Solution Engineer Assisted Workshop Day

Reference 4.2 – Database Backups and Other Features

V1.1

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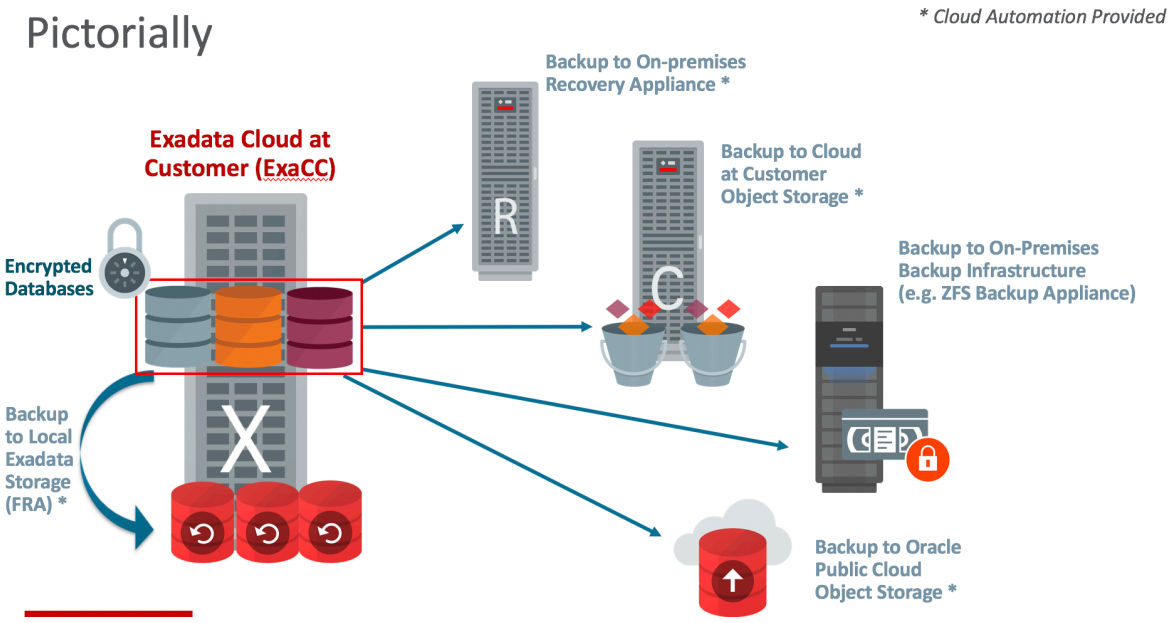
Pictorially



Overview

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

Exadata Cloud at Customer provides a backup feature that automatically backs up the Oracle database associated with a database deployment. This feature is built over Oracle Recovery Manager (RMAN) and exposed through a simple set of system utilities that are installed on your Exadata system. It also relies on Oracle Database Backup Cloud Service, which in turn uses an Oracle Storage Cloud Service container, when cloud storage is selected as a backup location.

In this Lab you will provision own database on Exadata Cloud Service. Oracle Database Exadata Cloud at Customer provides automatic built-in database backup facilities. Automatic backups can be stored in different services. This lab is more discussion based and used as a reference.

Oracle Exadata Database Cloud Service also has multiple features such as using REST APIs.

Reference: https://docs.oracle.com/en/cloud/cloud-at-customer/exadata-cloud-at-customer/exacc/

Overview 4.2-1: Backup Configuration Options and Locations

Overview

Oracle Exadata Cloud Service lets you automated backups in different configurations.

