

Oracle Private Cloud Appliance: Administration

Duration: 24 Hours (3 Days)

Overview

Oracle Private Cloud Appliance: Administration Course Overview
The Oracle Private Cloud Appliance: Administration course equips IT professionals with essential skills for managing Oracle's Private Cloud Appliance. Learning objectives include understanding installation, configuration, and Administration of the Private Cloud Appliance, as well as Enterprise deployment and Virtual machine management. The course covers topics such as Network and storage management, Virtualization with Oracle VM, and disaster recovery. Through hands-on labs and quizzes, participants can practically apply these concepts, ensuring they gain the know-how required to efficiently operate in a cloud environment. This course is ideal for those looking to enhance their expertise in modern cloud infrastructure.

Audience Profile

Oracle Private Cloud Appliance: Administration Course Introduction

The course provides comprehensive training on installing, managing, and optimizing Oracle's Private Cloud Appliance, targeting IT professionals who manage enterprise virtualization and cloud infrastructure.

- Target Audience and Job Roles
- Cloud Administrators
- System Administrators
- Network Administrators
- IT Managers
- Data Center Engineers
- Virtualization Engineers
- Cloud Architects
- DevOps Engineers
- Technical Support Engineers
- IT Infrastructure Specialists
- Enterprise Software Engineers
- Solutions Architects
- Technical Consultants
- IT Security Engineers
- Database Administrators with focus on cloud-based databases
- IT Project Managers responsible for virtualization and cloud projects

Course Syllabus

1 Oracle Private Cloud Appliance: Introduction and Installation

- Objectives 1-2
- Oracle Private Cloud Appliance 1-3
- Advantages of Virtualization with the Private Cloud Appliance 1-4

- Hardware and Software Configuration: Overview 1-5
- Overview of Cloud Services 1-7
- Installing the Private Cloud Appliance 1-9
- Network Connections 1-10
- Quiz 1-11
- Summary 1-12
- Practice 1: Overview 1-13

2 Enterprise Deployment and Management of the Private Cloud Appliance

- Objectives 2-2
- Oracle's Cloud Service Model 2-3
- Oracle's IaaS 2-4
- Enterprise Manager Administrative Roles 2-6
- Logging In and Creating Administrators for IaaS 2-7
- Logging In to Create Administrators 2-8
- Creating IaaS Admin 2-9
- Viewing IaaS User 2-15
- Quiz 2-17
- The Private Cloud Appliance Zone 2-18
- Configuring the Infrastructure Cloud Self Service Portal 2-19
- Configuring Infrastructure Cloud Self Service: Machine Sizes 2-20
- Configuring Infrastructure Cloud Self Service: Request Settings 2-23
- Configuring Infrastructure Cloud Self Service: Roles 2-25
- Configuring Infrastructure Cloud Self Service: Software Components 2-27
- Configuring Infrastructure Cloud Self Service: Chargeback 2-28
- Quiz 2-29
- Infrastructure Cloud Self Service Portal 2-30
- Infrastructure Cloud Self Service Requests 2-31
- Infrastructure Cloud Self Service Servers 2-32
- Infrastructure Cloud Self Service Chargeback 2-33
- Infrastructure Cloud Self Service Library 2-34
- Infrastructure Cloud Self Service Policies 2-35
- Quiz 2-36
- Requesting Servers 2-37
- Quiz 2-45
- Private Cloud Appliance as a Target 2-46
- Oracle Private Cloud Appliance as a Target 2-47
- Private Cloud Appliance as a Target 2-48
- Appliance to Oracle VM Virtual Target View 2-51
- Oracle VM Virtual Target View 2-52
- Quiz 2-53
- Summary 2-54
- Practice 2: Overview 2-55

3 Oracle VM in the Private Cloud Appliance

- Objectives 3-2
- Application-Driven Virtualization with Oracle VM 3-3
- Oracle VM Manager with Oracle VM Server for x86 3-4
- Oracle VM: Main Components 3-6
- Server Virtualization 3-7
- Templates and Virtual Appliances 3-8
- Quiz 3-9
- Oracle VM Virtualization Architecture 3-10
- Server Management, Live Migrate, and Virtual Machine Networks 3-12
- Storage and Cluster Heartbeat Networks 3-13
- Oracle VM Functional Architecture: Storage 3-14
- Quiz 3-15
- Oracle VM Architecture 3-16
- Private Cloud Appliance Repositories 3-17
- Private Cloud Appliance Server Pool 3-18
- Server Pool: Overview 3-19
- Server Pool Functions 3-21
- High Availability for Virtual Machines 3-23
- Live Migration 3-24
- Live Migration Process 3-25
- Server Processor Compatibility Groups 3-26
- Default Server Processor Compatibility Group 3-27
- Creating a Server Processor Compatibility Group 3-28
- Editing a Server Processor Compatibility Group 3-29
- Anti-Affinity Groups 3-30
- Creating an Anti-Affinity Group 3-31
- Server Pool Policies 3-36
- Distributed Resource Scheduling 3-37
- Quiz 3-38
- Server Pool Clusters 3-39
- OCFS2 for Oracle VM 3-40
- OCFS2 Features 3-41
- OCFS2 Components 3-42
- OCFS2 Cluster Services 3-43
- Quiz 3-44
- Summary 3-45
- Practice 3: Overview 3-46

