

# D1106095GC10: Oracle Database 19c: Deploy, Patch, and Upgrade Workshop

## Contents

### I Oracle Database 19c: Deploy, Patch, and Upgrade

Running Auto Data Placement Advisor 1-3

Course Outline 1-4

Feedback 1-5

### 1 Installation Overview

Objectives 1-2

Planning Your Installation 1-3

Oracle Software Installation Decisions 1-5

Oracle Grid Infrastructure Software Groups 1-6

Oracle Database Software Groups 1-7

Oracle Extended Database Groups 1-8

Accounts and Group Assignments: Example 1-9

Oracle Software Installation Decisions 1-10

Method for Root Privilege Access 1-11

Oracle Software Installation Decisions 1-12

Preparing the Operating System for Oracle Software 1-13

Oracle Software Installation Decisions 1-14

Oracle Database Instance Configurations 1-15

Oracle Software Installation Decisions 1-16

Storage Options: File Systems 1-17

Storage Options: Automatic Storage Management 1-18

Methods for Disks Ownership, Naming, and Persistence 1-19

Summary 1-21

### 2 Preparing to Install Oracle Software

Objectives 2-2

Check Server Hardware and Memory Configuration 2-3

Update the Oracle Linux Operating System 2-4

Create Groups for Job Role Separation 2-5

Modify and Create Users 2-6

View and Adjust Pluggable Authentication Module (PAM) Limits 2-7

Create Initial Installation Directories 2-8

Summary 2-9

## **D1106095GC10: Oracle Database 19c: Deploy, Patch, and Upgrade Workshop**

### **3 Installing Oracle Grid Infrastructure for a Stand-Alone Server**

- Objectives 3-2
- Overview of Oracle Grid Infrastructure 3-3
- Configuring Storage for Oracle Automatic Storage Management 3-4
- Oracle Grid Infrastructure Installation: System Requirements for Linux x86-64 Systems 3-5
- Installation Option 3-6
- Create ASM Disk Group 3-7
- ASM Password 3-8
- Management Options 3-9
- Operating System Groups 3-10
- Installation Location 3-11
- Create Inventory 3-12
- Root Script Execution 3-13
- Prerequisite Checks 3-14
- Summary 3-15
- Install Product 3-16
- Finish 3-17
- Oracle ASMCA: Home 3-18
- Oracle ASMCA: Create Disk Group 3-19
- Summary 3-20

### **4 Installing Oracle Database Software**

- Objectives 4-2
- Oracle Database Software Installation: System Requirements 4-3
- Configure Security Updates 4-4
- Select Installation Option 4-5
- Select Database Installation Option 4-6
- Select Database Edition 4-7
- Specify Installation Location 4-8
- Privileged Operating System Groups 4-9
- Perform Prerequisite Checks 4-10
- Summary 4-11
- Install Product 4-12
- Finish 4-13
- Summary 4-14

### **5 Creating an Oracle Database Using Oracle DBCA**

- Objectives 5-2
- Planning the Database 5-3

## **D1106095GC10: Oracle Database 19c: Deploy, Patch, and Upgrade Workshop**

Database Operation	5-4
Database Creation Mode	5-5
Database Deployment Type	5-6
Database Identification	5-7
Database Storage Option	5-8
Fast Recovery Option	5-9
Network Configuration	5-10
Oracle Data Vault Config Option	5-11
Configuration Options	5-12
Management Options	5-13
Database User Credentials	5-14
Database Creation Options	5-15
Summary	5-16
Progress Page	5-17
Finish	5-18
Summary	5-19

### **6 Patching Oracle Grid Infrastructure and Oracle Database**

Objectives	6-2
Overview of the Patch Process	6-3
Oracle Patches Maintenance	6-4
Oracle Patches Prior to 19.17.0	6-5
Oracle Patches 19.17.0 and Forward	6-6
Proactive Maintenance with RUs and MRPs	6-7
Oracle Database Server Risk Matrix	6-9
Oracle Patching Tools:	6-11
Oracle Patching Tools: OPatch	6-12
Oracle Patching Tools: opatchauto	6-17
Oracle Patching Tools: opatchauto -binary	6-20
Minimizing Downtimes: Rolling Patching	6-21
Minimizing Downtimes: Standby-First Patching	6-22
Minimizing Downtimes: Patching a Cloned Home	6-23
Summary	6-24

### **7 Oracle Restart**

Objectives	7-2
Oracle Restart Process Startup	7-5
Oracle Restart Configuration & Management	7-6
Oracle Restart Configuration	7-7
Managing Oracle Restart	7-9
Server Control Utility (SRVCTL)	7-11