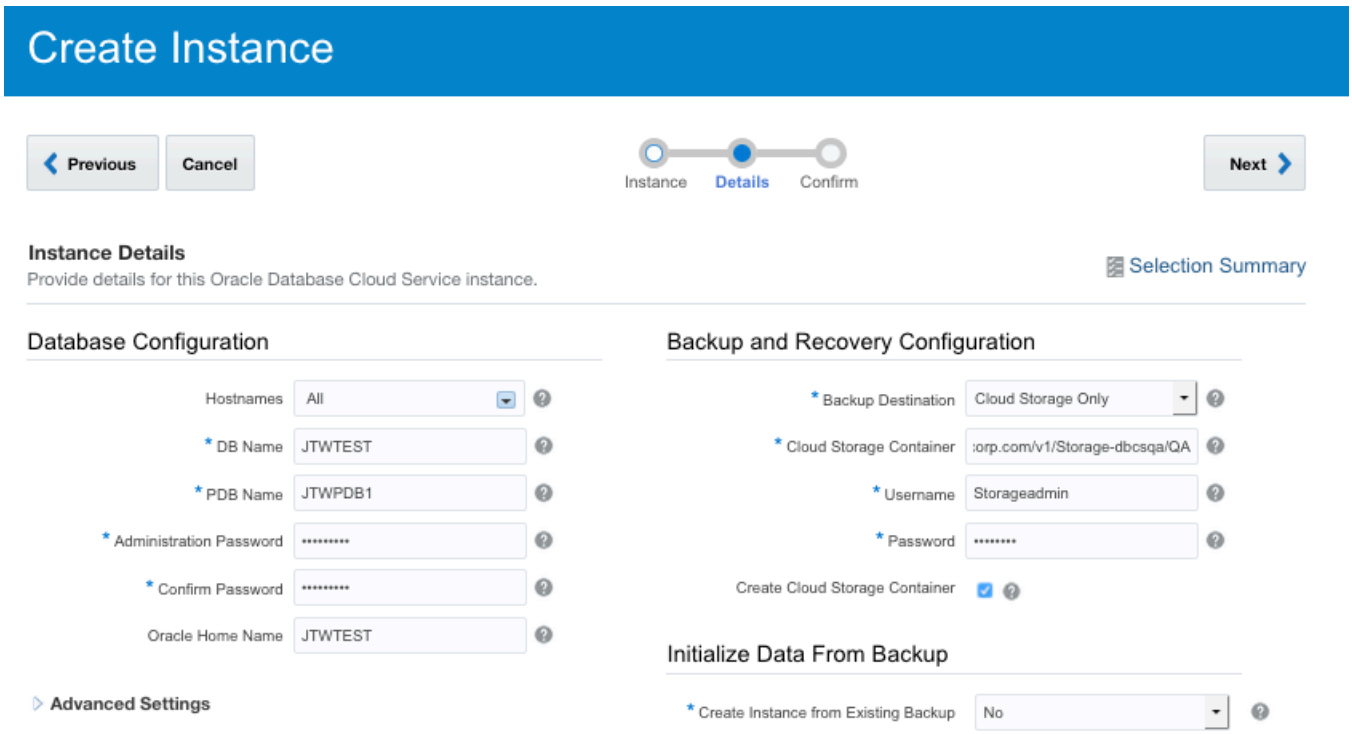
Details

Automatic backups can be stored on:

Cloud storage — uses an Oracle Storage Cloud container. This container becomes associated with Oracle Database Backup Cloud Service, which Exadata Cloud at Customer uses to perform backups to cloud storage.

Exadata storage — uses storage from the local Exadata Storage Servers that is allocated to the RECO disk group. Database backups are managed in the Fast Recovery Area (FRA), which is located in the RECO disk group.

ZDLRA storage — uses Oracle Zero Data Loss Recovery Appliance (ZDLRA).



When creating a database deployment on Exadata Cloud at Customer, you choose the destination for automatic backups. Your choices are:

Both Cloud Storage and Exadata Storage — enables two separate backup sets containing periodic full (RMAN level 0) backups and daily incremental backups. The backup to cloud storage uses an Oracle Storage Cloud container, with a seven day cycle between full backups and an overall retention period of thirty days. The backup to Exadata storage uses space in the RECO disk group, with a seven day cycle between full backups and a seven day retention period.

Cloud Storage Only — uses an Oracle Storage Cloud container to store periodic full (RMAN level 0) backups and daily incremental backups, with a seven day cycle between full backups and an overall retention period of thirty days.

ZDLRA Storage Only — uses the Recovery Appliance to store one full (RMAN level 0) backup and daily incremental (RMAN level 1) backups. The Recovery Appliance creates virtual full backups from each daily incremental and validates those backups to ensure that they are always recoverable.

None — no automatic backups are configured.

Incremental Backups

For backups to **Both Cloud Storage and Exadata Storage** or **Cloud Storage Only**, the default interval between full backups is seven days.

For backups to **ZDLRA Storage Only** , the **Recovery Appliance** creates and validates virtual full backups from each daily incremental backup.

The **retention period defines the period** for which backups are maintained, as follows:

For backups to Both **Cloud Storage** and **Exadata Storage**, two separate backups are maintained with different retention periods. By default, the backup to Exadata storage has a **seven day** retention period and the backup to cloud storage has a thirty day retention period.

For backups to **Cloud Storage Only** , the default retention period is thirty days.

