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Exadata Database Service

Patching Database Home Software

Customer Responsibility

Database Home Patching

- Customers can use **Oracle provided database software images** or **custom database software images** to update the Database Home Software
- **To update a database home :**
  - **Option 1:** Update an existing Database Home to the desired patch level which updates all of the databases using the Database Home
  - **Option 2:** Create a new Database Home with desired patch level and move a database to the new Database Home

❖ **Using the "Move to Another Home" function is the quickest way to patch a database.**

Database Home Patching

Update Database Home:

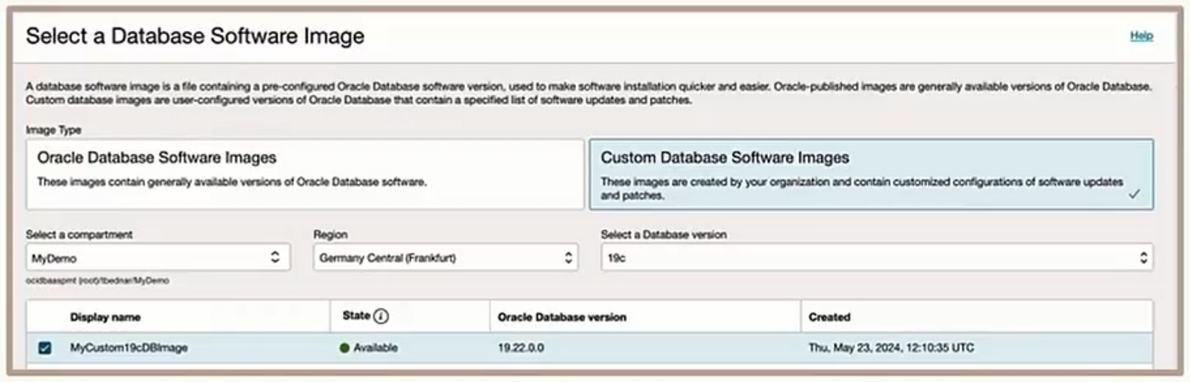
- Update Database Home using OCI Console or REST APIs
- Choose desired Database Home patch version from Oracle Standard or Custom Database Software Images
- Run **Precheck for update** prior to maintenance window to validate system readiness

Updates are done in a rolling manner across RAC database instances in the VM Cluster

- Update all databases in an existing Database Home
- You can update one database at a time by moving it to a new Database Home