## **D1106095GC10: Oracle Database 19c: Deploy, Patch, and Upgrade Workshop**

- Using the SRVCTL Utility 7-12
- Choosing the Correct SRVCTL Utility 7-13
- Obtaining Help for the SRVCTL Utility 7-15
- Starting Components Using the SRVCTL Utility 7-16
- Stopping Components Using the SRVCTL Utility 7-17
- Viewing Component Status 7-18
- Displaying the Oracle Restart Configuration for a Component 7-19
- Manually Adding Components to the Oracle Restart Configuration 7-20
- Oracle Restart Maintenance Operations 7-21
- Stopping and Restarting Restart for Maintenance Operations 7-23
- Stopping and Restarting Restart Example 7-24
- Stopping and Restarting Restart: Example 7-26
- Summary 7-27

### **8 Upgrading to Oracle Grid Infrastructure 19c**

- Objectives 8-2
- Upgrading Oracle Grid Infrastructure: Restrictions and Guidelines 8-3
- Checklist for Upgrading Oracle Grid Infrastructure 8-4
- Install the Oracle Preinstallation RPM 8-5
- Create a Copy of the Preinstallation Configuration File for the Grid User 8-6
- Configuration Option 8-7
- Management Options 8-8
- Operating System Groups 8-9
- Installation Location 8-10
- Root Script Execution 8-11
- Prerequisite Checks 8-12
- Summary 8-13
- Install Product 8-14
- Finish 8-15
- Summary 8-16

### **9 Before Upgrading to Oracle Database 19c**

- Objectives 9-2
- Defining Upgrade and Data Migration 9-3
- Upgrade Methods 9-4
- AutoUpgrade Utility: Advantages and Disadvantages 9-5
- Database Upgrade Assistant: Advantages and Disadvantages 9-6
- Manual Upgrade: Advantages and Disadvantages 9-7
- Upgrade Paths 9-8
- Upgrade Method Limitations 9-9
- Upgrading to a New Release of Oracle Database 9-10

## **D1106095GC10: Oracle Database 19c: Deploy, Patch, and Upgrade Workshop**

Migration Methods 9-11  
Defining Upgrade and Data Migration 9-12  
Summary 9-13

### **10 Upgrading to Oracle Database 19c**

Objectives 10-2  
Preparing to Upgrade 10-3  
Planning the Upgrade 10-4  
Developing a Test Plan 10-5  
Performance Testing 10-6  
Requirements for Databases Using Oracle Label Security or Oracle  
Database Vault 10-7  
Installing Oracle Database 19c Software Using OUI 10-8  
Configuration Option 10-9  
Database Installation Option 10-10  
Database Edition 10-11  
Installation Location 10-12  
Operating System Groups 10-13  
Root Script Execution Configuration 10-14  
Perform Prerequisite Checks 10-15  
Perform Prerequisite Checks Results (For Errors) 10-16  
Summary 10-17  
Install Product 10-18  
Finish 10-20  
AutoUpgrade Utility System Checks 10-21  
Running AutoUpgrade Fixups 10-22  
Configuration File to Run AutoUpgrade Prechecks 10-23  
Backing Up the Database 10-24  
Upgrading Using the AutoUpgrade Utility 10-25  
AutoUpgrade with Source and Target Database Homes on Same Server 10-26  
AutoUpgrade with Source and Target Database Homes on Different Servers 10-27  
Overview of AutoUpgrade Job Stages 10-28  
AutoUpgrade Command-Line Parameters and Options 10-30  
AutoUpgrade Command-Line Syntax 10-33  
AutoUpgrade Configuration File 10-34  
Upgrading Using the Oracle Database Upgrade Assistant (DBUA) 10-35  
Select Database 10-36  
Pluggable Databases 10-37  
Prerequisite Checks 10-38  
Select Upgrade Options 10-39  
Select Recovery Options 10-40

## **D1106095GC10: Oracle Database 19c: Deploy, Patch, and Upgrade Workshop**

Configure Network 10-41  
Configure Management 10-42  
Summary 10-43  
Progress 10-44  
Results 10-45  
Manually Upgrading to Oracle Database 19c 10-46  
Summary 10-48

### **11 Performing Postupgrade Tasks**

Objectives 11-2  
Required Tasks After Database Upgrade 11-3  
Recommended Tasks After Database Upgrade 11-5  
Summary 11-6

### **12 Migrating Data Using Oracle Data Pump**

Objectives 12-2  
Oracle Data Pump: Overview 12-3  
Data Pump Export and Import Clients: Overview 12-4  
Data Pump Utility: Interfaces and Modes 12-5  
Migrating Using Oracle Data Pump 12-6  
Importing Using a Network Link 12-7  
Creating a Container Database by Using Oracle DBCA 12-8  
Creating an Empty New PDB from PDB\$SEED 12-9  
Exporting from a Non-CDB and Importing into a PDB 12-10  
Summary 12-11