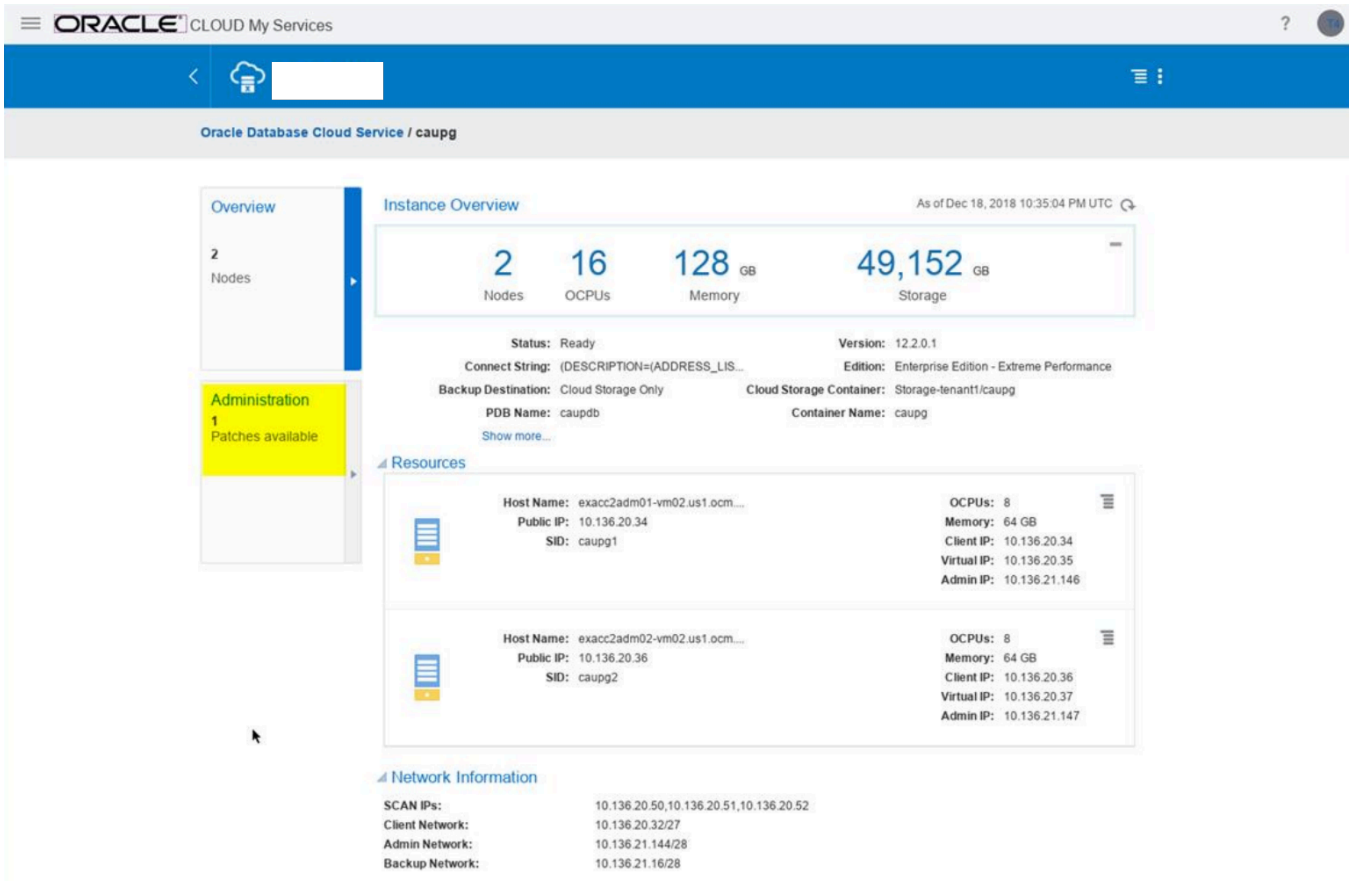
For backups to **ZDLRA Storage Only** , the retention period is controlled by the policy that is implemented in the Recovery Appliance.