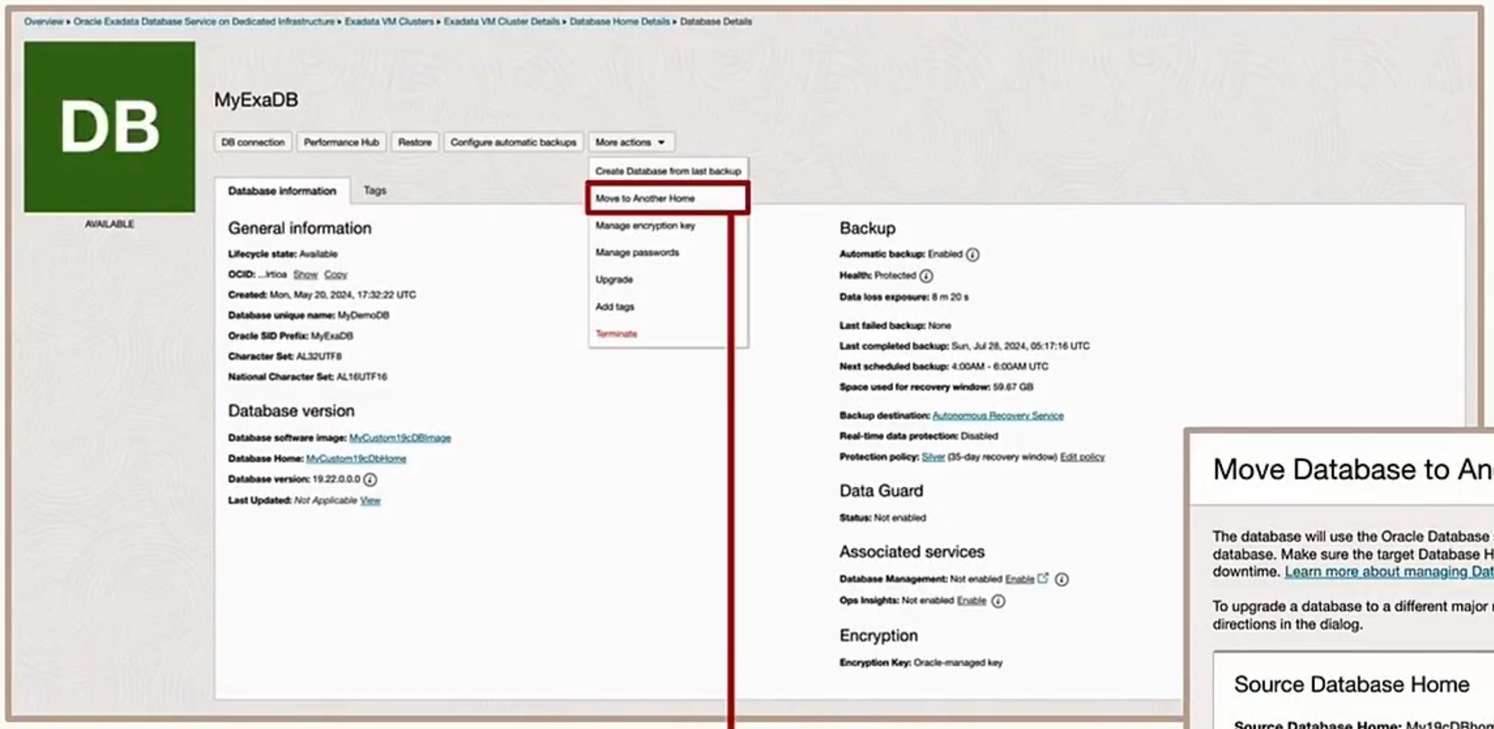
Database Home Patching with Custom Images

- To update a database using a custom database software image there are 2 options:
  - ❑ **Option 1: Create Database Home** with custom database software image and move the databases individually to the new Database Home



- ❑ **Option 2: Update Database Home** by applying a custom database software image to it
  - ❖ This option causes all of the databases using the Database Home to be updated at the same time

Move Database to a new Database Home



❖**The Move Database cloud automation function is the easiest way to patch a database.**

Grid Infrastructure & Database Home Patching Impact

Impact
• Zero database service downtime with RAC database rolling updates
• Maximum database compute performance and throughput is temporarily reduced while restarting RAC database instance
• To achieve zero application downtime, follow Exadata Cloud MAA best practices documentation for achieving continuous availability for applications

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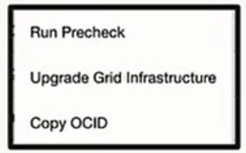
Exadata Database Service

Upgrade Grid Infrastructure Software

Customer Responsibility

Grid Infrastructure (GI)
Upgrade



Upgrading the GI:

- **Allows you to provision Oracle DB Homes and Databases with the most current Oracle Database software.**
- **Involves upgrading the GI software on all the compute nodes in the VM Cluster.**
- **Is performed in a rolling fashion, with only one node being upgraded at a time.**
  - Database instances in the VM undergoing grid infrastructure upgrade will not be available
  - You can monitor the progress of the GI upgrade operation by viewing the associated work requests.
- Oracle recommends running an **upgrade precheck** prior t the maintenance window.
- **Note:** that the GI upgrade feature is not available, if you have an Exadata infrastructure maintenance operation scheduled to start within 24 hours of the upgrade.

- **Also note that the following Data Guard operations are not allowed on the VM cluster undergoing a GI upgrade:**
  - You cannot Enable Data Guard
  - Conduct a Switchover
  - Failover to the database using the VM cluster under going maintenance
  - Management operations such as starting, stopping or rebooting nodes, scaling CPU, provisioning or managing database homes or databases, restoring a database, or editing IORM settings.

