

## Contents

### 1 Introducing Oracle Database Appliance

Objectives	1-3
Oracle Database Appliance	1-4
Engineered Infrastructure Delivers Optimized Results	1-5
Simple	1-6
Simplicity Through Integration	1-7
Maximize Your Return on IT Resources	1-8
Optimized	1-9
High Availability and Integrated Security	1-10
Affordable	1-11
Manage License Costs Using Capacity On-Demand	1-12
Reduced OPEX Through Simplicity and Automation	1-13
Engineered Appliance Advantages	1-14
Oracle Database Appliance	1-15
Oracle Database Appliance X8 Model Family	1-16
Oracle Database Appliance X8   Model Family Hardware Summary	1-17
Oracle Database Appliance X8-2S – Small Hardware Configuration	1-18
Oracle Database Appliance X8-2M – Medium Hardware Configuration	1-19
Storage Architecture Oracle Database Appliance X8-2S/X8-2M	1-20
Estimated Usable Space Oracle Database Appliance X8-2S/X8-2M	1-21
Oracle Database Appliance X8-2S/X8-2M Public Network Details	1-22
Oracle Database Appliance X8-2-HA – High Availability Configuration	1-23
Oracle Database Appliance X8-2-HA Storage Architecture	1-24
Estimated Usable Space Oracle Database Appliance X8-2-HA High Performance Configuration	1-25
Estimated Usable Space Oracle Database Appliance X8-2-HA High Capacity Configuration	1-26
Expanding Storage in Oracle Database Appliance X8-2-HA	1-27
Expanding Storage in Oracle Database Appliance X8-2-HA	1-28
Oracle Database Appliance X8-2-HA Bare Metal Network Details	1-29
Oracle Database Appliance X8-2-HA Virtualized Platform Network Details	1-30
Oracle Database Appliance	1-31
Oracle Database Appliance Software Stack	1-32
Oracle Database Licensing Supported on Oracle Database Appliance	1-33

Standard Edition Versions and Features Supported on Oracle Database Appliance 1-34

Enterprise Edition Versions and Features Supported on Oracle Database Appliance 1-35

Oracle Database Appliance - Appliance Manager 1-36

Virtualization on Oracle Database Appliance 1-37

Virtualization on Oracle Database Appliance Architecture 1-38

Additional Information 1-39

Summary 1-40

Quiz 1-41

## **2 Preparing for Deployments**

Objectives 2-2

Registering with Oracle Support and Downloading the Latest Software 2-3

Checking the Shipment 2-4

Site Preparation: Electrical and Environmental 2-5

Site Preparation: Physical Specifications 2-6

Racking Oracle Database Appliance 2-7

Rack Mounting the Storage Shelf (Oracle Database Appliance DE3-24C) 2-8

Rack Mounting the Server Nodes 2-9

Cabling Oracle Database Appliance 2-11

Cabling Oracle Database Appliance X8-2S/X8-2M 2-12

Cabling Oracle Database Appliance X8-2-HA 2-13

Powering On the Oracle Database Appliance X8-2S/X8-2M 2-15

Powering On the Oracle Database Appliance X8-2-HA 2-16

Oracle Integrated Lights Out Management (Oracle ILOM) 2-17

Multiple Options to Configure Oracle ILOM 2-18

Plumbing the Network 2-19

Summary 2-20

Quiz 2-21

## **3 Introduction to Deployments**

Objectives 3-2

Key Oracle Database Application Documents 3-3

Oracle Database Deployment Options 3-4

Selecting Database Shapes 3-5

OLTP Workload Database Shapes 3-6

DSS Workload Database Shapes 3-7

In-Memory Workload Database Shapes 3-8

Storage Options 3-9

Configuration Options and Requirements 3-10

Configuration Requirements 3-11  
Summary 3-13  
Quiz 3-14

#### **4 Bare Metal Deployments**

Objectives 4-2  
About Bare Metal Deployments 4-3  
Oracle Database Appliance Base Software 4-4  
Oracle Database Appliance Software 4-5  
Oracle Database and Oracle Grid Infrastructure Clones 4-6  
Bare Metal Operating System ISO Image 4-7  
Tasks to Complete Before Deployment 4-8  
Copying the Deployment Software to Oracle Database Appliance 4-9  
Multi-node Bare Metal Deployment (Launch the Browser User Interface) 4-10  
Multi-node Bare Metal Deployment (Configure System) 4-11  
Multi-Node Bare Metal Deployment (Configure Client Access Network) 4-12  
Multi-Node Bare Metal Deployment (Configure Scan and VIP Network) 4-13  
Multi-Node Bare Metal Deployment (Configure ILOM Network) 4-14  
Multi-Node Bare Metal Deployment (Configure Users and Groups) 4-15  
Multi-Node Bare Metal Deployment (Configure Database) 4-16  
Notes only 4-17  
Multi-Node Bare Metal Deployment (Configure ASR) 4-18  
Multi-Node Bare Metal Deployment (Submit Configuration Details) 4-19  
Loading Oracle Database Appliance Configuration From a Configuration File 4-20  
Oracle Database Appliance Default Security Settings 4-21  
Changing Installation Owner Passwords 4-22  
Changing the IPMI Username and Password 4-23  
Summary 4-24  
Practice 4: Overview 4-25  
Quiz 4-26