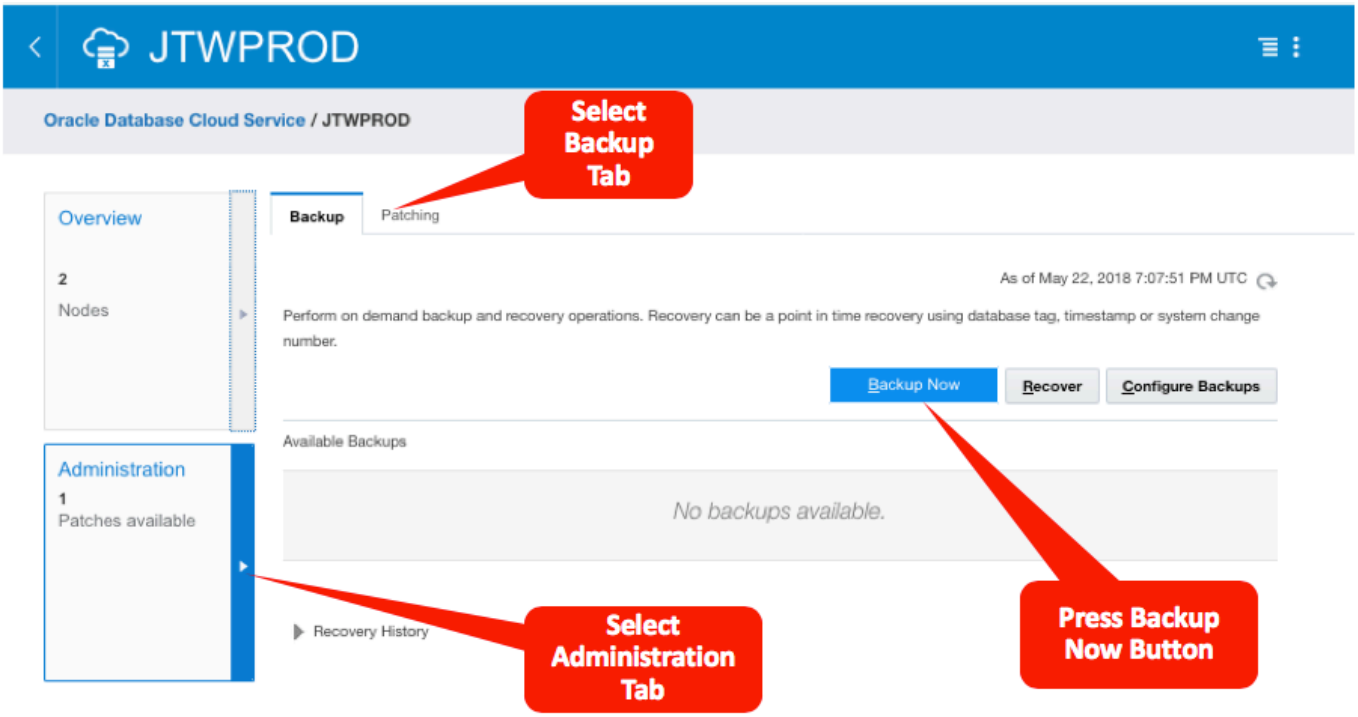
Practice 4.2-2: Creating OnDemand Backups

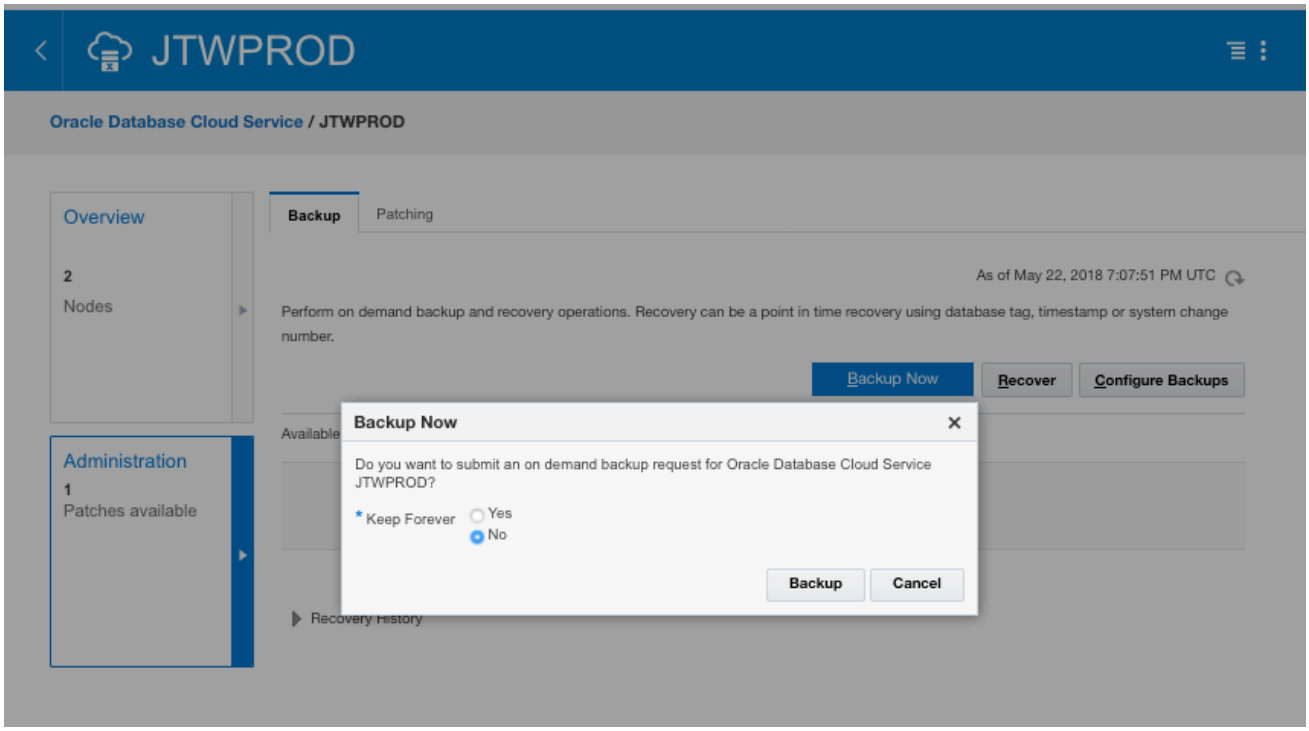
capat – Backup/restore and DB node subsetting

