	20MB	20.0MB/s	00:00
[oracle@NFDBA .ssh]\$				

http://www.oracle.com/webfolder/technetwork/tutorials/obe/cloud/dbaas/OU/MigratingToDBaaS/Unplug Plug Migration/Unplug Plug Migration.html

[oracle@NFDBA .ssh]\$. oraenv

ORACLE_SID = [ORCL] ? ORCL

The Oracle base remains unchanged with value /u01/app/oracle [oracle@NFDBA .ssh]\$ sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Fri Feb 20 11:29:59 2015

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Connected to:

Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production With the Partitioning, Oracle Label Security, OLAP, Advanced Analytics and Real Application Testing options

SQL> CREATE PLUGGABLE DATABASE db_cdb2

- 2 USING '/u01/app/oracle/admin/ORCL/pdb_cdb2.xml'
- 3 SOURCE_FILE_NAME_CONVERT = (
- 4 '/u02/app/oracle/oradata/CDB2/pdb_cdb2',
- 5 '/u02/app/oracle/oradata/ORCL/PDB_CDB2')
- 6 NOCOPY
- 7 TEMPFILE REUSE;

Pluggable database created.

SQL>

http://www.oracle.com/webfolder/technetwork/tutorials/obe/cloud/dbaas/OU/MigratingToDBaaS/Unplug_Plug_Migration/Unplug_Plug_Migration.html



Enterprise Manager

SQLDEVELOPER

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No data to display											
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* SYSDBA Container Database Credentials NC_	* User Name
* Database Host Credentials NC_HOST_	* Password
	* Confirm Password
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	Credentials
	* SYSDBA Container Database Credentials NC_1
	* Database Host Credentials CLOUD_CREDENTIAL

https://172.16.19.83:50027/em/faces/adf.task-flow?adf.tfld=pdb-datarefresh-clone-task-flow&adf.tfDoc=/WEB-INF/db/pdb/datarefresh/clone/pdb-datarefresh-clone-task-flow.xml&_afrLoop=1489754491277560#

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Run Clone to Oracle Cloud SYSMAN	Scheduled	Elapsed Time N/A (Scheduled)
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Status Scheduled	Completed Date	
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 > Prepare for cloning (Use an Existing Backup) > Prepare Backup at Destination > Prepare SQL for creating clone > Execute pre database creation custom script > Execute Create PDB SQL Script 		
 > Prepare for cloning (Use an Existing Backup) > Prepare Backup at Destination > Prepare SQL for creating clone > Execute pre database creation custom script > Execute Create PDB SQL Script Restore source PDB to its original state 		
 > Prepare for cloning (Use an Existing Backup) > Prepare Backup at Destination > Prepare SQL for creating clone > Execute pre database creation custom script > Execute Create PDB SQL Script Restore source PDB to its original state > Apply Datapatch 		
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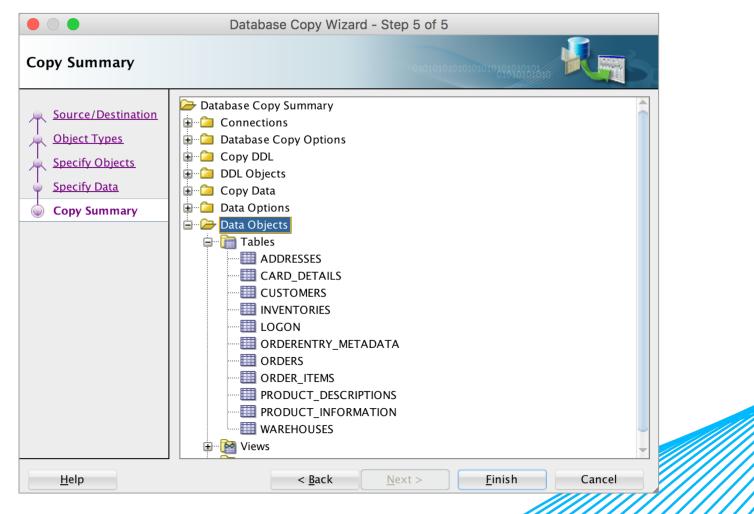
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ORACLE DATABASE CLOUD SQLDEVELOPER DATABASE COPY



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--- START -----set define off;

-- DDL for Table COUNTRIES

CREATE TABLE "COUNTRIES" ("COUNTRY_ID" CHAR(2 BYTE), "COUNTRY_NAME" VARCHAR2(40 BYTE), "REGION_ID" NUMBER, CONSTRAINT "COUNTF

COMMENT ON COLUMN "COUNTRIES"."COUNTRY_ID" IS 'Primary key of countries table.'; COMMENT ON COLUMN "COUNTRIES"."COUNTRY NAME" IS 'Country name';

COMMENT ON COLUMN "COUNTRIES"."REGION_ID" IS 'Region ID for the country. Foreign key to region_id column in the departments t COMMENT ON TABLE "COUNTRIES" IS 'country table. Contains 25 rows. References with locations table.';

Table "COUNTRIES" created.

Comment on column "countries"."country_id" 'PRIMARY KEY OF COUNTRIES TABLE.' succeeded.

Comment on column "countries"."country_name" 'COUNTRY NAME' succeeded.

Comment on column "countries". "region_id" 'REGION ID FOR THE COUNTRY. FOREIGN KEY TO REGION_ID COLUMN IN THE DEPARTMENTS TABLE.

Comment on table "countries" 'COUNTRY TABLE. CONTAINS 25 ROWS. REFERENCES WITH LOCATIONS TABLE.' succeeded.

set define off;

OTHER OPTIONS TO EXPLORE

- Oracle Zero Downtime Migration
- MV2ADB
- MV2OCI
- Ansible Database Migration Tool utility

QUESTIONS?



THANK YOU

Slides will be available at <u>www.slideshare.net</u>

...whatever you do, do it all for the glory of God. 1 Corinthians 10:31