#### **5 Managing Databases for Bare Metal Oracle Database Appliance**

Objectives 5-2  
Database Performance and Workload Sizing Considerations 5-3  
Default Administrative Groups and Users 5-4  
Directory Paths for Oracle Database Appliance 5-5  
Viewing Existing Databases 5-6  
Creating a New Database 5-7  
Notes only 5-8  
Deleting a Database 5-9  
Viewing Existing Database Homes 5-10

Creating a New Database Home 5-11  
Deleting a Database Home 5-12  
Summary 5-13  
Practice 5: Overview 5-14  
Quiz 5-15

## **6 Oracle Database Appliance Backup and Recovery**

Objectives 6-2  
Overview of Oracle Database Appliance Backup and Recovery 6-3  
Oracle Database Appliance Backup Levels 6-4  
Oracle Database Appliance Recovery Options 6-5  
Backing Up to Disk or Internal FRA Workflow 6-6  
Backing Up to Oracle Object Storage Workflow 6-7  
Backing Up to External FRA or NFS Workflow 6-8  
Creating a Backup Policy 6-9  
Updating a Backup Policy 6-10  
Deleting a Backup Policy 6-11  
Adding a Backup Policy to a Database 6-12  
Creating a Database Backup 6-13  
Recovering a Database from Backup 6-14  
Summary 6-15  
Practice 6: Overview 6-16  
Quiz 6-17

## **7 Patching Bare Metal Oracle Database Appliance**

Objectives 7-2  
Overview of Oracle Database Appliance Patching 7-3  
Patching Options 7-4  
Upgrading Oracle Database Appliance 7-5  
Upgrade Path for Oracle Database Appliance 7-6  
The Patching Process 7-7  
Downloading the Server Patch Bundle 7-8  
Updating the Patch Repository Using the Browser User Interface 7-9  
Updating the Agent, Storage, DCS, and Server Components Using the Browser User Interface 7-10  
Patching a Database Home (Updating a Database) Using the Browser User Interface 7-11  
Upgrading a Database 7-12  
Updating the Patch Repository Using Command-Line 7-13  
Updating the DCS Agent Using Command-Line 7-14  
Updating the Server and Storage Using Command-Line 7-15

Patching a Database Home (Updating a Database) Using Command-Line 7-16  
Upgrading a Database Using Command-Line 7-17  
Summary 7-18  
Practice 7: Overview 7-19  
Quiz 7-20

## **8 Administering Bare Metal Oracle Database Appliance**

Objectives 8-2  
Using the Browser User Interface for Oracle Database Appliance Administration 8-3  
Using CLI for ODA Administration 8-4  
Understanding Bare Metal Oracle Database Appliance Configuration 8-5  
Oracle Database Appliance X8-2 Network Options 8-6  
Updating a Network 8-7  
Virtual Local Area Network Administration 8-8  
Creating a New VLAN Using Browser User Interface 8-9  
Storage Administration 8-10  
Using Browser User Interface for Monitoring: Bill of Materials 8-12  
Using Browser User Interface for Monitoring: Hardware 8-13  
Diagnostics 8-14  
What Is Auto Service Request? 8-15  
How Does Oracle ASR Work? 8-16  
Summary 8-18  
Practice 8: Overview 8-19  
Quiz 8-20

## **9 Introduction to Virtualized Platform**

Objectives 9-2  
What Is Virtualization? 9-3  
What Are the Advantages of Virtualization? 9-4  
Why Virtualize Applications on Oracle Database Appliance? 9-5  
Virtualization on Oracle Database Appliance 9-6  
Differences Between OVM and KVM 9-7  
Overview: Provision and Deploy Virtualized Platform 9-8  
Summary 9-10  
Quiz 9-11

## **10 Provisioning an Oracle Database Appliance Virtualized Platform**

Objectives 10-2  
Configuring Oracle Database Appliance Virtualized Platform OS ISO Images 10-3  
Virtualized Server Platform 10-4  
VM ISO Image (Dom0) (Virtualized Platform ISO Image) 10-5

- Oracle Database Appliance Virtualized OS Re-image: Step 1 10-6
- Oracle Database Appliance Virtualized OS Re-image: Step 2 10-7
- Oracle Database Appliance Virtualized OS Re-image: Step 3 10-8
- Oracle Database Appliance Virtualized OS Restore: Step 4 10-9
- Oracle Database Appliance Virtualized OS Restore: Step 5 10-10
- Oracle Database Appliance Virtualized OS Restore: Step 6 10-11
- Oracle Database Appliance Virtualized OS Restore: Step 7 10-12
- Oracle Database Appliance Virtualized OS Restore: Step 8 10-13
- Oracle Database Appliance Virtualized OS Restore: Step 9 10-14
- Oracle Database Appliance Virtualized OS Restore: Step 10 10-15
- Oracle Database Appliance Virtualized OS Restore: Step 11 10-16
- Oracle Database Appliance Virtualized OS Restore: Step 12 10-17
- Creating Initial Network Using the configure-firstnet Script 10-18
- Optional: Creating a Virtual Local Area Network (VLAN) 10-20
- Summary 10-21
- Quiz 10-22