*** This DB was created on just 2 of the 8 nodes (nodes 5 and 6).
*** This DB is also being backed up and can be used to show manual backups, scheduled backups, and restore points. **Please do not execute backups!** Please note if you actually execute a restore it will take a long time (**hours**) to complete

1. the Instances page of the Oracle Database Cloud Service console.
2. Click the database deployment for which you want to create a backup.
3. Click the Administration tile. The Oracle Database Cloud Service Backup page is displayed. Click Backup Now.
4. The Backup Now dialog is displayed. Make a selection for the Keep Forever option and then click Backup.
5. The Keep Forever option controls the backup retention policy, as follows:
   a. No — specifies that the backup is produced and maintained in accordance with the automatic backup retention policy that is associated with the database deployment.
   b. Yes — specifies that the backup is a long-term backup, which is produced and maintained independently of the automatic backup retention policy that is associated with the database deployment. Long-term backups remain until you explicitly remove them from the system.


ORACLE CLOUD My Services
Oracle Database Cloud Service / caupg
Overview
2
Nodes
Administration
1
Patches available
Instance Overview
As of Dec 18, 2018 10:35:04 PM UTC
2 Nodes
16 OCPUs
128 GB Memory
49,152 GB Storage
Status: Ready
Version: 12.2.0.1
Connect String: (DESCRIPTION=(ADDRESS_LIS...
Edition: Enterprise Edition - Extreme Performance
Backup Destination: Cloud Storage Only
Cloud Storage Container: Storage-tenant1/caupg
PDB Name: caupdb
Container Name: caupg
Show more...
Resources
Host Name: exacc2adm01-vm02.us1.ocm...
Public IP: 10.136.20.34
SID: caupg1
OCPUs: 8
Memory: 64 GB
Client IP: 10.136.20.34
Virtual IP: 10.136.20.35
Admin IP: 10.136.21.146
Host Name: exacc2adm02-vm02.us1.ocm...
Public IP: 10.136.20.36
SID: caupg2
OCPUs: 8
Memory: 64 GB
Client IP: 10.136.20.36
Virtual IP: 10.136.20.37
Admin IP: 10.136.21.147
Network Information
SCAN IPs: 10.136.20.50,10.136.20.51,10.136.20.52
Client Network: 10.136.20.32/27
Admin Network: 10.136.21.144/28
Backup Network: 10.136.21.16/28

