

Oracle Database 12c: Install & Upgrade Workshop

Course Summary

Description

This course offers a step-by-step guide for the installation of the optional Oracle 12c grid infrastructure followed by the installation of an Oracle 12c database. The primary focus is the configuration of a Linux host system, with helpful hints for other supported platforms such as Oracle Linux, UNIX and MS Windows. This course starts with a bare-metal server system and guides one through the process of an operating system installation, operating system configuration and finally the Oracle grid infrastructure and Oracle database installations.

This course includes practical tips learned from many real-world installations. We include topics about the preparation of disks as Oracle Automatic Storage Management (ASM) candidate devices, troubleshooting installation issues and verifying the validity of an apparently successful installation.

While this course module applies specifically to the installation of the Enterprise Edition of the Oracle database, it covers basic topics that apply to any Oracle software installation. Therefore, this material is also useful for the installation of other Oracle products such as the Oracle Database Client, specialized options for a database server installation, and so on.

Objectives

By the end of this course, students will be able to:

- Configure a host system for installation of the optional grid infrastructure and performing such an installation.
- Configure a host system for installation of the Oracle 12c Enterprise Edition of the database and performing such an installation.
- Use the Oracle Restart framework and integrating Oracle ASM, the Oracle 12c RDBMS, the Oracle Listener and ASM disk groups into the framework.
- Troubleshoot installation and configuration issues on various platforms.
- Recommend an optimal host system configuration.
- Use Oracle ASM storage as an alternative to the file system.
- Use the Database Configuration Assistant (DBCA) to create and manage database instances.
- Develop a database upgrade plan and performing an upgrade to the Oracle 12c database.

Topics

- Oracle database architecture overview
- Configuring the host for standalone installation
- Grid infrastructure configuration
- Grid infrastructure installation
- Database installation configuration
- Database installation
- Creating databases using DCCA
- Using Oracle restart
- Preparing for a database upgrade
- Upgrade to Oracle database 12c
- Post-upgrade tasks

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Course Summary (cont'd)

Audience

- Database administrators
- Application designers and developers
- Web server administrators
- System administrators
- Implementation specialists
- Data center support engineers
- Chief Information Officers (CIO) and other information technology (IT) management professionals

Prerequisites

Data Modeling: Logical Database Design
Oracle Database 12c: SQL Fundamentals (Levels I & II)

Duration

Two days

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Course Outline

I. Oracle Database Architecture Overview

- A. The database instance
- B. Database memory structures
- C. Database process structures
- D. Database storage architecture
- E. Oracle clusterware

II. Configuring The Host For Standalone Installation

- A. Host configuration overview
- B. Choosing a database host
- C. Choosing an operating system
- D. Proprietary UNIX vs. open-source Linux
- E. Making The OS Selection
- F. Prepare an Oracle Linux installation
- G. Perform Oracle Linux installation
- H. Configure the Linux host
 - 1. Confirm General System Requirements
 - 2. Confirm The Operating System Platform
 - 3. Confirm Linux Package Requirements
 - 4. Confirm Network Configuration
- I. Configure host for virtualization
- J. VM Technologies
- K. Configure Oracle Linux for Virtualization
 - 1. Download Linux Updates
 - 2. Check Linux Kernel
 - 3. Download Latest yum Configuration File
 - 4. Enable Oracle Linux Add-ons
 - 5. Install VirtualBox
- L. Oracle optimal flexible architecture
- M. OFA Goals
- N. ORACLE_BASE
- O. ORACLE_HOME
- P. Database Files
- Q. Multiple ORACLE_HOMEs
- R. Database Software Upgrades
- S. Multiple Oracle Software Installations

III. Grid Infrastructure Configuration

- A. Configure the Linux installation
- B. About ASM devices
- C. Configure Linux devices for ASM
- D. Partitioning A Device
- E. Oracle ASMLib
- F. Configure MS Windows devices

IV. Grid Infrastructure Installation

- A. Perform the installation
- B. Download
- C. Unpack the installation package
- D. Launch the installation session
- E. The installation dialog
- F. Verify the installation
- G. Operating system confirmation
- H. Oracle utilities setup
- I. SQL*Plus confirmation
- J. Using EM Cloud Control
- K. Troubleshooting problems

V. Database Installation Configuration

- A. Configure a Linux installation
- B. System Groups & Users
- C. Configure kernel parameters
- D. Create the physical directories
- E. Configure MS Windows installation
- F. Prerequisite checks & fixup utility

VI. Database Installation

- A. About the installation
- B. The installation tools
- C. About the installation dialog
- D. The installation session log
- E. Perform installation on Linux
- F. Download
- G. Unpack the installation files
- H. Set environment variables
- I. Launch the installation
- J. Server class installation dialog
- K. More about the global database name
- L. About enterprise manager cloud control
- M. Secure the new database
- N. Perform installation on windows
- O. Launch the installation
- P. Post-installation configuration
- Q. Required environment variables
- R. Defining the environment variables
- S. About SSH
- T. Verify the installation
- U. SQL*Plus confirmation
- V. Operating system confirmation
- W. Firewall configuration
- X. Accessing EM database express

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Course Outline (cont'd)

VII. Creating Databases Using DBCA

- A. About DBCA
- B. DBCA Templates
- C. Are you sure?
- D. Default configuration database
- E. Advanced mode database
- F. File location variables
- G. Database vault and label security
- H. Configure an existing database
- I. Delete a database
- J. Manage templates
- K. Manually create a database
- L. The create database command

VIII. Using Oracle Restart

- A. What is Oracle restart?
- B. What Oracle restart does
- C. Is Oracle restart deprecated?
- D. Registering with Oracle restart
- E. More about SRVCTL
- F. Terminal session configuration
- G. Component status using SRVCTL
- H. Database status
- I. Grid infrastructure status
- J. Oracle home status
- K. Configuration using SRVCTL
- L. Examining a database configuration
- M. Examining the listener configuration
- N. Examining the ASM configuration
- O. Manual registration
- P. Listener configuration modification
- Q. Database configuration modification
- R. Startup/shutdown using SRVCTL
- S. Why Use SRVCTL?
- T. Managing Oracle restart
- U. Obtaining Oracle restart status
- V. Start/stop Oracle restart

IX. Preparing For A Database Upgrade

- A. What is a database upgrade?
- B. Database upgrade methods
- C. Real world database upgrade
- D. Develop a database upgrade plan
- E. About the database version
- F. Direct upgrade
- G. The compatible database parameter
- H. Pre-upgrade preparations
- I. Oracle warehouse builder
- J. Oracle label security (OLS)
- K. Oracle database vault
- L. Locating the older database installations
- M. The pre-upgrade information tool
- N. Pre-upgrade information tool files
- O. Run the pre-upgrade information tool
- P. Examining the pre-upgrade information tool results

X. Upgrade To Oracle Database 12c

- A. Launch DBUA
- B. Database upgrade dialog

XI. Post-Upgrade Tasks

- A. Post-upgrade checklist
- B. Enable unified auditing
- C. Migrate to unified auditing
- D. Database parameter changes
- E. Enable new features
- F. Source destination specific post-upgrade tasks