4 Deploying and Examining a Virtual Machine

- Objectives 4-2
- Importing the Virtual Appliance File 4-3
- Creating a Virtual Machine from the Virtual Appliance VM 4-6
- Creating a Virtual Machine by Using the Create Virtual Machine Wizard 4-7
- Creating a Virtual Machine from an Existing VM Template 4-8
- Virtual Machine Configuration 4-10

- Virtual Machine Networks 4-11
- Virtual Machine Disks 4-12
- Associating the VNIC to a Virtual Machine Network 4-13
- Quiz 4-14
- Virtual Machine Life Cycle 4-15
- Starting and Accessing the Virtual Machine 4-17
- Virtual Machine Controls: Starting and Connecting to the Console 4-18
- Initializing the Virtual Machine from ISO 4-19
- First-Boot Configuration 4-20
- Connecting to a VM Console 4-21
- Suspending and Resuming a Virtual Machine 4-22
- Stopping, Restarting, and Killing a Virtual Machine 4-23
- Displaying Details About a Virtual Machine 4-24
- Quiz 4-25
- Logging In to the Oracle VM Command-Line Interface 4-26
- Listing Virtual Machines with the CLI 4-27
- Showing a Virtual Machine with the CLI 4-28
- Starting a Virtual Machine with the CLI 4-29
- Suspending and Resuming a Virtual Machine 4-30
- Killing a Virtual Machine 4-31
- Quiz 4-32
- Summary 4-33
- Practice 4: Overview 4-34

5 Managing Oracle VM Networks and Storage

- Objectives 5-2
- Oracle VM Networking 5-3
- Oracle VM Network Functions 5-4
- Preconfigured Oracle VM Networks 5-6
- Quiz 5-7
- Oracle VM VLAN Terminology 5-8
- Creating Networks with VLAN Support 5-9
- Creating VLAN Interfaces 5-10
- Creating a Network with a VLAN Interface 5-11
- Displaying VLAN Interfaces 5-12
- Configuring VLAN Interfaces 5-13
- Creating VLAN Interfaces 5-14
- Selecting Ports 5-15
- Selecting VLAN IDs 5-16
- Configuring IP Addresses (Optional) 5-17
- Create a Network 5-18
- Create Network Wizard 5-19
- Creating a Network 5-20
- Selecting VLAN Interfaces 5-21
- Completing the New Network 5-23

- Creating a Network from VLAN Interfaces 5-24
- Displaying BondPort on an Oracle VM Server 5-25
- Using the Virtual NICs Tool 5-26
- Listing and Displaying VNICs 5-27
- Creating a VNIC 5-28
- Quiz 5-29
- Storage Functions 5-30
- Oracle VM Storage Management 5-31
- Server Pools and Repositories 5-32
- Storage Repositories 5-33
- Repository Content 5-34
- Creating Storage Repositories on External Storage 5-36
- Presenting Servers to Rack1_Repository 5-38
- Obtaining Information About a Repository 5-39
- Managing Repositories 5-41
- Adding Resources to Repositories 5-44
- Managing Virtual Disks in Repositories 5-46
- Listing Repositories with the CLI 5-47
- Showing a Repository with the CLI: Part 1 of Output 5-48
- Showing a Repository with the CLI: Part 2 of Output 5-49
- Importing and Deleting a Virtual Appliance 5-50
- Cloning a Virtual Disk 5-51
- Cloning a Virtual Disk to Another Repository 5-52
- Cloning a Virtual Disk 5-54
- Quiz 5-56
- Summary 5-57
- Practice 5: Overview 5-58

6 Creating and Packaging Virtual Machines

- Objectives 6-2
- Introduction 6-3
- Virtual Machine Terminology 6-4
- Guest Types in the Private Cloud Appliance 6-7
- Logical View of a Virtual Machine 6-9
- Physical View of a Virtual Machine 6-10
- Review: Disk Storage for Virtual Machines 6-11
- Virtual Disks in the Rack1-Repository 6-12
- Virtual Machine Networking 6-13
- Using the VNIC Manager 6-14
- Quiz 6-15
- Steps to Create a Virtual Machine 6-16
- Creating a Virtual Machine 6-18
- Creating a New Virtual Machine 6-19
- Virtual Machine Parameters 6-20
- Adding VNICs 6-25