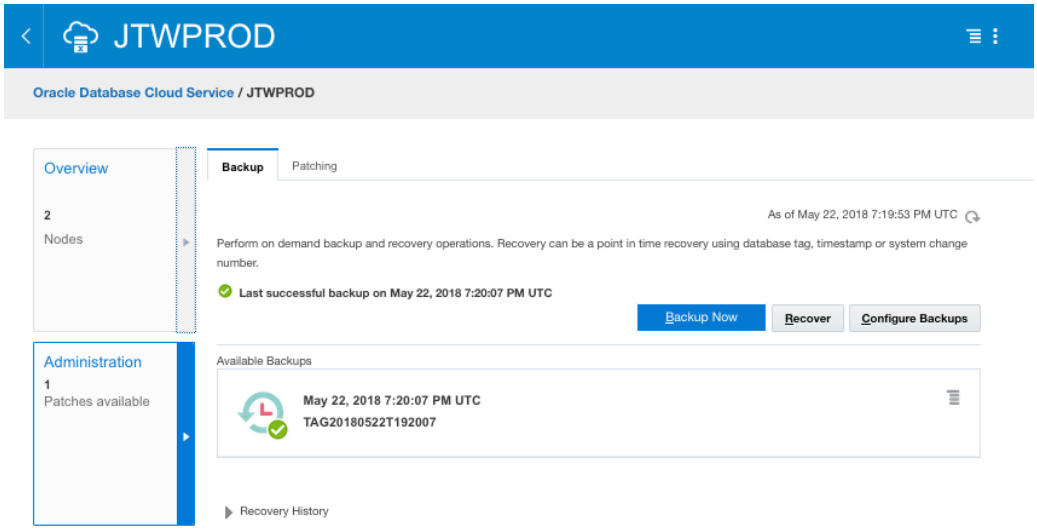

JTWPROD
Oracle Database Cloud Service / JTWPROD
Select Backup Tab
Overview
2
Nodes
Backup
Patching
As of May 22, 2018 7:07:51 PM UTC
Perform on demand backup and recovery operations. Recovery can be a point in time recovery using database tag, timestamp or system change number.
Backup Now
Recover
Configure Backups
Available Backups
No backups available.
Administration
1
Patches available
Recovery History
Select Administration Tab
Press Backup Now Button

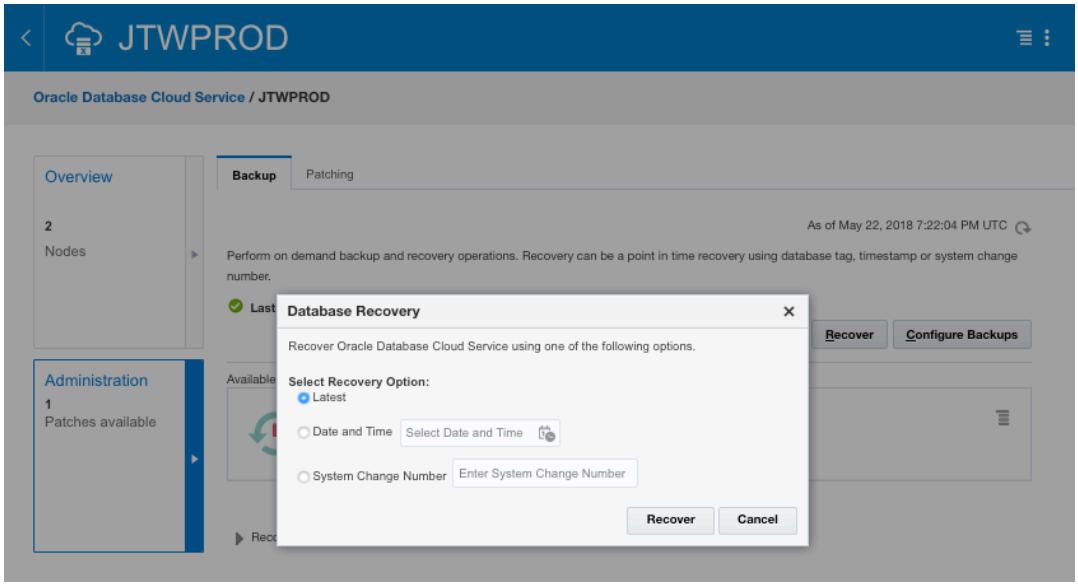

JTWPROD
Oracle Database Cloud Service / JTWPROD
Overview
2
Nodes
Administration
1
Patches available
Backup
Patching
As of May 22, 2018 7:07:51 PM UTC
Perform on demand backup and recovery operations. Recovery can be a point in time recovery using database tag, timestamp or system change number.
Backup Now
Recover
Configure Backups
Backup Now
Do you want to submit an on demand backup request for Oracle Database Cloud Service JTWPROD?
* Keep Forever
Yes
No
Backup
Cancel
Recovery History

