

# Upgrading Oracle RAC

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# Objectives

In this lecture, you will learn the following:

- Describe the difference between upgrade and data migration
- Describe Oracle release number format
- Understand the Oracle RAC upgrade procedure
- Run the pre-upgrade tool
- Use Database Upgrade Assistant (DBUA) in Oracle RAC



# Upgrade and Data Migration

- Upgrade
  - transforms an existing Oracle Database environment into a newer Oracle Database release
- Data migration
  - moving data from one Oracle Database into another database

# Database Upgrade and Data Migration Tools

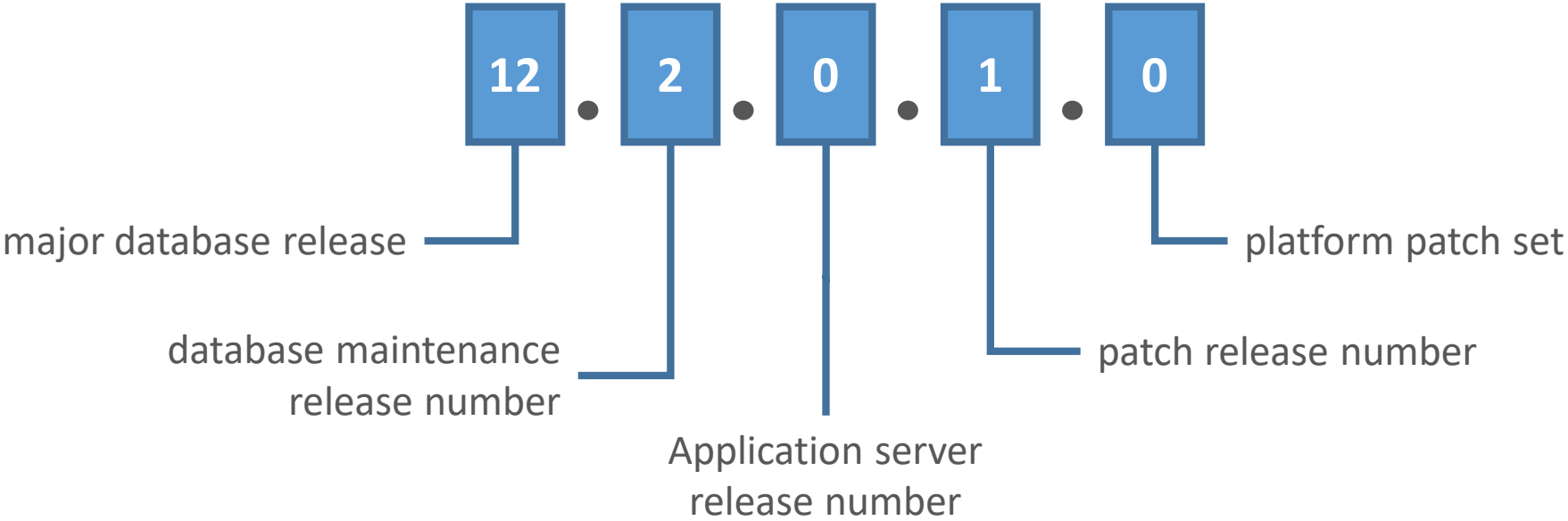
- Upgrade tools:
  - Database Upgrade Assistant (DBUA)
  - Manual upgrade
  - Using Rapid Home Provisioning (RHP)
- Data Migration methods:
  - Oracle Data Pump
  - Full Transportable tablespaces (TTS) export and import
  - Oracle GoldenGate



# Upgrade Path for a Production Database

1. Prepare a testing database of upgrade
2. Perform a test upgrade on the testing database.
3. Test the application against the upgraded database
4. Prepare and preserve the production Oracle database
5. Upgrade the production Oracle database
6. Tune and adjust the new production database

# Oracle Release Number Format



# About Pre-Upgrade Information Tool

	12.2	Prior to 12.2
Target	<b>Determine if the database is ready for upgrade</b>	
Utility Run file	preupgrade.jar	preupgrd.sql
Run from?	<b>Operating System</b>	<b>SQL*Plus</b>



# Files Generated by Pre-upgrade Tool

- **A log file (preupgrade.log).**
  - Log of the output of the Pre-Upgrade Information Tool
- **Pre-upgrade fixups:**
  - Non-CDB: preupgrade\_fixups.sql
  - CDB: preupgrade\_fixups.sql (a consolidated script for all PDBs), and individual scripts for each PDB, named postupgrade\_fixups\_pdbname.sql PDB.
- **Post-upgrade fixups:**
  - Non-CDB: postupgrade\_fixups.sql
  - CDB: postupgrade\_fixups.sql (consolidated script), and individual scripts for each PDB, named preupgrade\_fixups\_pdbname.sql



# Running the Pre-Upgrade Information Tool

- File Path:

```
New_release_Oracle_home/rdbms/admin/preupgrade.jar
```

- Syntax:

```
$EARLIER_RELEASE_ORACLE_HOME/jdk/bin/java -jar  
$NEW_RELEASE_ORACLE_HOME/rdbms/admin/preupgrade.jar  
[FILE|TERMINAL] [TEXT|XML] [DIR output_dir]
```

- **ORACLE\_HOME**, **ORACLE\_BASE**, **ORACLE\_SID** should be defined according to the old Oracle version.

# About Upgrading Oracle Grid Infrastructure

- Upgrade Grid Infrastructure before upgrading Oracle Database
- On Linux platform installations, Oracle recommends that you use HugePages to obtain the best performance for Oracle Databases
- Must be installed into a new home from existing homes
- In 12.2, OUI can automate executing the root.sh on RAC nodes.



# About Upgrading an Oracle RAC Database with DBUA

- DBUA is recommended:
  - Easy GUI interface that saves DBA upgrade time
  - Invokes same scripts as the scripts issued in the manual method
  - Performs post-upgrade validation steps
  - Automatically locks new user accounts in the new database
- The Clusterware must be running during the upgrade
- Will be used in the lecture practice



# Low Downtime Upgrade Options

- Oracle Data Guard
  - Use a transient logical standby database
  - Data type limitations
- Oracle GoldenGate

# Upgrade References

- Oracle Resources:
  - Oracle Database Upgrade Guide 12c
  - Oracle 12cR1 Upgrade Companion (Doc ID 1462240.1)
  - How to Upgrade to Oracle Database 12c Release1 (12.1.0) and Known Issues (Doc ID 2085705.1)
- Mike Dietrich's Oracle Database Upgrade Blog
  - <https://mikedietchde.com>



# Summary

In this lecture, you should have learnt the following:

- Describe the difference between upgrade and data migration
- Describe Oracle release number format
- Understand the Oracle RAC upgrade procedure
- Run the pre-upgrade tool
- Use Database Upgrade Assistant (DBUA) in Oracle RAC