- Specifying and Ordering Disks 6-26
- Boot Options 6-27
- Created Virtual Machine 6-28
- Editing a Virtual Machine 6-29
- Quiz 6-31
- Creating a Virtual Machine with the CLI 6-32
- Creating a Virtual Disk with the CLI 6-33
- Mapping Storage Devices with the CLI 6-34
- Showing the Virtual Machine 6-35
- Quiz 6-36
- Using Kickstart to Create Virtual Machines 6-37
- Creating Virtual Machines from Templates and Virtual Appliances 6-39
- Creating New Virtual Machines with Cloning 6-41
- Cloning a Virtual Machine 6-43
- Simple Virtual Machine Clone 6-44
- Advanced Cloning 6-46
- Clone Customizer Disk Mappings to Repositories, Physical Disks, and Storage Arrays 6-47
- Creating a Clone Customizer 6-49
- Creating a Virtual Machine with Advanced Cloning 6-53
- Cloning with the CLI 6-55
- Migrating a Virtual Machine 6-56
- Displaying Selected Events, Deleting a Virtual Machine 6-57
- Quiz 6-58
- Oracle VM Guest Additions 6-59
- First-Boot Configuration Interactions 6-60
- Installing Oracle VM Guest Additions 6-61
- Using the Oracle VM Guest Additions Daemon and Template-Driven Configuration 6-62
- Initial Settings for the Configuration Scripts and Targets 6-63
- Using Enumerate with Configuration Scripts 6-64
- First-Boot Configuration: Before the First Boot 6-65
- Using the ovmd Command to Unconfigure a Virtual Machine 6-66
- First-Boot Configuration: First-Boot Processing 6-67
- Quiz 6-68
- Summary 6-69
- Practice 6: Overview 6-70

7 Appliance Rack Management

- Objectives 7-2
- From Virtualization Infrastructure to Appliance Management 7-3
- Appliance Dashboard Web Interface 7-4
- Appliance Hardware View 7-5
- Displaying Rack Layout 7-7
- Displaying Appliance Software Version 7-8

- Appliance Network Settings 7-9
- Appliance System Properties: Proxies, Logging, and Time Zone 7-10
- Displaying and Setting System Properties 7-11
- Locking and Unlocking Management Features 7-13
- Locking Rack Management Features 7-14
- Diagnosing the Rack Components 7-15
- Quiz 7-18
- Appliance Network Settings 7-19
- Appliance Command Line Interface 7-22
- CLI Modes 7-23
- CLI Help for All Commands 7-24
- CLI Help by Command 7-25
- Tab Auto-Completion 7-26
- CLI Output Options 7-27
- CLI JSON Output 7-28
- CLI Sorted Output 7-29
- CLI Filtered Output 7-30
- CLI Pagination Options 7-31
- CLI File Options 7-32
- CLI Confirmation and Forcing Options 7-33
- CLI Task Management 7-34
- Displaying Tasks 7-35
- Deleting Tasks 7-37
- Oracle Private Cloud Appliance Software Upgrade 7-38
- Preparing to Upgrade 7-39
- Running the Upgrade 7-40
- During and After an Upgrade Process 7-41
- Compute Node Upgrade 7-42
- Quiz 7-43
- Summary 7-44
- Practice 7: Overview 7-45

8 Appliance Server Management

- Objectives 8-2
- Appliance Servers: Management and Compute Nodes 8-3
- Node Management Tasks 8-4
- Displaying Management Nodes in the Rack 8-5
- Displaying Compute Nodes in the Rack 8-6
- Displaying Compute Node Details 8-7
- Comparing Compute Node CLI and Hardware Views 8-8
- Stopping and Starting a Compute Node 8-9
- Tenant Groups 8-10
- Creating and Configuring a Tenant Group 8-11
- Storage for a Tenant Group 8-14
- Deconfiguring and Deleting a Tenant Group 8-15

- Deprovision and Reprovision a Compute Node 8-17
- Reprovisioning a Compute Node 8-18
- Quiz 8-19
- Summary 8-20
- Practice 8: Overview 8-21

9 Appliance Network Management

- Objectives 9-2
- Appliance Switches: Spine and Leaf 9-3
- Appliance Ethernet Spine and Leaf Switch Configuration 9-4
- Spine Switch Port Configurations 9-5
- Displaying All Appliance Networks 9-6
- Showing an Appliance Network 9-7
- Listing Network Switches 9-8
- Displaying Management Switch Ports 9-9
- Displaying Network Ports 9-10
- Listing Uplink Ports 9-11
- Creating and Displaying an Uplink Port Group 9-12
- Deleting Uplink Port Groups 9-13
- Quiz 9-14
- Creating a Custom Ethernet-based Network 9-15
- Types of Appliance Custom Networks 9-16
- Creating a Custom Ethernet-Based Network 9-18
- Creating and Adding a Network to a Compute Node 9-19
- Removing a Compute Node and Deleting the Network 9-20
- Diagnosing Leaf Switches 9-21
- Diagnosing Leaf Switch Resources 9-22
- Diagnosing Link Status 9-23
- Diagnosing Spine Switches 9-24
- Diagnosing Spine Switch Resources 9-25
- Diagnosing Uplink Port Statistics 9-26
- Managing Switch Log Content 9-27
- Quiz 9-28
- Summary 9-29
- Practice 9: Overview 9-30