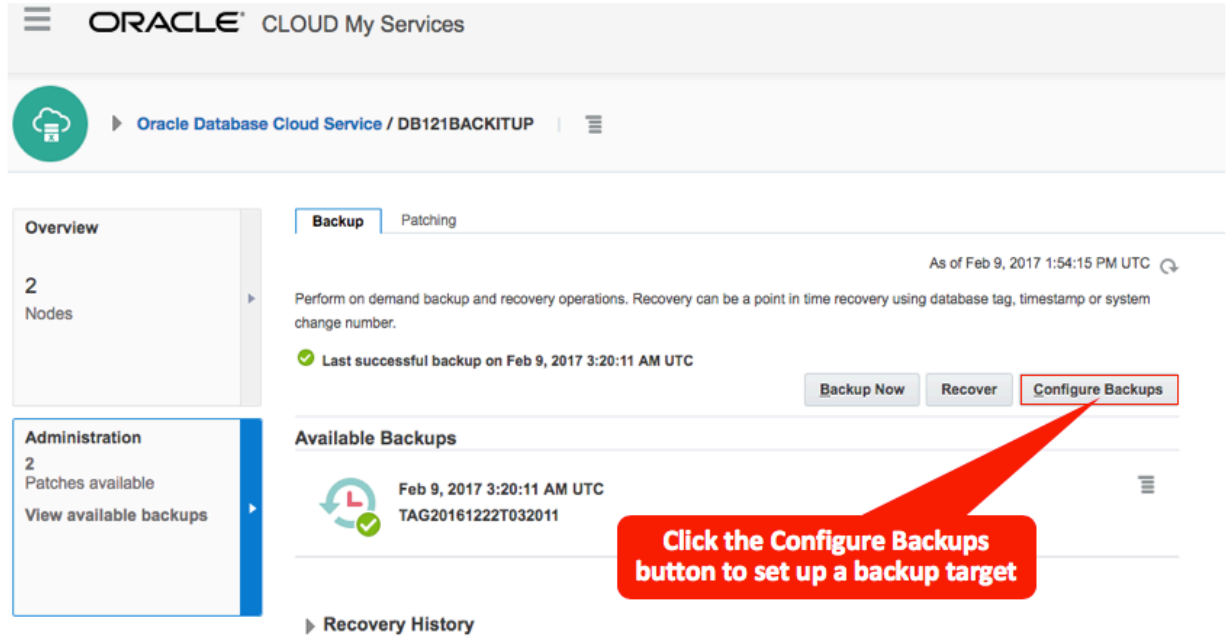
Practice 4.2-3: Restoring from the Most Recent Backup

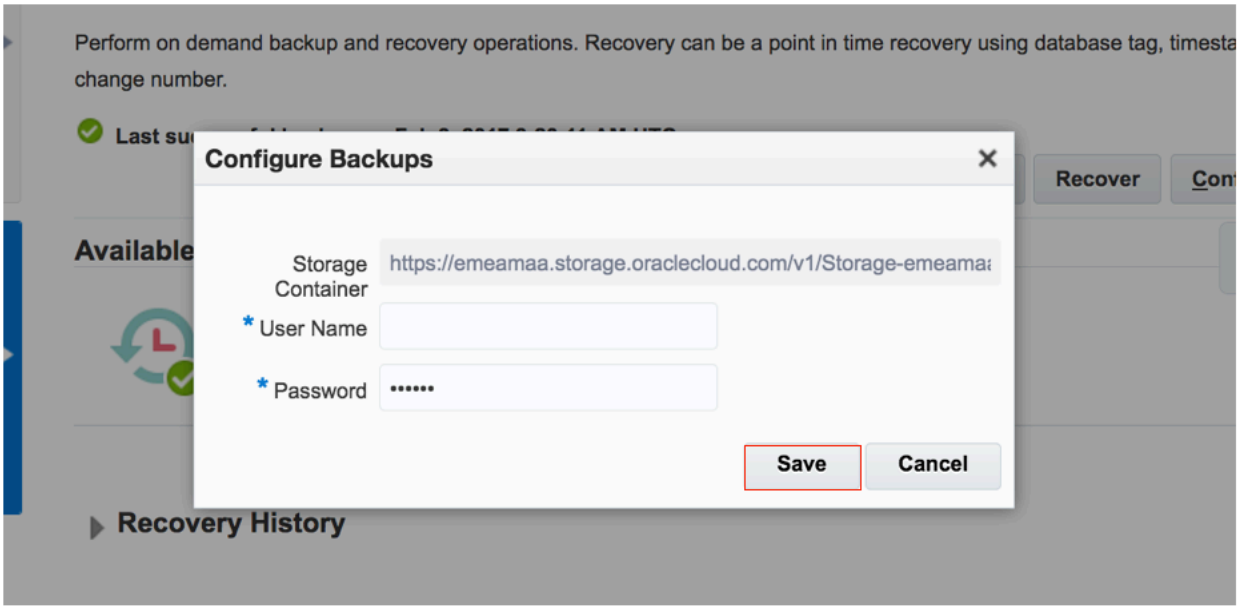
- Please **don't restore from backup for this lab**, it would take hours.

1. Go to the Backup page of the deployment you want to restore and recover:
2. Open the Oracle Database Cloud Service console.
3. Click the database deployment you want to restore and recover. The Oracle Database Cloud Service Overview page is displayed. Click the **Administration tile.**
4. Click Recover. The Database Recovery overlay is displayed. In the list of recovery options, select Latest. Then, click Recover.
5. The restore and recover process performs these steps:
    a. Shuts down the database, prepares for recovery, performs the recovery
    b. Restarts the database after recovery