## **11 Installing Virtualized Platform Software and Deploying the Appliance (ODA\_BASE)**

- Objectives 11-2
- Oracle Database Appliance ODA\_BASE Template (Virtualized Platform Deployments Only) 11-3
- Transferring the ODA\_BASE Template to ODA 11-4
- Installing the ODA\_BASE Template 11-5
- Configuring the ODA\_BASE Template 11-6
- Validating the ODA\_BASE Deployment 11-7
- Configuring Public Network for ODA\_BASE 11-8
- Updating Server and Storage Components 11-9
- Information You Need for Deployment: Network 11-10
- Information You Need for Deployment: Database 11-11
- Understanding Database Shapes (Templates) 11-12
- Database Template Storage Performance 11-13
- Collecting Information You Need: Security and Storage 11-14
- Real-Time Configuration and Deployment 11-15
- Verifying Virtual Machine Image and Cabling 11-16
- Virtualized Platform Deployment 11-17
- Oracle Database Appliance Manager Stand-alone Configurator 11-18
- Start Configurator 11-19
- Welcome Window 11-20
- Configuration Type Window 11-21
- System Information Window 11-22

Network Information Window 11-23  
Database Information Window 11-24  
Network Validation Window 11-25  
Summary Window 11-26  
Configuring CPU Core Count 11-27  
Securing Oracle ILOM Service Processors 11-28  
Changing Installation Owner Passwords 11-29  
Changing the IPMI Username and Password 11-30  
Summary 11-31  
Practice 11: Overview 11-32  
Quiz 11-33

## **12 Deploying and Managing Guest VMs**

Objectives 12-2  
Virtualized Server Release or Revision Updates Are Image Updates 12-3  
Understanding Oracle VM Guests 12-4  
Deploying Virtual Guest Machines to Create Solutions-in-a-Box 12-5  
Virtualized Platform Deployments Shared Repositories: Overview 12-6  
Supporting Application Workloads Through Virtualization 12-7  
Solution-in-a-Box Series 12-9  
Deploying Virtual Guest Machines 12-10  
Staging the Downloaded Template and Cloning the VM 12-11  
Example of a Created VM 12-12  
Configuring the Template 12-13  
Starting the Virtual Machine 12-14  
Working with Shared Repositories: Step 1 12-15  
Importing the Required Template or Assembly: Step 2 12-17  
Configuring the Template or Assembly: Step 3 12-18  
Cloning the Template or Assembly: Step 4 12-19  
Updating the Virtual Machine as Required: Step 5 12-20  
Starting the Virtual Machine: Step 6 12-21  
Accessing the Virtual Machine Console: Step 7 12-22  
Creating Virtual Local Area Networks (VLAN) 12-23  
CPU Pools on Virtualized Platform Deployments 12-24  
CPU Pool Management Commands 12-25  
Summary 12-26  
Quiz 12-27

### **13 Managing Databases for Oracle Database Appliance Virtualized Platform**

- Objectives 13-2
- Virtual Machine Performance Considerations Selecting the Right Size and Shape for Your Use Case 13-3
- Selecting the Right Shape for Your Workload 13-4
- Workloads and Database Shapes and Sizes 13-5
- Default Administrative Groups and Users 13-6
- Creating a New Virtualized Platform Oracle Database on Oracle Database Appliance 13-7
- Directory Paths for Oracle Database Appliance 13-8
- Modifying an Existing Database 13-9
- Managing Databases 13-10
- Creating Additional Databases 13-11
- Integrated Database Snapshots 13-12
- Database Snapshots: Storage Space Benefits 13-13
- Database and VM Snapshots 13-14
- Creating Snapshot Databases 13-15
- The Patching Process 13-16
- Step 1: Downloading the Patch Bundle 13-17
- Obtaining and Deploying the Patch 13-18
- Step 2: Unpacking and Validating the Patch Files 13-19
- Step 3: Updating the Server Components, Storage Components, and the Database 13-20
- Summary 13-21
- Quiz 13-22

### **14 Administering Oracle Database Appliance Virtualized Platforms**

- Objectives 14-2
- Understanding Virtualized Configuration and OS Layout 14-3
- Managing Shared Repositories 14-4
- Checking Repository Status 14-5
- Importing Template or Assembly 14-6
- Configuring Template or Assembly 14-7
- Cloning Template or Assembly 14-8
- Updating Virtual Machine as Required 14-9
- Creating Virtual Local Area Networks (VLAN) 14-10
- CPU Pools on Virtualized Platform Deployments 14-11
- CPU Pool Management Commands 14-12
- Creating Virtual Disks and Storage Pools 14-13
- Summary 14-14
- Quiz 14-15