10 Appliance Storage Management

- Objectives 10-2
- Appliance Storage: Oracle ZFS Storage Appliance ZS7-2 10-3
- Configuring Additional Storage Capacity 10-4
- Summary 10-5
- Practice 10: Overview 10-6

11 Appliance Password Management

- Objectives 11-2
- Updating Appliance Component Passwords 11-4
- Additional Principles for Security and Access Management 11-5
- Quiz 11-6
- Summary 11-7
- Practice 11: Overview 11-8

12 Appliance and Oracle VM Backup

- Objectives 12-2
- Appliance Internal and External Storage Components 12-3
- Management and Compute Node Storage 12-4
- Backup Processes for the Private Cloud Appliance 12-5
- About Appliance Internal Backup 12-6
- Oracle VM Management Environment 12-7
- Appliance Internal Backup Execution 12-8
- Appliance Internal Backup Export and Restore 12-9
- Quiz 12-10
- Oracle VM Repositories and Virtual Machines 12-11
- Virtual Machine Backup Considerations 12-13
- Virtual Machine Cloning 12-14
- Repository Export 12-15
- Creating a Repository Export 12-16
- Quiz 12-21
- ZS7-2 Storage Appliance Snapshot 12-22
- Your Backup Planning 12-23
- Quiz 12-26
- Summary 12-27
- Practice 12: Overview 12-28

13 Appliance Disaster Recovery

- Objectives 13-2
- Disaster Recovery 13-3
- Site Terminology and Transitions 13-4
- Site Guard Operation Plans 13-6
- Enterprise Manager 13-7
- Generalized Disaster Recovery Configuration 13-8
- Oracle VM Virtual Machine Failover 13-9
- VM Deployment Architecture for Guest Failover 13-10
- Application Failover 13-11
- VM Deployment Architecture for Application Failover 13-13
- Quiz 13-14
- Unrestricted Transitions 13-15
- Site-to-Site Transitions 13-16
- Oracle Private Cloud Appliance and Oracle VM Platforms 13-18
- Storage Replication Supplemented with Tape Backup 13-19

- Transition and Recovery Considerations 13-20
- My Oracle Support Document 1959182.1 13-22
- Disaster Recovery White Papers 13-23
- Quiz 13-24
- Summary 13-25
- Practice 13: Overview 13-26

14 Tenant Groups and Partitioning

- Objectives 14-2
- What Is a Tenant Group? 14-3
- Supporting Tenant Groups 14-4
- Why Create a Tenant Group? 14-5
- General Steps for Implementing a Tenant Group 14-6
- Ensuring Adequate Network and Storage Resources 14-7
- Tenant Group Prechecks 14-8
- Migrating or Moving VMs from Oracle VM Servers 14-9
- Removing from Repository 14-10
- Removing from Networks 14-11
- Creating the Tenant Group 14-12
- Adding Servers to the Tenant Group 14-13
- Showing the Tenant Group 14-14
- Configuring a Dedicated Network for VMs of the Tenant Group 14-15
- Creating a Repository for the Tenant Group 14-16
- Quiz 14-18
- What Is Partitioning? 14-19
- Other Partitioning in the Oracle Private Cloud Appliance 14-20
- Oracle VM Hard Partitioning 14-21
- Trusted Partitioning: Private Cloud Appliance 14-22
- Quiz 14-23
- Summary 14-24
- Practice 14: Overview 14-25

15 Capacity Planning and Management

- Objectives 15-2
- Importance of Capacity Planning and Management 15-3
- The Application as a Deployable Unit 15-4
- VM Guest Sizing Considerations 15-5
- VM Sizing for Application Needs and Requirements 15-6
- Monitoring VM Performance and Utilization 15-7
- Oracle VM Server Maximums 15-9
- Sizing and VM Layout 15-10
- Virtual Machine Maximums 15-11
- Tenant Group Considerations 15-12
- Compute Node and Tenant Group Maximums 15-13
- Memory Capacity 15-14

- Configuration Options for HA 15-15
- Quiz 15-16
- Network Planning 15-17
- Network Maximums 15-18
- Storage Capacity Planning 15-19
- Storage Capacity Planning by Application Needs 15-20
- Storage Maximums 15-21
- Quiz 15-22
- Summary 15-23
- Practice 15: Overview 15-24