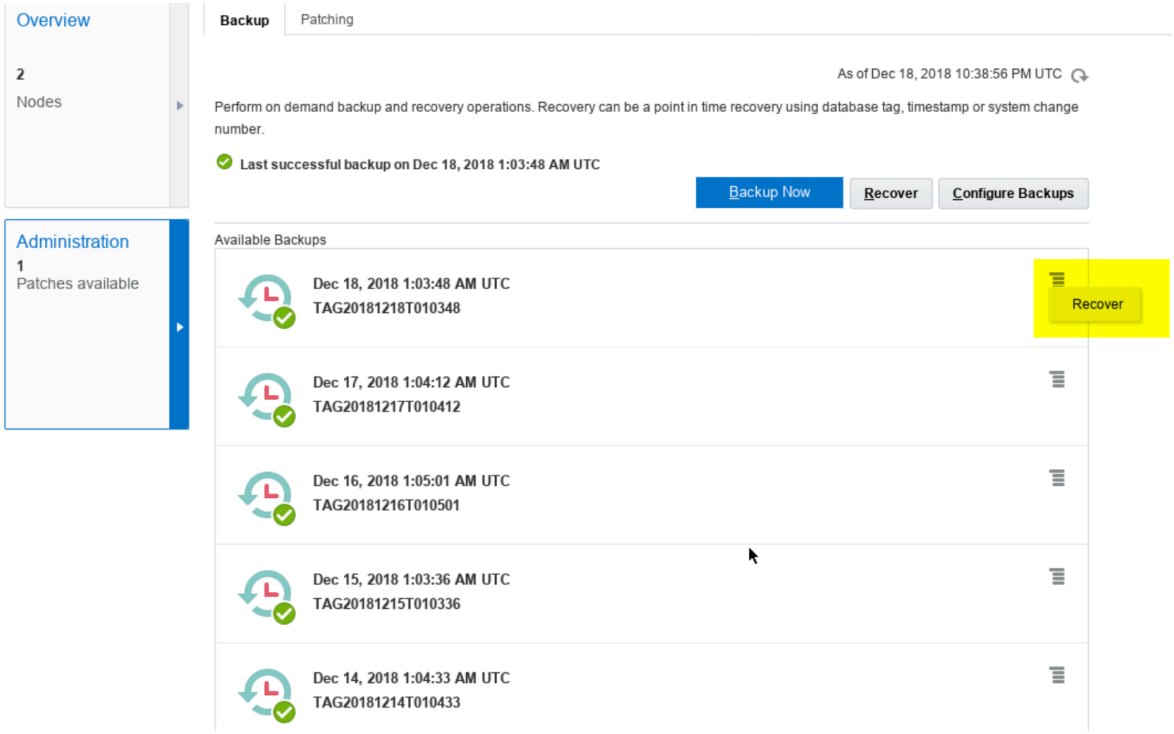





ORACLE CLOUD My Services
Oracle Database Cloud Service / DB121BACKITUP
Overview
2
Nodes
Administration
2
Patches available
View available backups
Backup
Patching
As of Feb 9, 2017 1:54:15 PM UTC
Perform on demand backup and recovery operations. Recovery can be a point in time recovery using database tag, timestamp or system change number.
Last successful backup on Feb 9, 2017 3:20:11 AM UTC
Backup Now
Recover
Configure Backups
Available Backups
Feb 9, 2017 3:20:11 AM UTC
TAG20161222T032011
Click the Configure Backups button to set up a backup target
Recovery History


Perform on demand backup and recovery operations. Recovery can be a point in time recovery using database tag, timesta
change number.
Recover
Configure Backups
Storage Container
https://emeamaa.storage.oraclecloud.com/v1/Storage-emeama
* User Name
* Password
Save
Cancel
Recovery History

6. Recover from Backup



Overview 4.2-4: Other References

- Using **Exadata REST API** to provision a database: https://docs.oracle.com/en/cloud/cloud-at-customer/exadata-cloud-at-customer/exacc/access-rest-api.html

- **Migrating** to Oracle DB Exadata Cloud at Customer: https://docs.oracle.com/en/cloud/cloud-at-customer/exadata-cloud-at-customer/exacc/mig-migrating-premises-oracle-db-cloud.html

- Exadata **Data Security**:

In Oracle Database Exadata Cloud at Customer databases, data security is provided for **data in transit and data at rest**. Security of data in transit is achieved through network encryption. Security of data at rest is achieved through encryption of data stored in database data files and backups.

Data in Oracle Database files, including backups, is secured by the use of encryption implemented through a key management framework. Security of data across the network is provided by native Oracle Net Services encryption and integrity capabilities.

More Information: https://docs.oracle.com/en/cloud/cloud-at-customer/exadata-cloud-at-customer/exacc/data-security.html#GUID-70D37B4D-32AD-438C-8CCF-FD9F4355DA0E