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Exadata Database Service

Upgrade Database

Customer Responsibility

Preparing for a Database Upgrade

- ***Back up your database*** and test the new software version on a test system before you upgrade your production database.
- ***Run an upgrade precheck operation*** before your upgrade maintenance window, so that you can discover and fix any issues before the time you plan to perform the upgrade.
- **Create an Oracle Database Home** that contains the target database software version to be used for the database upgrade.
  - You can use ***Oracle-published software images or a custom database software image*** based on your patching requirements to create the Database Home.
- **Ensure all pluggable databases** in the container database being upgraded **can be opened**.
- Oracle recommends ***disabling automatic backups*** and **performing an on-demand full backup** before you start the upgrade operation, since an upgrade operation cannot take place while an automatic backup operation is running.
- **Note that after the database upgrade, *you cannot use automatic backups taken prior to the upgrade to restore the database to an earlier point in time.***

Understanding the Database Upgrade Process

During the database upgrade process, the following steps are automatically performed:

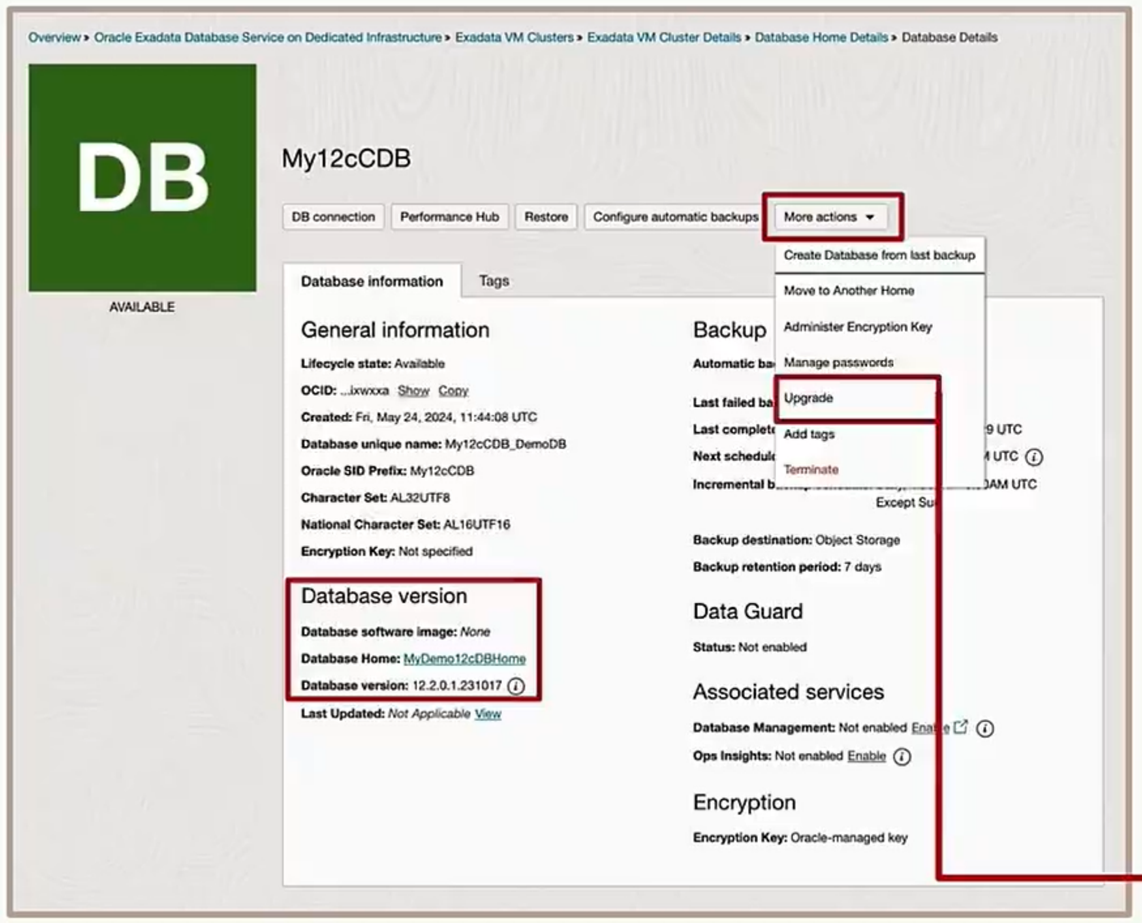
1) Conduct a **Precheck**.

2) Set a **Guaranteed Restore Point**, for use in the **Rollback process** in the event of an upgrade failure.

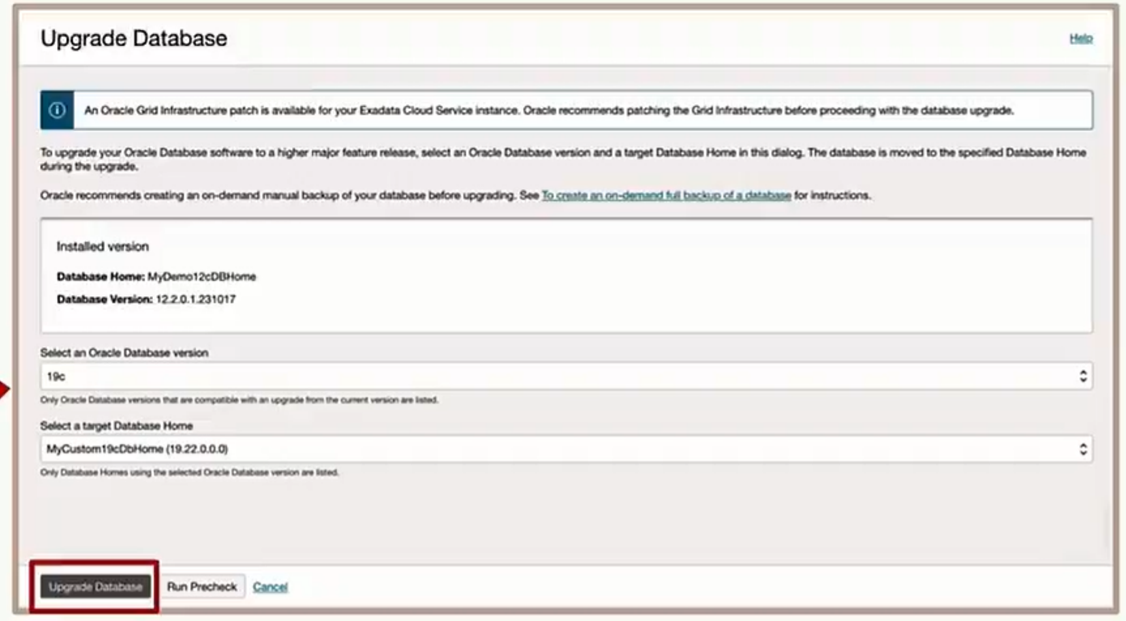
3) **Move the database** to a user-specified Oracle Database Home with the desired target software version.

4) **Runs the Database Upgrade Assistant (DBUA) software** to perform the upgrade.

Upgrade Database



- On the **Database Details page** select **Upgrade Database** under **More Actions**
- Select the **target Oracle Database Version**
- Select the **target Database Home** for Upgrade
- **Run Precheck** and troubleshoot any issues
- Click **Upgrade Database**



Upgrade a Database with a Data Guard Association

- If your databases uses Data Guard, **you can upgrade the primary or the standby first.**
  - ❖ Standby First Patching & Upgrades are recommended

- **Upgrading a primary or standby *will disable redo apply*** during the upgrade operation.
  - ❖ Oracle recommends checking the redo apply and open mode configuration after upgrading.

Summary

In this lesson, you should have learned how to:

- Create Custom Database & Grid Infrastructure Software Images
- Create Database Home
- Create Database
- Perform PDB Management
- Enable Data Guard
- Perform User-Managed Maintenance Updates